



FINAL REPORT

THE
CADMUS
GROUP, INC.

2010-2012 PG&E and SCE Multifamily Energy Efficiency Rebate Program (MFEER) Process Evaluation and Market Characterization Study

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Prepared by:

The Cadmus Group, Inc.
Energy Services Division
720 SW Washington Street, Suite 400
Portland, OR 97205
503.467.7100

Prepared for:

Pacific Gas & Electric Company
and
Southern California Edison

Prepared by:
Eric Rambo, Ph.D.
Linda Dethman, M.A.

720 SW Washington Street
Suite 400
Portland, OR
Tel: 503.467.7100
Fax: 503.228.3696

An Employee-Owned Company
www.cadmusgroup.com

Corporate Headquarters:
100 Fifth Avenue, Suite 100
Waltham, MA 02451
Tel: 617.673.7000
Fax: 617.673.7001

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EXECUTIVE SUMMARY

This report presents the results of a market assessment and process evaluation that Cadmus conducted for PG&E and SCE of the 2010-2012 program cycle of the Multifamily Energy Efficiency Rebate (MFEER) program. MFEER offers incentives to property owners and managers of multifamily buildings when they install energy efficiency improvements in common areas and tenant units. Contractors, working with the utilities, promote and deliver the program directly to the target audience.

The research examines the characteristics of the multifamily market in California and assesses the current operation of the program in its ability to serve that market. It combined quantitative and qualitative data, including the following:¹

- A literature review, use of census and RASS data, and a review of program materials
- 6 focus groups with 53 building owners and managers
- 16 interviews with program staff and contractors
- Interviews with 9 of California's largest multifamily property owners
- A survey of 210 SCE and 210 PG&E program participants
- A general population survey of 360 multifamily owners and managers

SCE and PG&E sponsored this research to inform them about the multifamily market and to reveal how program might be improved to capture greater market penetration, energy savings, and customer satisfaction.

Key Insights about the California Multifamily Market

Market size and savings are substantial in the multifamily market:

- Many households live in multifamily buildings in PG&E and SCE service territories. Based on 2009 statistics, about 26% of PG&E's residential households (1.03 million) lived in multifamily buildings of two or more units, while the proportion was slightly higher in SCE's territory – about 31% of households (960,000). About three-quarters of multifamily households pay rent to a landlord; non-rent paying condominiums account for most of the remaining households.
- Annual energy consumption in the multifamily sector is also significant – approximately 3,929 GWh for PG&E and 4,093 GWh for SCE, not including energy use in common areas. This level of use suggests strong energy savings potential in this sector.

Other key insights about the multifamily market include the following:

- Over 90% of renters pay their own electric bill, showing the potential magnitude of the 'split-incentive' barrier in this market, where most owners investing in energy efficiency improvements for their tenants will receive little return on their investment.

¹ Resources and methods are documented in the body of the report.

- Across the two utility service areas, about one-half of multifamily units are housed in less than 12% of the buildings. This and other findings suggest it may be efficient to target larger property owners. Larger properties also offer larger common area savings.
 - Big property owners, however, want and expect personal attention. Meeting this expectation would require assigning an account executive to handle these customers, which would require a financial investment on the part of the utilities.
- Many multifamily buildings are older: 60% to 65% were constructed before 1980. The multifamily building stock in PG&E's territory is slightly older compared to SCE. This statistic underscores the strong savings potential that is likely available in this sector. Programs must be designed to address the split incentive barrier, however: owners and managers pay the cost for energy efficiency upgrades but tenants reap the benefits in the form of reduced energy costs.
- Multifamily business structures are hugely diverse, ranging from 'mom and pop' ownership, to non-profits, to large corporations.
- Over two-thirds of owners of multifamily properties say they are sole decision-makers when it comes to purchasing new equipment. Most property managers (62%), on the other hand, say they have to consult with others to make such purchases. These findings emphasize how important it is to directly involve the property owners in energy efficiency upgrade decisions.
- Building types are also diverse, ranging from small duplexes to thousand-unit campuses, and from subsidized housing to luxury homes.
- Tenant socioeconomic status may influence owner priorities, suggesting the need to tailor marketing to tenant income strata:
 - Owners with low-income tenants are most concerned about safety, protecting and growing their investments, and may be green oriented.
 - Owners who rent to middle-class tenants want to keep problems and turnover low, and be able to increase their rents.
 - Owners with high-rent tenants focus on return on investment and the appeal of the property and its amenities to prospective tenants.
- Property owners and manager priorities may also vary, with owners more focused on benefits to them and ROI, and property managers likely to be more interested in aesthetics, low maintenance, and few complaints.
- Most landlords want to 'keep their tenants happy.' This phrase can take on a variety of meanings, including the desire to have low turnover and few complaints, have responsible tenants that keep up their apartments and pay their rents on time, and fostering a safe and healthy environment.
- All landlords feel the brunt of rising utility costs, with water costs often being a more prominent concern than energy costs.

- The Awareness – Knowledge – Attitude – Behavior (akAB) battery results for the general population survey of multifamily decision-makers suggested that four variables may be important pre-cursors to decision-makers taking energy efficiency actions, all of which could be influenced by program activities:
 - Being aware of energy efficiency
 - Having actively sought information about energy efficient options
 - Feeling responsible for saving energy
 - Having a company policy related to energy efficiency

Key Insights about the Current MFEER Program

In terms of efficiently serving the market, both PG&E's and SCE's MFEER programs are on the right track: the portion of larger buildings in the participant portfolio is large than it is in the population of buildings. Still, the participant survey results and interviews with large property owners suggest that more could be done to target the large property sub-sector of the multifamily market.

In the 2006-2008 process evaluation raised concerns about the predominance of lighting in the mixture of measures installed by the program; this predominance remains in the current cycle.

- At SCE, MFEER continued to be almost exclusively a lighting program, with almost 100% of measures and savings derived from lighting. This is largely due to the confluence of two factors: that no-cost lighting for participants outstripped the appeal for more costly and complex measures and that the small group of qualified program vendors are all lighting contractors.
- PG&E installed a broader array of measures through MFEER, with nearly 36% of measures non-lighting. Nevertheless, only one measure category was installed at three-quarters of the sites, and where two measure categories were installed, the majority were lighting and domestic hot water measures. Higher cost measures such as insulation and HVAC make up only a tiny fraction of measures installed.

Participants are satisfied with the current program. They rated the program overall, as well as utility staff and contractor performance, highly. Almost one-half (48%) of PG&E participants and 59% of SCE participants said they were “extremely satisfied” with the program.

- The proportion of extremely satisfied participants in the SCE program climbed from 41% in 2008 to 59% in 2011, underscoring the success of program changes.

When asked how they heard about MFEER, many sources of program notification emerged, suggesting the importance of marketing the program through many channels.

- Just under one-third of participants within each utility area had heard of MFEER through a utility representative, but many more SCE participants than PG&E participants had heard about the program through a contractor (30% to 15%). SCE's program is designed to be driven by contractors whereas PG&E's program is driven more by media outreach and direct utility contact.%)

- PG&E participants, on the other hand, were much more likely to have found out about the program on the utility website compared to SCE participants (15% to 6%).
- About 25% in both utility programs heard about the program through a variety of word of mouth sources, especially through peer contacts and professional associations. Another 15% said they heard about the program through advertising.

The majority of participants in the program gave high ratings to many possible motivations for participating in the program, with the top three being:

- Saving energy. This phrase can vary in meaning from a hard-headed business rationale to altruistic environmentalism. Still, in a context where most energy costs are borne by tenants, it suggests that an energy-efficiency message can motivate decision-makers to install energy efficient measures and take other actions promoted by the program.
- Demonstrating that properties are well maintained. The equivalency of an energy efficient building to a well maintained building may have some marketing power.
- Reducing tenant utility costs. PG&E's participants gave this substantially lower importance than SCE's participants. Both utilities' program participants rated this to be of higher importance than the general population of property owners and operators.

From 13% to 38% of participants indicated they intended to take a variety of steps that would further increase the energy efficiency of their buildings, including installing the following:

- More efficient lighting (stronger among PG&E participants)
- Higher efficiency appliances in tenant units
- High efficiency HVAC equipment

In addition, about 20% of participants said they intended to market their buildings as energy efficient.

Finally, when asked if they had three types of energy efficiency policies in place, the large majority of participants and general population respondents said they had such policies in place. The three policies were: ensuring the building is operating energy efficiently, considering energy efficiency as part of tenant comfort, and considering energy efficiency when making property improvements.

CONCLUSIONS AND RECOMMENDATIONS

Comprehensiveness

The 2006-2008 process evaluation of SCE's MFEER found that it relied too heavily on lighting measures for savings and was not as comprehensive as it should be. SCE's MFEER continues to be almost exclusively a lighting program focused on CFL fixtures. While PG&E's program is more diversified, lighting measures still make up the majority of installations and savings. Evaluation findings suggest that the both PG&E's and SCE's programs still need to overcome key hurdles if they are to achieve measure diversity and depth of savings.

- Only 41% of respondents were aware of rebates for measures other than the measures they had received through the program.
- Participants who were aware of rebates for other measures said they did not install them due to financial limitations, high up-front costs, and insufficient return on investment (ROI). They also said existing equipment worked and did not need to be replaced.
- In interviews and focus groups with owners and managers, respondents voiced sincere interest in a more comprehensive approach to assessments and projects but were often not able to describe what a comprehensive approach meant. The large concentration of lighting-only contractors makes it more difficult for the program to communicate a clear message of comprehensiveness. Contractor Hurdles
- Contractors said they would like to offer more products. But, when contractors offered suggestions about additional measures to offer, it became apparent that they, like customers, were often unaware of all the rebates available through the program. This problem is, once again, reinforced by the lighting-only offering of many participating contractors.

Recommendations

- Ensure contractors and owners are aware of the full range of program opportunities through targeted marketing and outreach. Encourage active information seeking.
- Widen the qualified contractor pool to include more contractors in other specialties. Support mechanisms to foster marketing and cross-selling skills for all contractors.
- Investigate other measures and incentive structures that might appeal to owners and managers, such as HVAC tune-ups and refrigerators.
- Consider allowing customers to upgrade to better products with equivalent incentives or larger co-payments. Consider allowing contractors to propose new or custom measures.
- Establish quality assurance procedures to ensure convenient and timely program delivery for owners and tenants. Market program convenience and timeliness once established.
- Conduct demonstration projects and create positive case studies and word of mouth to illustrate the benefits of the new program design.

- Work with larger property owners to establish company-wide policies at their corporations for energy efficiency.

Product Selection and Quality

Price/Quality Squeeze

To address quality problems uncovered in the previous evaluation cycle with both the products and installation offered through MFEER, both utilities took corrective actions. However, as the cost of lighting measures has increased, contractors say they face a cost/quality squeeze. As contractors see it, higher prices have pushed or led them toward fewer and lower cost and lower-quality choices of lighting fixtures. They are concerned that low-quality measures are likely to undermine the successful work that has been done to improve customer satisfaction. From the utilities' view, the cost/quality squeeze is a byproduct of a business model the contractors have adopted and its avoidance is within their own control. Program managers note that promotion of lighting retrofits at no cost to property operators is easier than a proposition that requires customers to contribute to the costs, so contractors have taken this approach. However, the effect of the Energy Independence and Security Act (EISA) raising baseline efficiency and thus reducing energy savings provides less room for cost-effectively increasing incentives—in effect, a benefit/cost squeeze.

Whether a sales model can be developed that retains product quality through customer contributions and, simultaneously continues the volume or participation the programs have achieved, is unknown at this time.

Recommendations

- Continue to emphasize quality throughout the program, but especially for product quality, given its demonstrated ripple effects on program reputation. Quality needs to be a priority in the trade-offs made among incentive levels, product quality, and the measure/product mix.
- Re-evaluate incentive levels annually to ensure they achieve optimal cost-effectiveness, contractor profitability, and customer uptake. .

Decision Making

MFEER serves a complex and challenging market. Along with the variety of property sizes and company sizes comes complexity in company structure and decision making. Cadmus' research indicates that promoting program offerings to customers needs to consider a variety of variables including the customers' company size, decision-making structure, and approach to return on investment.

Recommendations

- Customize the engagement model based on the size and understanding of the customer. For big companies and big properties, MFEER should take both a top-down and bottom-up approach to outreach. The idea is that messages from both directions will reinforce one another and broaden the level of buy-in. Big operators are also likely to be more

responsive when they receive personal attention from utility personnel. For smaller entities, the current bottom-up outreach approach appears to be working reasonably well.

- In approaching operators of all sizes, lead the conversation to ROI, but help to broaden thinking about the indirect returns accruing to tenant satisfaction.

Marketing and Operations

Contractors say they are generally pleased with the operation of MFEER. They noted that most property owners give them positive feedback about the program, that the new program structure is clearer to customers, and the program uses more consistent marketing and messaging.

Recommendations

While contractors like the program, they offered the following recommendations to improve the program.

- Provide additional marketing tools and support. Provide an easy way for contractors to access marketing collateral and allow them to use their own logo for contractor materials.
- Provide more help targeting customers. To the extent possible, contractors would like to obtain intelligence on the attributes of specific multifamily customers to help them target their outreach.
- Continue to help with overcoming past reputation problems by ensuring product and contractor quality, streamlining reservation and application submittal processes and communicating better with contractors about inspections of installed measures.

INTRODUCTION

Prior to 2002, California's Residential Contractor Program provided energy efficiency services for both the single family and multifamily sectors. In 2002, to address the special barriers to participation in the multifamily sector, California utilities created the Multifamily Energy Efficient Rebates (MFEER) program.

Based upon our literature review and interviews with utility staff and customers, the barriers to improved energy efficiency in this sector are significant and varied. Probably the most well-known is the *split-incentive barrier*: property owners pay for energy-efficiency upgrades but tenants, if they are paying for the utilities, reap the benefit in lower energy costs. Other key barriers include the need for programs to influence both business audiences (property owners) and residential audiences (tenants), the need to serve a hugely diverse market in terms of building size, type, type of tenant, setting, and decision-making patterns, and the inconveniences associated with installing efficient equipment, especially in tenant units.

This report presents the findings of a process evaluation that Cadmus conducted for PG&E and SCE of the 2010-2012 program cycle of MFEER. The goals of the research were to provide information that can be used improve the design of the program, to achieve greater savings, and to increase customer satisfaction with the offering. In particular, we addressed the following questions that emerged from the 2006-2008 program cycle evaluation of SCE's program.²

- To what degree is MFEER installing a diversity of efficiency measures?
- To what degree is MFEER providing high-quality products and contractor services?
- How well is MFEER attracting a diverse set of property owners and qualified contractors?
- How satisfied are participating property owners and contractors?
- How similar are the awareness, knowledge, attitude and behavior characteristics of program participants to the general population of property owners and managers?
- How well has the program responded to previous evaluation findings to improve the quality of its program outcomes?
- In addition, this study was asked to assess more general characteristics of the multifamily market including:
 - What is the size of the market?
 - Who makes decisions?
 - How are decisions made?

In the following sections, we describe MFEER and how it operates at each of the utilities and give an overview of our evaluation activities, which included a market characterization, a

² KEMA. 2009. "Process Evaluation of Southern California Edison's 2006-2008 Multifamily Energy Efficiency Rebate (MFEER) Program." Report ID: SCE0279.

process evaluation, and a general population survey of property owners and managers. In subsequent chapters, we describe the multifamily market, provide detailed information about program performance, draw conclusions about the challenges the program faces, and recommend approaches to overcoming those challenges.

Program Description

The MFEER program provides incentives for high-efficiency energy measures to multifamily building managers and owners.³ Measures are installed in tenant units and in common areas. Multifamily properties of two or more units qualify for participation, as do the common areas of condominiums. The program is promoted through private contractors who generally take the lead in approaching building owners and operators with the program offering. Additional program promotion is conducted through other means, such as mass media and utility outreach. In particular, beginning in 2010 year SCE made an effort to increase its utility outreach efforts.

SCE

Based upon our program database review, the measures most commonly installed through the SCE program are ENERGY STAR compact-fluorescent lamp (CFL) light fixtures and linear fluorescents. While building envelope and HVAC measures are available through the program, a series of changes during this program cycle that were designed to improve contractor performance had the effect that uptake of these measures was all but eliminated.

As reported in previous evaluations, the MFEER program had encountered significant problems with a much larger contractor pool, including low-quality measures and measure installation, and even unscrupulous behavior. Because few controls had been placed on which contractors could promote the program and use its incentives to offset energy-efficiency improvement costs, SCE had little control over measures installed or workmanship quality. In several instances, poor-quality measures were installed, and contractors did not honor warranties. In some cases, the contractor simply disappeared. As a consequence, the program experienced low customer satisfaction and acquired a negative reputation.

In 2011, SCE redesigned the program to address market and contractor issues. It shifted from prescriptive rebates for lighting to a no-cost-to-the-customer delivery structure, addressing barriers associated with building owners' reluctance to invest in tenant improvements. To address quality concerns, SCE issued a competitive RFP to all previously participating contractors, and selected seven contractors with performance records sufficiently positive to represent the program. These contractors were required to enter into a contract, which specifies qualified measures specifications, and which fixes measure reimbursement rates. In this way, SCE sought to control costs and the quality of measures installed. All seven contractors who qualified for the program were lighting contractors.

³ This description of MFEER is based upon a review of background documents, program databases, and interviews with program staff and contractors implementing the program.

According to results in this evaluation, the program now has high satisfaction ratings. However, the no-cost-to-the customer lighting and qualifying only lighting contractors resulted in customers rarely choosing to install measures other than high efficiency lighting.

PG&E

PGE's MFEER program provides high-efficiency lighting, appliances, boilers and water heating, HVAC, and pool filtration pumps and motors to multifamily building managers and owners. The program is not designed to offer no-cost measures but rather is intended to offset the cost of installation. However, utility lighting incentives have been set at a rate that allows many contractors to offer lighting measures at no cost, entirely covering the cost of installation through measure rebates.

Previous evaluation reports and PG&E staff reported that their program also has had its own experience with low quality contractors. In an attempt to improve quality, PG&E reduced the incentive level for measures with the expectation that higher quality contractors could develop an effective implementation model on the strength of their own offering and lower quality contractors would no longer perceive the program as a source of easy revenues. The lower incentives have had the effect of reducing the number of participating contractors and results from this evaluation show that satisfaction with the program is high. While the incentive structure has made lighting the most attractive measure, the program has not eliminated other offerings, which make up approximately 20% of the total number of measures installed.

Evaluation Activities

The evaluation of MFEER comprised three parts: a market characterization study, a process evaluation conducted with key stakeholders, and a general population survey of multifamily property owners and operators. As part of this research we conducted seven different primary data collection activities. These are indicated in Table 1.

Table 1. Primary Data Collection and Sample Sizes

| Research Activity | Sample Size |
|--|-------------|
| Interviews of Program Managers | 3 |
| Interviews of Participating Contractors | 13 |
| Focus Groups with Property Owners and Managers | 53 |
| Interviews of Large Company Executives | 9 |
| Survey of PG&E MFEER Participants | 105 |
| Survey of SCE MFEER Participants | 105 |
| Survey of General Population of Property Owners Managers | 360 |

Part 1. Rental Property and Contractor Market Characterization Study

Cadmus undertook a series of research activities designed to characterize the current multifamily rental property market. Along with the size and other general characteristics of the market, the investor-owned utilities (IOUs) wanted to understand whether different market sectors—especially related to the socioeconomic characteristics of tenants—have different decision-making criteria for investments in energy-efficiency upgrades to buildings and equipment. In addition, they wanted to know whether different organizational size and structure characteristics affect how decisions are made. They also wanted to understand how property owners and

managers identify and qualify contractors who serve their energy-related needs. Finally, the IOUs wanted to know whether systematic differences exist across the rental property market sectors in owners' and operators' awareness, knowledge, attitude, and behavior, with respect to energy efficiency and conservation.

Research Activity 1: Review of Secondary Research and Prior Evaluation Studies

For the market characterization study of property owners/managers and the rental property market, we reviewed all available secondary research and prior evaluation studies going back to 1990. We looked for studies of the size and structure of the market in California and in the IOUs' territories, as well as studies of programs nationwide about the decision-making process and barriers to participation in similar programs.

Research Activity 2: Analysis of Data Sources related to the Rental Market in the IOU Territories

Cadmus consulted published data sources as well as utility and program data to develop an estimate of the size of the market for each utility's customer base. Besides the size of the market, we looked for information about the dwelling types and equipment installed. We consulted the following published data sources:

- The American Housing Survey (U.S. Census Bureau) – Housing characteristics, equipment, socioeconomic characteristics
- The American Community Survey (U.S. Census Bureau) – Housing physical and financial characteristics
- The Residential Energy Consumption Survey (Energy Information Agency) – Energy use, installed equipment of dwellings
- The 2009 California Residential Appliance Saturation Survey (RASS)

Research Activity 3: Focus Groups with Rental Property Owners and Managers

Cadmus conducted six focus groups with multifamily building owners and managers to understand decision-making criteria used in different parts of the market. In each IOU's territory, we conducted three focus groups: one each with owners/managers of high-end, middle-income, and low-income multifamily properties.

We worked closely with the IOUs to develop and finalize both the recruitment approach and the discussion guide. The guide focused on the following topics:

- How owners and managers make decisions about shell and equipment upgrades (behaviors related to energy efficiency)
- Energy efficiency as a factor in tenant relations, including attraction and retention
- How the income-level of their tenants affects owners' and managers' decisions about energy efficiency
- How multifamily property managers and owners find and use equipment/shell contractors, including to what degree they are willing to use contractors with whom they have never worked before
- The level of staff turnover among multifamily property management companies

- Awareness, knowledge, and attitudes (AKA) about energy efficiency
- The extent to which the AKA model reflects how multifamily owners and managers make decisions.

We also used the focus group responses to shape development of a general survey instrument for multifamily owners and managers. The detailed findings from this research are reported in Appendix C.

Part 2. MFEER Program Process Evaluation

The process evaluation for the MFEER program focused on analyzing the effectiveness of program design and implementation, including marketing and outreach, actions taken to improve the programs, and a program-specific awareness, knowledge, attitudes, and behaviors (akAB) survey for participants in both programs. Cadmus conducted surveys and interviews with participating contractors.

Research Activity 1: Review of Program Documents, Materials, and Database

Program materials communicate critical information to target audiences and back to the program managers. The objectives of program materials are to inform the market about the program, encourage participation, and collect needed participant information. The process evaluation team examined program material visuals and content for adequacy, clarity, and effectiveness of messaging, and where possible, provided comparisons with other similar program approaches. We conducted a database review of the effectiveness and quality control of data tracking, including frequency, timeliness, and comprehensiveness of data gathered.

In our interviews with program stakeholders and participants, we included questions about program materials. We drew from these sources to provide feedback and recommendations to utilities.

Research Activity 2: Interview Program Management and Implementation Staff

Cadmus conducted structured interviews with MFEER management and implementation staff. Our structured interviews focused on:

- Roles and responsibilities of all program staff
- Program processes and procedures, training opportunities, and progress of educating contractors on program goals, including the effectiveness of the incentive mechanism
- Perceived barriers to program participation and staff approaches for overcoming those barriers
- Description of all program services, educational processes with outputs, and expected outcomes from each activity
- Expected savings opportunities and market effects
- Perceived successes and future challenges
- Data resources, databases, and tracking system processes to secure the needed data
- Documentation for evaluation and key researchable issues for data collection and analysis.

Research Activity 3: Participating Property Owner Survey

Cadmus conducted a telephone survey of customers participating in the program within the past year. The surveys had a sample size 210, large enough to satisfy a 90% confidence level with a +/- 10% error for each of the three socioeconomic market segments, assuming a coefficient of variation of 0.50. In an effort to ensure a distribution of responses for different socioeconomic profiles, we identified properties from ZIP codes with rental rates in the upper, middle, and lower third within each utility's territory.

The survey questions focused on process issues, such as how participants became aware of the program and their program experiences, and on barriers to participation. The surveys also included questions about the participants' decision-making processes and the degree to which program benefits influenced their decision to purchase a measure. We also included akAB items in the survey.

Research Activity 4: Participating Contractor Research

The initial plan for this research had been to survey contractors; however, each IOU had reduced the number of contractors involved in the program to fewer than 20. We thus determined that an interview format was a more appropriate approach. The interviews covered the contractors' program experiences, satisfaction level, and changes they have made to their practices as a result of program education and benefits. The interviews also examined contractor experiences in working with the target market, focusing on market and consumer barriers.

Part 3. General Population Survey for Property Owners and Managers

The IOUs have sponsored development of a standard approach, based on social science theory and results, to measure akAB among different market segments. This research was designed to address program performance reporting for the 2010-2012 cycle required by the California Public Utility Commission. This effort is discussed in a recently published akAB whitepaper.⁴

The IOUs wanted to develop an akAB instrument and evaluate it through a general population survey of multifamily property owners and managers. The goal of this activity was to refine the previous work and to establish a baseline of awareness, knowledge, attitudes, and behaviors for this market. The research was also intended to establish program performance metrics related to akAB.

Cadmus has published a separate report on this research: "2010-2012 PG&E & SCE Multifamily Property Owners & Managers General Population Survey Study." As it pertains to the MFEER process evaluation, however, the general population survey served as a nonparticipant survey from which contrasts with program participants could be drawn, and provided inputs to the market characterization.

⁴ Randazzo, Katherine and Jane Peters. 2012. "Reconsidering What We Measure: A White Paper, Parts I & II."

CHARACTERISTICS OF THE MULTIFAMILY MARKET IN CALIFORNIA

The literature on characteristics of the multifamily market is contained primarily in two sources relevant to DSM program management: program evaluation reports and published government data from surveys and other sources. For the present review, we consider reports of market size—including the number of resident energy end-users, the number of units and properties, the number and size of companies, and the stock of equipment—and we also consider reports about the structure of decision making and awareness and attitudes of decision makers.

Market Size

Number of Persons, Units, and Properties⁵

Much of the promise of the multifamily sector as a source of energy savings and demand reduction comes from the large number of consumers who inhabit it. Using the U.S. Census Bureau's American Community Survey (ACS) Public Use Microdata for 2009, we can estimate the size of the market in the service territory of PG&E and SCE. The ACS data for the two territories represent the result of more than 147,000 surveys administered to multifamily households. Thus, it is an excellent source of detailed information. A limitation, however, is that the geographic resolution of the data—the Public Use Microdata Area (PUMA)—is coarse enough that the borders of the utility territories are not perfectly mapped. The result is that some utility customers are omitted and other non-customers are included.⁶

A second source of information is the 2009 Residential Appliance Saturation Study (RASS).⁷ This large survey of 24,464 individually metered and 1,257 master-metered households included 7,279 PG&E households and 10,408 SCE households. Of these, 1,589 and 2,539 households, respectively, live in multifamily properties. For this survey, we identified households from utility records so there would be no mismatch problem as with the ACS data. However, the sample size is only about 3% of the ACS number, so generalizing to the population and vulnerability of the sample to nonresponse bias is greater.

To estimate the size of the multifamily sector, we consulted both data sources. The ACS data indicate a significantly larger total market than the RASS data: about 54% more properties in the

⁵ Other potential sources are the Electric Power Research Institute's 1996 paper, and Summerford, J., and M. Leshin. 2010

⁶ The Census Bureau divides the nation into Public Use Microdata Areas (PUMAs) that comprise approximately 100,000 residents each. We mapped these onto ZIP codes included within each utility's service territory. The concordance is not perfect, of course, but it allows a finer resolution of population and housing characteristics than many other data sources such as the Department of Energy's Residential Energy Consumption Survey or the Census Bureau's American Housing Survey. Each of these allows analysis of data with the census region as the finest possible resolution. The western census region includes all of California as well as Oregon and Washington.

⁷ KEMA, Inc. 2010. "2009 California Residential Appliance Saturation Study." Prepared for the California Energy Commission, CEC-200-2010-004.

PG&E territory and 81% more in the SCE territory. We cannot determine whether this difference reflects errors in assigning households to utilities for the ACS data or errors in generalizing to the population from the RASS sample. Table 2 shows a comparison of market size derived from the two data sources.

Table 2. Comparison of Multifamily Market Size Estimates from Two Data Sources

| Number of Units per Building | Number of Households | | | |
|---------------------------------|----------------------|----------------|------------------|------------------|
| | RASS | | ACS | |
| | PG&E | SCE | PG&E | SCE |
| Two to Four Units | 368,305 | 302,930 | 535,519 | 430,285 |
| Five or More Units | 664,317 | 657,923 | 1,054,662 | 1,308,769 |
| Total | 1,032,622 | 960,853 | 1,590,181 | 1,739,228 |

In characterizing the market, then, to be conservative we use the RASS numbers for totals but, since the ACS data contain more detail, we use ACS data for percentages. For instance, using RASS data, we can divide multifamily households into only the two categories of property size shown in Table 2. ACS data allow for six different categories of property size.

In PGE's territory, in 2009 at least 1.03 million households were living in multifamily buildings, i.e., buildings with two or more units that are not institutional buildings such as dormitories or prisons. This was about 26% of the total number of households. About 72% of these households (at least 746,000) paid rent. Most of the remainder represented households living in condominiums. The population of people paying rent to live in multifamily dwellings in PGE's territory was at least 1.75 million.⁸

In SCE's territory, at least 960,000 households were living in multifamily buildings—again, buildings with two or more units—in 2009. This was about 31% of the total number of households. Of these households, about 75% (719,000) paid rent, with the remainder primarily being condominium households. The population of people paying rent to live in multifamily dwellings in SCE's territory was approximately 1.88 million.⁹

The RASS estimated household energy consumption using customer billing data. Table 3 shows the estimate for PG&E and SCE customers.

⁸ The population of counties served by PG&E grew by approximately 2.08% between July 1, 2009 and July 1, 2011. See California Department of Finance: <http://www.dof.ca.gov/research/demographic/reports/estimates/e-2/view.php> and US Census Bureau <http://quickfacts.census.gov/qfd/states/06000.html>

⁹ The population of counties served by SCE grew by approximately 1.67% between July 1, 2009 and July 1, 2011. See California Department of Finance: <http://www.dof.ca.gov/research/demographic/reports/estimates/e-2/view.php> and US Census Bureau <http://quickfacts.census.gov/qfd/states/06000.html>

Table 3. Average Annual Household Energy Consumption (kWh)

| Number of Units per Building | PG&E | SCE |
|------------------------------|-------|-------|
| Two to Four Units | 3,973 | 4,580 |
| Five or More Units | 3,711 | 4,112 |

Multiplying these consumption values by the number of households in each category implies annual energy consumption in the multifamily sector of 3,929 GWh for PG&E and 4,093 GWh for SCE. This does not include common-area consumption.

According to ACS data, among rent-paying households in PGE's territory, 8.9% do not pay their own electric bill but have it included in the rent. In SCE's territory, 7.5% of rent-paying households have electricity costs included in their rent.

The ACS provides information about the number of units within buildings people inhabit. This is interesting to the program, in part, because targeting larger properties can generate efficiencies. Table 4 shows the estimated population by building size and utility. These percentages include both rent-paying households and condominiums. More than 50% of the rental population lives in buildings with fewer than 10 units.

Table 4. Rental Property Household Distribution by Property Size and Utility

| Number of Units per Building | Percent of Households | |
|------------------------------|-----------------------|--------|
| | PG&E | SCE |
| 2 Units | 11.68% | 6.68% |
| 3 to 4 Units | 22.00% | 18.06% |
| 5 to 9 Units | 19.89% | 21.22% |
| 10 to 19 Units | 14.99% | 18.18% |
| 20 to 49 Units | 13.12% | 16.05% |
| 50 or More Units | 18.33% | 19.80% |

We can combine the information in Table 4 with the RASS estimate of total households to estimate the number of buildings of each size. Admittedly, the estimate is rough, but it is worth making to obtain an important number. If we take the midpoint of each building size category as the average number of units, and divide that value into the total population living in properties of that size, we can obtain an estimate of the number of properties in that size category. For instance, about 121,000 PG&E households reside in two-unit buildings. We assume, then, that the number of buildings is $121,000 \div 2 \approx 60,500$. For the uppermost category, we estimate the midpoint using regression to model the distribution. A logarithmic regression of the property size midpoints on the cumulative percentage of the total distribution, solved for the value 100%, yields a midpoint estimate of 74 units in PG&E territory and 71 units in SCE territory in the largest property size category. The estimate of the number of properties, by property size, is presented in Table 5. This estimate includes both rental properties and condominiums.

Table 5. Estimated Number of Properties by Building Size and Utility

| Number of Units per Building | Buildings | |
|------------------------------|----------------|----------------|
| | PG&E | SCE |
| 2 Units | 60,305 | 32,092 |
| 3 to 4 Units | 64,908 | 49,580 |
| 5 to 9 Units | 29,341 | 29,128 |
| 10 to 19 Units | 10,675 | 12,047 |
| 20 to 49 Units | 3,927 | 4,470 |
| 50 or More Units | 2,545 | 2,667 |
| Total Properties | 171,702 | 129,984 |

Our estimate, based on RASS totals and ACS percentages, represents 301,686 buildings—a somewhat higher number of buildings than an earlier estimate by a team of evaluators. That team’s estimate was based on a survey of 420 apartment complex owners and managers. That ADM/TecMarket (2000, p. 2-3) study reported a total of only 247,000 buildings in the combined PG&E and SCE territories. The nine years intervening between the two studies probably account for a significant fraction of the difference. We believe the earlier study undercounted small buildings, however. This theory is supported by a number of comparisons between the two estimates.

The RASS/ACS data show a rather different picture of the distribution of building sizes than was presented by the ADM/TecMarket study. That report estimated 42% of units were located in *apartment complexes* of 101 units or larger. ACS data suggest that only one or two percent of units are located in *buildings* of more than 50 units. We cannot easily reconcile this difference, given the different frame of reference between complexes and buildings. The ADM/TecMarket study is clear that an apartment complex can consist of multiple buildings. Indeed, they estimate the average number of buildings in an apartment complex to be 9.5. The ACS survey asks only about buildings in which respondents live, not the larger complex within which the building is located. Given that 73% of SCE-territory multifamily households live in buildings of four or fewer units, it is difficult to reconcile an average complex size of 9.5 buildings—implying about 28 units per complex—and that 50% of households are in complexes of 101 units or larger. Given the undercount of total buildings, one strongly suspects that a bias existed in the ADM/TecMarket study toward counting larger buildings and missing smaller ones.

Another finding in the ADM/TecMarket study casts additional doubt on the comparability of their result with the ACS data. That study reports an average of 10.6 units per building. The ACS data show the median size—the size at which half of buildings are larger and half smaller—is only three units. The mean number of units, which weights larger buildings more heavily than smaller ones, is about 20 units.

We believe the ACS data point to a larger pool of small apartment buildings than identified by the earlier study. This is an important finding, because a view has emerged that large companies control much of the market. If small properties were significantly undercounted, this understanding may need to be reassessed. Small properties may be more difficult for a program to target; they almost certainly require a different approach. And smaller properties are less

likely to have significant common-area energy consumption, especially consumption related to lighting. Nevertheless, obtaining an accurate estimate of the full dimensions of the market is important.

In general, wherever the RASS/ACS data can shed light on market size, we believe the data provide better-quality information than the findings of the ADM/TecMarket study, simply because the sample size is so much larger. Importantly, the ADM/TecMarket study does not report uncertainty around its findings, but, given the large variances in the units owned and in building size, estimating population values from a sample of 420 is problematic. The ACS data are more precise in areas where they can shed light, but the data offer no insight into the critical question of the ownership and management of properties. For this insight, we must turn to other sources.

Buildings and Equipment

The ACS data provide insight into the vintage of buildings in the PG&E and SCE territories. Older buildings typically offer more opportunities for energy savings and demand reductions because they were built to conform to different building codes and because their equipment tends to be of an older, less-efficient vintage. Table 6 shows the distribution of households by the vintage of building and by utility. Between 60% and 65% of households live in buildings constructed before 1980. We note that PG&E has slightly more of the oldest buildings while SCE shows the effect of the building boom of the 1950s and 1960s.

Table 6. Distribution of Multifamily Building Vintage by Utility

| Vintage of Building | Percent of Households | |
|---------------------|-----------------------|-------|
| | PG&E | SCE |
| 1939 or earlier | 13.7% | 7.1% |
| 1940 to 1949 | 4.4% | 5.4% |
| 1950 to 1959 | 8.3% | 11.5% |
| 1960 to 1969 | 14.6% | 18.2% |
| 1970 to 1979 | 22.7% | 23.0% |
| 1980 to 1989 | 17.3% | 18.9% |
| 1990 to 1999 | 10.0% | 9.2% |
| 2000 to 2004 | 6.6% | 4.9% |
| 2005 or later | 2.3% | 1.8% |

Table 7 shows the distribution of apartment size, figured as the number of bedrooms, by utility. Differences between the two utilities are slight.

Table 7. Distribution of Multifamily Apartment Size by Utility

| Number of Bedrooms | Percent of Households | |
|--------------------|-----------------------|--------|
| | PG&E | SCE |
| No bedrooms | 8.31% | 7.15% |
| 1 Bedroom | 36.32% | 37.80% |
| 2 Bedrooms | 44.86% | 46.24% |
| 3 Bedrooms | 8.75% | 7.79% |
| 4 Bedrooms | 1.22% | 0.78% |
| 5 or more bedrooms | 0.52% | 0.25% |

When we cross vintage of the apartment building with the number of bedrooms, we can discern a small but distinct trend toward larger apartments. Table 8 shows a breakout of apartment size by vintage. The highlighted cells show vintages that have a higher-than-average percentage of units of a given size. No-bedroom apartments are more common in pre-1950 vintage buildings than later buildings. One-bedroom apartments are more common in pre-1970 vintage buildings than later buildings—although the tendency is slight. Two-bedroom apartments do not show much variation after 1940, but before that, they were less common. Four-bedroom apartments are almost completely absent in buildings constructed between 1950 and 1990 but make a comeback after 2000. They remain a small part of the total market, however. The two utility regions have a remarkably similar pattern.

Table 8. Distribution of Apartment Sizes by Vintage and by Utility*

| | Bedrooms | Vintage of Building | | | | | | | | | Total |
|-----|---------------------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------|-------|
| | | 2005 or later | 2000 to 2004 | 1990 to 1999 | 1980 to 1989 | 1970 to 1979 | 1960 to 1969 | 1950 to 1959 | 1940 to 1949 | 1939 or earlier | |
| PGE | None | 5.9% | 6.0% | 6.0% | 4.6% | 5.8% | 6.7% | 8.0% | 11.6% | 21.5% | 8.3% |
| | 1 | 30.6% | 36.3% | 34.1% | 32.7% | 35.2% | 37.9% | 40.5% | 41.7% | 39.4% | 36.3% |
| | 2 | 47.5% | 43.7% | 47.7% | 53.1% | 49.3% | 46.2% | 43.2% | 37.9% | 26.9% | 44.9% |
| | 3 | 13.6% | 12.1% | 10.3% | 8.5% | 8.7% | 7.8% | 7.0% | 6.5% | 8.4% | 8.8% |
| | 4 | 2.3% | 1.7% | 1.6% | 0.8% | 0.8% | 1.0% | 0.9% | 1.6% | 2.2% | 1.2% |
| | 5 or More | 0.1% | 0.3% | 0.4% | 0.3% | 0.3% | 0.4% | 0.5% | 0.7% | 1.59% | 0.5% |
| | Households (1,000s) | 37 | 106 | 159 | 275 | 361 | 263 | 132 | 71 | 218 | 1,590 |
| SCE | None | 6.0% | 5.2 | 5.0 | 4.9 | 6.1 | 7.0 | 8.3 | 10.2 | 17.1 | 8.3% |
| | 1 | 33.8 | 36.2 | 33.6 | 32.1 | 36.9 | 39.9 | 42.3 | 45.8 | 44.6 | 37.8 |
| | 2 | 44.9 | 45.0 | 50.2 | 53.1 | 47.9 | 45.8 | 43.5 | 37.5 | 30.1 | 46.2 |
| | 3 | 13.7 | 11.5 | 9.7 | 9.1 | 8.3 | 6.3 | 5.1 | 5.4 | 6.1 | 7.8 |
| | 4 | 1.6 | 1.8 | 1.1 | 0.7 | 0.6 | 0.7 | 0.5 | 0.8 | 0.7 | 0.8 |
| | 5 or More | 0.1 | 0.2 | 0.3 | 0.2 | 0.1 | 0.2 | 0.3 | 0.4 | 0.7 | 0.3 |
| | Households (1,000s) | 32 | 86 | 160 | 328 | 400 | 317 | 199 | 95 | 123 | 1,739 |

* Highlighted cells have values larger than the row total percentage, which is in the left-hand column.

Our estimates of the equipment stock in multifamily housing come primarily from the 2009 RASS. We reviewed lighting, cooling equipment, heating equipment, domestic hot water, and refrigerators.

- **Lighting:** CFLs are present in more than 75% of households in the most heavily used rooms. Penetration is generally higher in PG&E's territory than in SCE's. Penetration in multifamily buildings is not significantly different from that in single family buildings.
- **Cooling:** Only about 40% of units in PG&E's territory have air conditioning of any type. Approximately 70% of units in SCE's territory have air conditioning. Among households with central air conditioning, approximately 50% of units are eight years old or older.
- **Heating:** In both territories, larger buildings are more likely to have electric heating. Among PG&E's customers, 27.5% of households living in buildings with five or more units have electric heat.
- **Water Heating:** About 20% of households have electric water heating. Across all fuels, 40% to 50% of PG&E households and about 33% of SCE households have heaters that are more than seven years old.
- **Refrigerators:** Nearly all households (99.9%) have at least one refrigerator. Three to seven percent of households, depending on segment, have two or more refrigerators. This is a much smaller percentage than among single family buildings, where approximately 35% of households have two or more refrigerators. In the multifamily sector, approximately 35% of primary refrigerators are more than seven years old.

A summary of equipment penetration by utility and building type is presented in Table 9.

Table 9. Equipment Penetration by Utility and Building Type

| Measure | Utility | Building Type | Percent of Segment |
|--|---------|---------------|--------------------|
| No CFLs in Kitchen | PG&E | 2 – 4 Units | 16.00% |
| | | 5+ Units | 16.20% |
| | SCE | 2 – 4 Units | 26.30% |
| | | 5+ Units | 24.70% |
| No CFLs in Family/Living Rooms | PG&E | 2 – 4 Units | 19.70% |
| | | 5+ Units | 26.20% |
| | SCE | 2 – 4 Units | 30.50% |
| | | 5+ Units | 31.30% |
| AC (Any Type) | PG&E | 2 – 4 Units | 41.80% |
| | | 5+ Units | 44.00% |
| | SCE | 2 – 4 Units | 70.20% |
| | | 5+ Units | 68.90% |
| CAC | PG&E | 2 – 4 Units | 27.40% |
| | | 5+ Units | 27.10% |
| | SCE | 2 – 4 Units | 40.30% |
| | | 5+ Units | 37.70% |
| CAC More Than 7 Years Old (Of Households with CAC) | PG&E | 2 – 4 Units | 47.90% |
| | | 5+ Units | 58.10% |
| | SCE | 2 – 4 Units | 43.20% |
| | | 5+ Units | 57.50% |
| Primary Heating Fuel is Electric | PG&E | 2 – 4 Units | 7.10% |
| | | 5+ Units | 27.50% |
| | SCE | 2 – 4 Units | 8.20% |
| | | 5+ Units | 14.70% |
| Water Heater More Than 7 Years Old | PG&E | 2 – 4 Units | 40.40% |
| | | 5+ Units | 52.50% |
| | SCE | 2 – 4 Units | 31.50% |
| | | 5+ Units | 35.80% |
| Standard Tank Electric Hot Water | PG&E | 2 – 4 Units | 18.60% |
| | | 5+ Units | 22.50% |
| | SCE | 2 – 4 Units | 16.10% |
| | | 5+ Units | 23.00% |
| More than One Refrigerator | PG&E | 2 – 4 Units | 5.80% |
| | | 5+ Units | 2.90% |
| | SCE | 2 – 4 Units | 8.50% |
| | | 5+ Units | 6.10% |
| Primary Refrigerator More Than 7 Years Old | PG&E | 2 – 4 Units | 36.60% |
| | | 5+ Units | 36.60% |
| | SCE | 2 – 4 Units | 35.40% |
| | | 5+ Units | 33.30% |

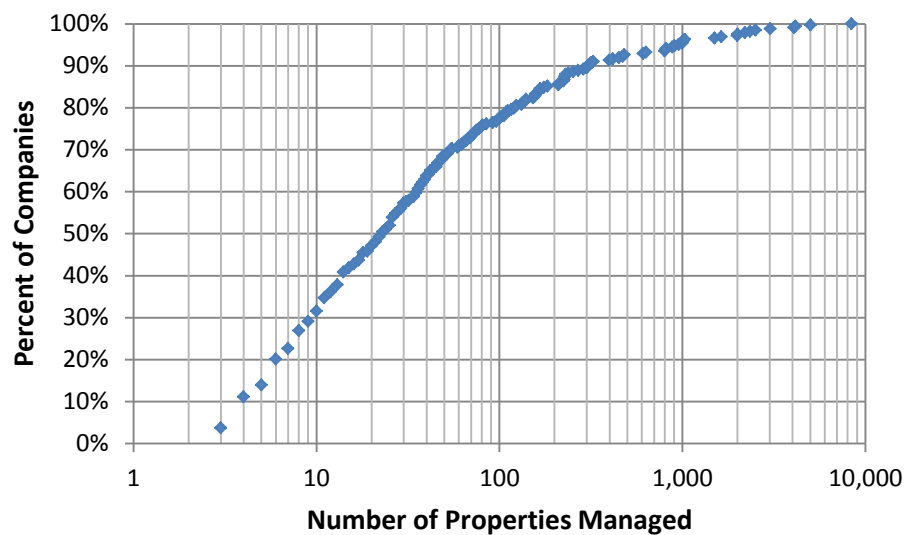
The Structure of Operating Companies

Estimates of the number of entities owning and managing multifamily properties in California are difficult to obtain. Surveys of households, which provide useful information about the number of units within buildings, cannot be used to identify company size because household respondents do not reliably have this information. Oh et al. (2002) report that, nationally, the top 50 multifamily companies own or manage about 2.5 million units. They further estimate that 5% of multifamily rental operators control as much as 75% of the market. Oh et al. describe a California market that is dominated by large companies. Based on the earlier ADM/ TecMarket research—indeed, several authors contributed to both studies—they repeat the view that slightly fewer than half of all units in California are in complexes of 101 units or more. They argue that this points to a large concentration of control by a relatively small number of companies.

The multifamily owner and operator general population survey conducted as part of this research provides some insight into the size of companies operating in PG&E's and SCE's territories. Figure 1 shows the distribution of company size among survey respondents, defined by the total number of units managed. These results should be interpreted with caution, because we suspect a non-response bias that makes it more likely that operators of small and medium-size companies were included than operators of the largest companies.¹⁰ Nevertheless, what we observe in the data is significant concentration of the market in the control of large operators. For instance, the 20% of respondents at the bottom of the size distribution, representing 65 companies, collectively manage 295 units. The next quintile (21% to 40% in terms of size) manages 686 properties. The third and fourth quintiles manage 1,413 and 4,231 units, respectively. The top quintile, representing the largest companies, manages 58,828 units. The top 5% of companies manage 41,838 units. That represents 64% of the total units managed by respondents to the survey.

¹⁰ The match between the general population estimated distribution of building sizes and the ACS estimate is reasonably good. The table below shows the distribution of building sizes for PG&E and SCE from their ACS data beside the estimate from the general population data. This comparison suggests the general population survey may be biased toward mid-sized properties, though the biases are not apparently great. The termination of the categories at 50 or more units leaves open the question of how the data match among the largest buildings.

| | ACS – PG&E | ACS -- SCE | Gen Pop |
|------------------|------------|------------|---------|
| 2 Units | 11.68% | 6.68% | 2.23% |
| 3 to 4 Units | 22.00% | 18.06% | 23.39% |
| 5 to 9 Units | 19.89% | 21.22% | 25.62% |
| 10 to 19 Units | 14.99% | 18.18% | 16.72% |
| 20 to 49 Units | 13.12% | 16.05% | 18.13% |
| 50 or More Units | 18.33% | 19.80% | 13.93% |

Figure 1. Distribution of Company Size among General Population Survey Respondents

Decision Making

Oh et al. identify four market segments among multifamily property operators, representing different, partially overlapping scales of operation and different decision-making structures.

- **Small operators** have fewer than 70 units located in one or more buildings. Typically, these owners have other employment. The owners themselves conduct much of the maintenance. It is unlikely they have on-site personnel to manage buildings. These operators are often strained by the time commitment involved in managing and maintaining their properties on a part-time basis.
- **Mid-sized operators** own or manage as many as 500 to 1,000 units. The owner is likely to be involved full-time in the business. The owner probably hires at least one paid staff person or contracts maintenance to another company. The buildings operated in this segment tend to have more units, likely to be in the range of 20 to 150 units. Toward the upper end of this segment, operators may hire others to manage the properties, creating a hierarchy of decision making related to building maintenance and other decisions.
- **Large operators** own and manage more than 270 units, with an upper range in the tens of thousands of units. The largest firms may operate complexes in several states or even nationwide. Large firms may specialize in high-rise or suburban properties. Large firms may be involved in the development of properties in addition to their operation. Large operators are more vertically structured, with several layers of management. A maintenance manager may oversee one or more properties. Some companies may have technology standards that site managers are required to follow.
- **Large fee property managers** specialize in multifamily property management for a large numbers of owners. In many cases, these companies are structured like the large operators. This type of arrangement adds an additional layer in the hierarchy of

management, however, because capital projects must gain approval of the property owner.

In an effort to gain greater insight into the decision-making process in the market, we asked respondents to the general population survey, “When you want to make improvements in the rental units or to the property itself at the [ADDRESS] location, or when you purchase new equipment at that site, are you usually the only person involved in the decision or are others involved?” Sixty-four percent of respondents said they were autonomous with respect to decision making, i.e., the only person responsible. Of those who said others are involved, 21% said that person was a spouse or other family member. When the respondents were the owners of the property, 74% said they were autonomous. When the respondents were managing the property for other owners, only 38% said they were autonomous. Table 10 shows the percentage of autonomous and non-autonomous decision makers, by the respondents’ relationship to the property, i.e., owner, manager, or both.

Table 10. Decision-Making Autonomy by Relationship to the Property

| Decision-Making Autonomy | Manage | Own | Own and Manage | Percentage Decision-Making Autonomy |
|--|--------|-----|----------------|-------------------------------------|
| Others Involved | 62% | 31% | 26% | 36% |
| Self Only | 38% | 69% | 74% | 64% |
| Percentage Relationship to Property Marginal Total | 23% | 19% | 57% | 100% |

We probed further on the question of decision-making autonomy among those who said others were involved. We asked respondents to name the person who would make the final decision for purchases that cost less than \$1,500, again for purchases that cost more than \$1,500, and again for purchases that cost more than \$10,000. Table 11 shows the results.

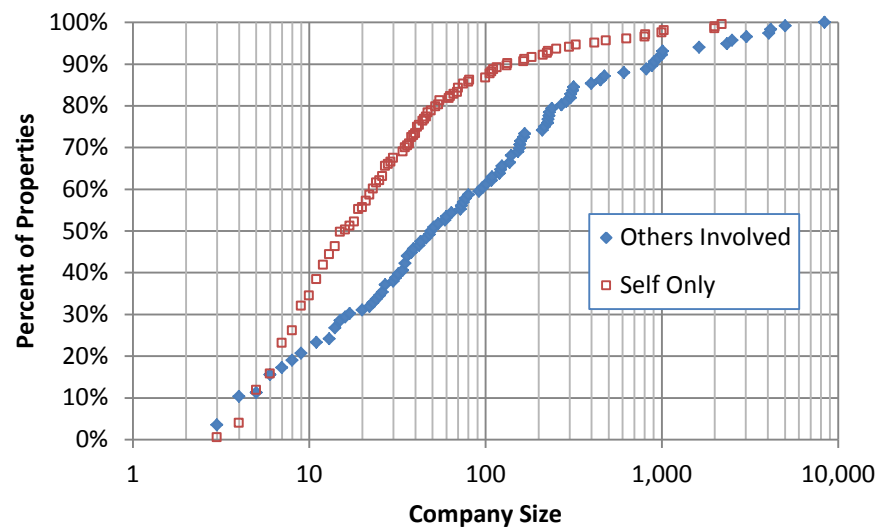
Table 11. Decision-Making Authority at Different Decision Costs

| | < \$1500 | > \$1500 | > \$10,000 |
|-----------------|----------|----------|------------|
| Self Only | 28% | 28% | 24% |
| Self and Others | 13% | 12% | 10% |
| Others Only | 60% | 60% | 66% |

We discerned very little difference at the three price points, with only a small increase in the percentage that said “others only” make the final decision above \$10,000. Interestingly, 24% to 28% of respondents said they were alone in making the *final* decision. These were all respondents who had said others were *involved* in decision-making. Thus, it seems respondents could reasonably make a distinction between involvement and final authority. If we combine this group with the group that responded to the original question that they were the only ones responsible for improvements, the percentage of the total jumps from 64% to 73%. *We interpret this to indicate that the method used to reach decision-makers, contacting the named person on the utility bill, is effective.* We consider this an important finding of the research.

Decision-making autonomy is also related to company size. Respondents working for larger companies were less likely to report they were the only person involved in decisions about property improvements. We note, however, that a few respondents said they were autonomous even when they worked for very large companies. Figure 2 shows the cumulative distribution of company size for respondents who are autonomous and respondents who must involve others in their decisions. Since the “self only” distribution is consistently to the left of the “others involved” distribution, it has fewer properties at every percentile in the distribution. The mean size of a company where the decision maker is autonomous is 88 units; the mean size of a company where others are involved is 396.

Figure 2. Cumulative Distribution of Company Size for Autonomous and Non-Autonomous Decision Makers



We asked respondents to the general population survey who would do the work if a decision was made to install four different efficiency measures. The responses do not vary greatly from one measure to another, though for lighting fixtures the respondents were somewhat more likely to say they would do the work themselves. For shell measures, the respondents were more likely than for other measures to say a contractor with whom they do not have an ongoing relationship would perform the work.

Table 12. Responsibility for Work to Install Efficient Measures

| Party Who Would Perform Work | Lighting Fixtures | AC Equipment | Shell Measures | Water Heater |
|---|-------------------|--------------|----------------|--------------|
| Yourself | 15% | 5% | 8% | 9% |
| An employee of your company other than yourself | 16% | 10% | 9% | 11% |
| A company other than your own with whom you have a contract | 15% | 14% | 10% | 13% |
| A contractor with whom you have an ongoing relationship but no contract | 39% | 49% | 44% | 48% |

| | | | | |
|---|-------------|-------------|-------------|-------------|
| A contractor selected for this work who you do not have an ongoing relationship with | 15% | 22% | 29% | 18% |
| Total | 100% | 100% | 100% | 100% |

If we look at who performs work, disaggregated by the size of the company, we notice interesting differences. Above 75 units, the survey respondent was very unlikely to do the work him- or herself. Roughly equal percentages in this group said company employees, employees of a different company with which they have a management contract, or a contractor with whom they have an ongoing relationship, would perform the work. This last category was much more likely than the other two to be mentioned by companies smaller than 75 units under management. The smallest companies were more likely than others to say they would have work performed by a contractor with whom they do not have an ongoing relationship.

Table 13. Responsibility for Work to Install Lighting Fixtures, by Company Size

| Party Who Would Perform Work | Company Size (Units) | | | |
|---|----------------------|-------------|-------------|-------------|
| | <= 7 | 8 to 25 | 26 to 75 | >75 |
| Yourself | 20% | 18% | 19% | 2% |
| An employee of your company other than yourself | 9% | 11% | 19% | 32% |
| A company other than your own with whom you have a contract | 13% | 9% | 13% | 27% |
| A contractor with whom you have an ongoing relationship but no contract | 37% | 46% | 41% | 29% |
| A contractor selected for this work who you do not have an ongoing relationship with | 21% | 15% | 8% | 11% |
| Total | 100% | 100% | 100% | 100% |

Awareness, Knowledge, Attitudes, and Behavior

As noted above, Part 3 of the current research project was a survey of the general population of property owners and managers. A key goal of this research was to assess the relationship between subjective decision-making factors and objective behaviors. Significantly more detail on this portion of the research is reported under a separate title.¹¹ Here, we want to make the point that the state of these subjective factors—awareness, knowledge, and attitudes—is also a characteristic of the multifamily market.

The conceptual underpinnings of this research have been elaborated upon in Randazzo and Peters (2011). The basic construct is that a set of distinct, structured, and measurable social psychological dispositions lead decision makers toward desired behaviors, such as the adoption of energy-efficiency measures.

¹¹ Cadmus. 2012. “2010-2012 PG&E & SCE Multifamily Property Owners & Managers General Population Survey Study”

1. Developing *awareness* of and *knowledge* about the possibilities for gaining benefit through actions are the first steps in a decision-making process that leads toward those actions.
2. Awareness and knowledge about actions must also be accompanied by positive *attitudes* that dispose a person toward the behavior. Attitudes are of two varieties:
 - a. Concerns, which are motivational attitudes that define what is good to do.
 - b. Attitudes of *responsibility* for doing the behavior oneself rather than expecting someone else to do it.
3. Supported by positive attitudes, the factors of awareness and knowledge lead to the formation of an intention to act. This concept isolates a class of *behaviors* that are not automatic or unconscious; rather, they are deliberative and can be said to be part of a decision-making process.

For the current report, we provide a summary of findings on the individual items that make up indices of awareness, knowledge, and attitudes.

Awareness

We measured awareness as an awareness of state and federal programs that provide information and other assistance related to energy efficiency. Table 14 shows the percentage of respondents to the general population and program participant surveys who were aware of the programs. An asterisk in the table indicates a significant difference between program participants and the general population. Program participants were more aware of ENERGY STAR[®], Flex your Power, and Energy Upgrade California than were the general population survey respondents.

Table 14. Awareness of Energy Efficiency Programs

| Item | Percent "Yes" | |
|---|----------------------|--------------------|
| | Program Participants | General Population |
| <i>Which of the following labels or programs for energy efficiency have you heard of?</i> [Answer: Yes or No] | N=210 | N=360 |
| • ENERGY STAR ^{®*} | 89% | 83% |
| • Flex Your Power [*] | 58% | 46% |
| • ENERGY STAR MOST EFFICIENT | 34% | 34% |
| • Energy Upgrade California [*] | 34% | 27% |
| • Top Ten | 11% | 8% |
| <i>Are you aware that [SCE/PG&E] offers multifamily property owners and managers rebates and incentives for installing high-efficiency equipment and other energy-efficiency upgrades through its Multifamily Energy Efficiency Rebate Program?</i> [Answer: Yes or No] [*] | 100%** | 50% |

* Difference between program participants and general population is statistically significant at 90%/10% two-tailed confidence and precision level.

**Screening question for the participant survey. All respondents were aware.

Knowledge

We measured knowledge indirectly, as the effort to gain knowledge through seeking information about energy efficiency. This was a deviation for the akAB conceptual scheme which we

adopted after initial research with multifamily tenants and single family home owners indicated very low variance with direct knowledge items, hence an inability of those items to discriminate among respondents. Table 15 shows the percentage of survey respondents to the general population and program participant surveys who said they had sought information about energy efficiency. Program participants were more likely to have sought information.

Table 15. Knowledge Seeking With Respect to Energy Efficiency Programs

| Item | Percent "Yes" | |
|--|----------------------|--------------------|
| | Program Participants | General Population |
| Have you ever looked for information or help on how to make your rental property more energy-efficient, such as looking for information on high-efficiency appliances, lighting, or insulation? [Answer: Yes or No]* | N=210 | N=360 |
| | 77% | 66% |

* Difference between program participants and general population is statistically significant at 90%/10% two-tailed confidence and precision level.

Attitudes

We investigated two different types of attitudes: concerns that could motivate a decision maker to invest in energy-efficiency improvements, and the attitude of responsibility for making changes that will improve efficiency.

Table 16 shows the mean value on an 11-point (0 to 10) importance scale where 10 means "very important." One problem with these items is that all were rated highly important, so that the items did not discriminate well among respondents. Nevertheless, we note differences between program participants and the general population in the mean concern score on three of these items: Attracting tenants and increasing the property value, where the general population expressed greater concern, and "saving energy," for which program participants expressed greater concern.

Table 16. Attitudes of Concern Motivating Improvements to Rental Properties

| Item | Mean Score | |
|--|----------------------|--------------------|
| | Program Participants | General Population |
| <i>Using a scale of 0 to 10 where 0 means Not at all Important and 10 means Very Important, how important are these factors in motivating you to make improvements to your property?</i> | N=210 | N=360 |
| • Receiving free lighting or rebates to lower the cost of new equipment | 8.4 | 9.0 |
| • Increasing the value of your property* | 8.2 | 9.0 |
| • Demonstrating your properties are well maintained | 8.7 | 8.9 |
| • Reducing owner operating costs | 8.3 | 8.9 |
| • Retaining tenants and keeping them happy | 8.1 | 8.7 |
| • Making the property safer for the tenants | NA | 8.4 |
| • Doing the right thing for the environment or being greener | 8.7 | 8.3 |
| • Attracting tenants* | 7.4 | 8.2 |
| • Saving energy* | 9.1 | 8.0 |
| • Reducing tenant utility costs | 8.5 | 8.0 |
| • Meeting code requirements | 7.4 | 7.8 |

| Item | Mean Score | |
|---|----------------------|--------------------|
| | Program Participants | General Population |
| <p><i>Using a scale of 0 to 10 where 0 means Not at all Important and 10 means Very Important, how important are these factors in motivating you to make improvements to your property?</i></p> <ul style="list-style-type: none"> • Needing to replace equipment | 7.3 | 7.3 |

* Difference between program participants and general population is statistically significant at 90%/10% two-tailed confidence and precision level.

Table 17 shows the mean value on an 11-point (0 to 10) agreement scale where 10 means “strongly agree” Among respondents to the general population and program participant surveys. On each item, program participants express a greater sense of responsibility than the general population.

Table 17. Attitudes of Responsibility Toward Energy Efficiency

| Item | Mean Score | |
|--|----------------------|--------------------|
| | Program Participants | General Population |
| <p>Finally, please rate how (you, as the owner / the owners of the property) at [SERVICE ADDRESS] view using energy at that property. Using a scale from 0 to 10, where 0 means do not at all agree and 10 means strongly agree, how much do (you / the owners) agree with each of these statements?</p> | N=210 | N=360 |
| <ul style="list-style-type: none"> • Feel a responsibility to decrease the energy use at this property in order to protect the environment.* | 8.1 | 6.8 |
| <ul style="list-style-type: none"> • Feel a responsibility to decrease energy use at this property in order to reduce greenhouse gasses.* | 8.0 | 6.4 |
| <ul style="list-style-type: none"> • Feel a responsibility to decrease energy use at this property in order to reduce energy costs.* | 8.7 | 7.8 |

* Difference between program participants and general population is statistically significant at 90%/10% two-tailed confidence and precision level.

REVIEW OF LITERATURE: DELIVERING ENERGY EFFICIENCY PROGRAMS TO THE MULTIFAMILY SEGMENT

This section presents a review of literature pertaining to multifamily energy efficiency programs. Its purpose is to inform development of California's Multifamily Energy Efficiency Rebate (MFEER) programs for the 2013 to 2015 program cycle. In researching the literature, we reached as far back as 1990. Rather than limiting our search to California, we sought information on programs nationwide.

We allowed the literature to dictate what counts as a multifamily program and were liberal in our understanding of what is a multifamily dwelling. For our purposes, a multifamily dwelling is any building that is not an institutional building such as a dormitory, where two or more households reside. We did not exclude literature that discusses condominiums, although in some respects these are quite different entities from apartments in which the residents pay rent. Property ownership and decision making are critical dimensions of the barriers faced by multifamily programs, and these are in some ways different for condominiums and apartments.

We have divided the literature review into three sections. First, we look at the literature on multifamily market characteristics. To describe the market, we have stepped outside the usual definition of a literature review to include publicly available data. We look at reports on the size of the market, the structure of decision making, and the awareness and attitudes of decision makers. In the second section, we review the literature on market barriers to multifamily DSM programs. In the final section, we review the literature on program efforts to overcome barriers, as well as other ideas for overcoming barriers that may or may not have been implemented to date.

Barriers to Multifamily DSM programs

Market barriers to the success of multifamily programs have been described and documented at regular intervals over the 20-year history of these programs. Astonishingly little has changed in the catalogue of barriers during this time. For instance, the discussion that follows relies heavily on the Energy Center of Wisconsin's (ECW, 2001) "Multifamily Energy Efficiency programs – Secondary Research Report/Nationwide Best Practices Study," which is more than 10 years old, but this review drew heavily from a previous summary, "Improving Energy Efficiency in Apartment Buildings" (DeCicco et al. 1995, 1-11).

The market barrier literature for multifamily DSM programs inevitably begins with the statement that the barriers are numerous and complex, posing considerable challenges for program implementers. These barriers consist of significant technical and informational, legal and regulatory, and economic and institutional obstructions to efficient multifamily programs. Every article that we reviewed on the topic of multifamily programs at least mentioned that there are significant barriers, demonstrating that not only are barriers universal, but that little has changed

over the past two decades to overcome them. (See also Quantum 2004; Vaidya & Haggerty 2009; Kema 2009.)¹²

Economic and Institutional Barriers

The Split-Incentive Problem

The split-incentive problem is the most-often-noted barrier to multifamily programs. The problem is easy to state: tenants are the most likely to bear the cost of electricity and gas consumption and hence are the prime beneficiaries of energy-efficient appliances, lighting, HVAC, shell measures and all other goods promoted by programs; yet the owners or managers bear the cost of installing and maintaining these measures without gaining the benefit of reduced energy costs. Tenants have an incentive to participate in programs but are not decision makers and not eligible participants; owners and operators are decision makers and eligible but have a reduced incentive to participate. This issue is cited as the biggest hurdle for multifamily programs to overcome and is widely discussed in multifamily literature. (See also: Borden & Wirtshafter 2004 and Kema Inc. 2006.)

Recent research by Dyson, Chen and Samiullah (2010) and Kema (2009), however, shows that a consumer's decision-making process is far more complex than a simple payback analysis. As a result of survey research with owners and operators, this research points to statements by decision makers who say that the fact they do not directly benefit from programs is not an important reason for lack of participation. Other incentives are at work for building owners and operators than the tenant's reduced electricity bill. The decision to participate depends on factors such as risk, aesthetics, convenience, and transaction costs.¹³ These authors find that in addition to a pure financial calculus, factual information and utility implementation methods are influential in the decision-making process.

This discussion is an important input to the debate about program design. It points the way toward a more subtle understanding of decision making, but it does not ultimately dispense with the split incentive problem if for no other reason than self-reports of motivation are inherently subject to bias and error. Even if owners and operators are loathe to assert they are unmotivated by the financial well-being of their tenants, one does not easily relinquish the view that direct financial interest is a more pressing matter in the list of priorities faced by decision makers. The costs and benefits, especially in the context of imperfect information about what they are, are different when most of the benefit occurs to another party. The self-reported motivations of decision makers does not radically challenge that view.

Despite this research, the split-incentive problem is still apparent and the desired effect of the offered incentive is not being met. Other factors that diminish the effect of the incentive are short tenant residency (50% of households plan to move within two years of moving in), short ownership tenure, the invasive nature of upgrades, and tenant/landlord relations.

¹² For a detailed look at barriers to multifamily new construction, please see Hepinstall, D., N. Stone, and R. Faesy. 2004.

¹³ For more information about non-monetary marketing strategies, please see Mast, B., and B. Ignelzi. 1994 as well as Schuldt et. al. 1997 and Tachibana, Romberger.2004.

Ownership Priorities

The priorities of owners, it is widely noted in the literature, are quite different from those of tenants. Owners' main priority is the earning of profit, which as a practical matter includes the basic maintenance and upkeep of buildings, filling vacancies, collecting rents, and addressing tenant complaints. Non-cosmetic maintenance is typically completed only upon the failure of a piece of equipment. And owners often tend to replace equipment with lowest cost, ease of purchase, and above all durability as the top determining factors for decision making. Energy efficiency falls low on the list of priorities (ADM/TecMarket 2000; Kema 2009).

Vaidya and Haggerty (2009) stress the importance of the type of multifamily building owners, as the type significantly affects the barriers to participation. Condominium owners and multiple unit owners, for example, are particularly difficult to penetrate compared to owners of affordable housing.

Lastly, as neighborhoods deteriorate or land uses change, owners are reluctant to invest in a property that they conceive as depreciating, because they are less likely to see benefit from the investment. Where multifamily buildings are located in areas that are either declining economically--or only experiencing changing land use, the uncertainty entailed reduces the motivation to upgrade equipment. With home ownership a high cultural value in the United States, rental property outside of large urban areas has historically been associated with lower income households, often comprising households at either end of the adult life cycle, i.e., younger and older heads of households. Given the recent financial crisis associated with single-family mortgages, this tendency may well change, however, and with it the priorities of owners and operators. These trends are recent enough that we did not find solid sources to document a real change in attitudes or behaviors.

Finances and the Economy

Vaidya and Haggerty (2009) identify up-front costs and capital restrictions as possibly the biggest barriers to multifamily programs. Building owners usually have trouble accessing the capital needed for bigger projects, as they tend to suffer from poor cash flows and credit histories. Since most programs offer rebates that are received weeks after the initial expenses, initial costs and limited access to capital create substantial barriers.

Adding to this barrier, the Energy Center of Wisconsin's (ECW, 2001) discusses the competing capital needs for any available funds. As previously expressed, ownership priorities lie in basic maintenance and upkeep, diminishing the funds available for upgrades and remodels.

The ECW also argues that lenders are reluctant to engage with building owners, as they receive little benefit from a successful retrofit, and often incur losses for unsuccessful ones. Owners are reluctant to take on debt for upgrades and remodels.

Another financial barrier that the ECW identifies is that program participation and investments in energy efficiency are often not reflected in the building value and rent pricing. Energy-efficiency improvements are "hidden" from market valuation, which discourages these kinds of projects.

One barrier that can hardly be avoided is a housing market downturn or recession. Falling property values coupled with declining tenant incomes puts even more pressure on the limited available funds (Vaidya & Haggerty, 2009).

Low-Income Housing

Low-income housing is a particularly difficult sector for these multifamily programs. Our research isKama's findings for the SCE MFEER Program process evaluation say that contractors and managers alone are tasked with the challenge of isolating the impacts of various efficiency improvements, increasing the uncertainty about the need for energy-efficient equipment and the potential degree of energy savings (Kema, 2009).

Multifamily Buildings

Widely varying segments of the multifamily market add confusion and inefficiencies to the process of adopting energy-efficient technologies. Multifamily properties can be public, publicly assisted, non-profit, or privately owned. There are individual, partnership, and corporate and institutional ownerships. There are low-rise, mid-rise and high-rise buildings that include many other varying factors. Each building type, ownership style, and size presents its own concerns, time horizons, and priorities.

Data on the multifamily market are limited, and data on the existing stock of multifamily buildings are limited as well. This information is essential for contractors, utilities, and policy makers to design and implement energy-saving programs. Little detailed data are available concerning building types, existing equipment, management types, etc.

Variation in types of multifamily buildings also causes major logistical barriers for these energy-efficiency programs. Multifamily buildings broadly range in size, energy systems, and layout. For example, 37% of apartment complexes nationally have fewer than 50 units, 23% have 50 to 99 units, 26% have 100 to 199 units, and 14% have more than 200 units (ADM/TecMarket 2000). This broad range in building size causes costs to increase dramatically. Because each building is different in small or large ways, contractors must spend an extraordinary amount of time learning about the building systems before planning can begin. These costs are difficult to recover, and ways to standardize the process are limited.

The complex physical nature of multifamily buildings adds another layer of difficulty to these retrofit projects. Apartment buildings combine residential spaces with common spaces and sometimes commercial spaces as well. Technical questions that arise during these projects are harder to solve due to the complex factors influencing energy use.

Skilled Personnel

The ECW (2001) states that, due to the informational and technological barriers presented, skilled labor with both in-depth and broadly ranging expertise are in high demand and low supply. Many contractors are not qualified to perform retrofits, and many architects and engineers have little experience in designing energy-efficient multifamily properties. There is also doubt about the reliability of new market entrants such as Energy Service Companies (ESCOs).

Building staff themselves are often poorly trained and lack the technical expertise to address the highly technical needs of a building's energy system.

Informational Systems

Systems are necessary to disseminate technological and market data to property managers, owners, and contractors. While many large property managers may subscribe to building manager publications and join multifamily associations, a large percentage of small property owners are not informed about how to effectively improve the energy systems of their buildings.

Poor informational systems on financing options, particularly on alternative financing mechanisms, also contribute to the barriers that prevent property managers from investing in energy-efficient upgrades.

Management Structure

A decision to participate in a multifamily program, or to perform any kind of retrofit or upgrade, can involve many different people in many different organizations. Multiple actors, such as building owners, property managers, management companies, local contractors, operations and maintenance staff, and on-site managers are usually all involved with these decisions (varying on particular management and ownership structures). Supplying the information and agreeing upon all of the details (finances, type of equipment, contractors, and timing) among many actors requires a substantial investment of time.

Legal and Regulatory Barriers

Building Codes

The ECW (2001) discusses an interesting point on how neglecting building codes can lead to barriers. He argues that some of the barriers to multifamily programs are caused by building code regulations and violations. Property managers, for example, who are aware of existing building code violations will not embrace any kind of retrofit or upgrade due to the fear of discovery and penalty. Unfortunately, these buildings tend to be the properties that would benefit most from energy-efficiency improvements.

Burger and Val Jensen (1998) address an especially challenging area of the market: publicly assisted housing. These buildings face rigorous codes enforced by HUD that prevent participation in multifamily markets.

Health and Safety

As with any building upgrade or remodel, health and safety issues are always a concern. Contractors and property managers must take fire codes, building codes, and security into account when planning retrofits.

Programmatic Responses to Market Barriers

A review of the literature concerning overcoming barriers in multifamily programs reveals a relatively small set of strategies that have emerged. Moreover, the process has been slow to transform programs across the nation. The following represents an accumulation of recommendations and best practices for improving multifamily energy-efficiency programs from the available existing literature.

Most of the information presented below derives from Quantum Consulting (2004) and Vaidya and Haggerty (2009).

Program Examples

Below, we present two current examples of utilities implementing a recommended variety of tactics to overcome the effect of the multifamily program barriers.^{14 15}

Midwest Energy – How\$martSM

Volker (2008) argues that by providing on-bill financing and other unique elements to a multifamily program, a utility can overcome the effects of the program barriers. He uses the example of Midwest Energy Inc.'s How\$mart Program to demonstrate how barriers can be avoided or subdued.

In 2007, Midwest Energy Inc., an electric and gas cooperative located in central and western Kansas, launched a pilot multifamily energy-efficient program called How\$mart that was specifically designed to target and overcome market barriers to energy-efficient investments. Prior to the launch of How\$mart, Midwest Energy's efforts to educate its customers and recommend energy-efficient options were thwarted by many of the common barriers to multifamily efficiency programs such as up-front costs, capital constraints, long-term payback, frequent ownership turnover, split incentives, and consumer education. The How\$mart program overcomes some of these barriers by offering a financing structure that is very attractive to landlords and tenants (Johnson, K. et al. 2009). The program's design consists of:

1. No up-front capital required (barrier addressed: up-front costs, capital constraints)
2. Efficiency improvements are paid for through a surcharge on the utility bill (barrier addressed: split incentives)
3. Payments never exceed projected savings (barriers addressed: split incentives, long-term payback, capital constraints)
4. Debt is tied to the location, not the individual owner or tenant (barrier addressed: frequent ownership turnover)

This program targets rental properties and small multifamily buildings where the opportunity for energy savings is high. To participate, the customer must first complete a comprehensive on-site audit free of charge, which may include air infiltration testing, infrared scanning, duct leakage testing and furnace combustion testing, after which recommended efficiency improvements, costs, and energy savings estimates are given to the customer. The customer then solicits a contractor to perform the renovations, and a conservation plan with total costs of improvements, estimated utility bill savings and the monthly How\$mart charges is reported. Once the contracted

¹⁴ There are many other noteworthy multifamily programs. For more information please see: Center for Energy and Environment. 2000, Multifamily Retrofit Program Profile #97;

Chant, E.M., M. Sherman, J.L. Chiodo, 2000; Dedolph, C. 2009; [ECW 1999] Wisconsin Residential Rental Sector Pilot Study—Promoting Energy Efficiency for Renters; Reed, J., and J. Riggert. 2005, Summerford, J., and E. McCollum. 2008

¹⁵ For a more in-depth and data-based study of the multifamily retrofit experience in the U.S., please see Goldman, C., K. Greely, and J. Harris. 1998a. and 1998b papers.

work is complete, the utility then pays for the project in full. Monthly charges occur on the customer's bill until the company's investment is fully recovered (discounted at the company's cost of capital) and do not exceed the estimated monthly energy savings (maximum amount of the How\$mart charge is limited to 90% of estimated energy savings during the duration of the charge).

The program will only finance the energy-efficiency improvements if the cost of the project is less than the total expected savings (with a maximum payback period of 15 years or 75% of the expected measure life). How\$mart will recommend and finance a combination of insulation, heating and air conditioning systems, and duct sealing as long as the project meets this requirement. It is imperative to this program that Midwest Energy encourages the installation of high-efficiency improvements as well as the low-cost thermal measure to enable the entire project to be cost-effective and yield high energy savings.

The pilot program (spanning one year from mid-2007 to mid-2008) resulted in 25 customers completing the improvements by May of 2008, translating into \$102,330 of How\$mart home improvements, and \$11,674 estimated annual energy savings.

Volker argues that by offering a financing structure for multifamily building owners that offers no up-front costs and keeps the debt attached to the building (and utility bill), How\$mart is able to overcome many of the barriers that plague multifamily efficiency programs. However, this program is available only for smaller multifamily buildings and can maintain only a few projects at a time, as larger buildings and many projects require much more up-front capital from the utility.

MidAmerican Energy's Multifamily Housing Program¹⁶

In 2008, MidAmerican Energy Company in Iowa redesigned its multifamily program to target the split-incentive market barrier. Instead of offering a variety of separate residential and commercial programs, the new multifamily program provides a comprehensive set of services and financial incentives to serve the varied needs of multifamily property owners, property managers, landlords, and renters in existing buildings.

MidAmerican's Multifamily Housing Program offers customers two options after a comprehensive energy audit. The first is a "Prescriptive Track" that offers the standard equipment incentives that are identified in the energy audit report (including heating and cooling systems, lighting equipment, ENERGY STAR-rated appliances, building shell measures including insulation, and commercial equipment measures in mixed-use buildings).¹⁷ The second is a "Performance Track" that gives building owners the option to undertake a comprehensive whole-building approach to energy-saving projects. The performance track offers a high level of customer support and large incentives as well as installation of a package of measures that address both individual residential units and common areas. Using this track, an upgrade must

¹⁶ For more information, please see MidAmerican Energy Company Proceedings to Adopt ENERGY EFFICIENCY PLAN Docket no. EEP-08-02. 2008

¹⁷ MidAmerican Multifamily Housing Program Pamphlet Iowa 2012
http://www.midamericanenergy.com/ee/include/pdf/ia_multifamily.pdf

also achieve a specified performance target. To tailor to individual energy-efficiency strategies even further, the program also offers a mix of prescriptive and customized rebates.

Variation in building types and configurations is a typical barrier faced by multifamily programs. By offering different delivery models to give the decision makers more flexibility to maximize savings within their own financial boundaries, the program partially offsets this barrier. Another barrier that is offset by this program is the high cost of efficient equipment. The program offers free on-site energy audits and direct installation measures for immediate savings, provides rebates to help reduce the cost of efficient technology, and offers aggressive rebates for those customers interested in the comprehensive approach. The split-incentive barrier is targeted through the program's emphasis on combining improvements to both common areas and residential units.

Offering multiple delivery models that include a whole-building approach is another mechanism that utilities are using to achieve more savings and overcome the multifamily program barriers.

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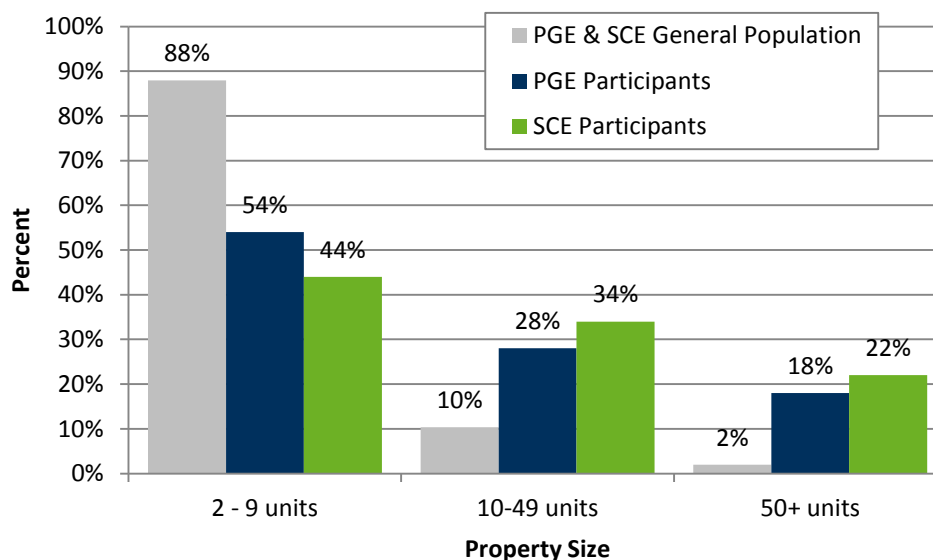
PROGRAM PERFORMANCE

In this section, we present a review of the performance of MFEER during the evaluation period. The majority of these findings come from the surveys we conducted with program participants of each utility and with general population survey or program owners and managers. This section is primarily intended as a description of performance, with our evaluative remarks presented in the next section where we discuss program challenges.

Programs Take Advantage of Efficiencies of Scale

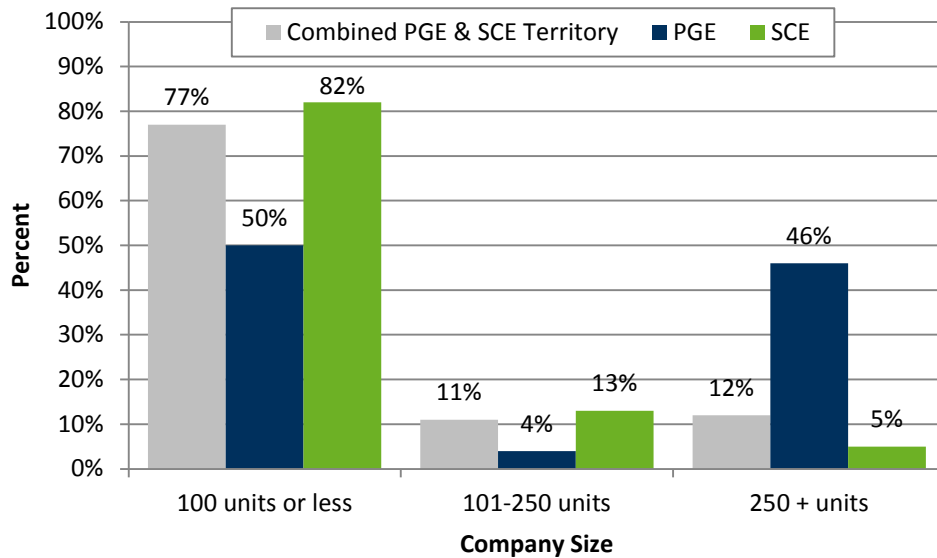
One of the key insights of the market characterization is the extent to which the MFEER program can gain efficiencies by targeting larger properties. Targeting large properties reaches more units with fewer contacts. Larger properties also have more savings opportunities from common areas. As shown in Figure 3, 88% of the general population of properties across the two territories has nine or fewer units; however, only about 50% of program participants come from this group of small properties. About 20% of participants come from the group of much larger properties with 50 or more units, but this group is only 2% of the total population of properties. Thus, the programs are taking advantage of the economy of scale inherent in serving larger buildings.

Figure 3. Distribution of Sizes among Participating Properties and the General Population of Properties



SCE appears to be doing slightly better than PG&E at targeting large properties. Another kind of efficiency is possible through targeting larger companies, since a single contact may lead to participation across multiple properties. Here, PG&E seems to have had better success. As shown in Figure 4, 46% of its participants belong to companies that operate 250 or more units. Only 5% of SCE's participants come from this segment. Most of SCE's participants belong to smaller companies.

Figure 4. Size of Company at Participating Properties



Measures Installed

In the 2006-2008 process evaluation of SCE’s MFEER, concern was raised about the predominance of lighting in the mixture of measures installed by the program. Table 18 shows that in 2011, SCE’s MFEER continued to be almost exclusively a lighting program, with 99.6% of measures and 98.3% of energy savings derived from lighting. As we will discuss below, in its effort to control quality and address satisfaction problems, the program took steps that made it unable to expand its offering.

Table 18. Measures Installed by SCE MFEER, 2011

| Measure | Percent of Measures Installed | Percent of Energy Savings |
|---------------------------|-------------------------------|---------------------------|
| ENERGY STAR® CFL Fixtures | 95.32% | 91.14% |
| T8 Linear Fluorescent | 4.32% | 7.17% |
| LED Exit Sign | 0.17% | 1.46% |
| Appliances | 0.16% | 0.20% |
| Building Envelope | 0.02% | 0.03% |
| HVAC | 0.01% | 0.00% |
| Total | 100.00% | 100.00% |

PG&E installed a broader array of measures through MFEER, with nearly 36% of measures in categories other than lighting. This is shown in Table 19. In comparing SCE and PG&E it is important to note that PG&E, because it is a dual fuel utility, offers both gas and electric measures whereas SCE offers only electric measures.

Table 19. Measures Installed by PG&E MFEER, 2011

| Measure Category | Percent of Measures Installed |
|------------------|-------------------------------|
| LIGHTING | 63.9% |
| APPLIANCE | 15.8% |
| LF SHOWER | 10.3% |
| WINDOWS | 5.2% |
| INSULATION | 1.9% |
| BOILER | 0.9% |
| OTHER | 0.8% |
| WATER HEATER | 0.5% |
| POOL PUMP | 0.4% |
| FURNACE | 0.3% |

Moreover, at sites where lighting was installed, PG&E's MFEER installed a higher percentage of linear fluorescents than SCE.

Table 20. Distribution of Lighting Measures Installed by PG&E's MFEER

| Measure | Percent of Lighting Measures |
|--------------------------|------------------------------|
| ENERGY STAR® CFL Fixture | 66% |
| T5/T8 Linear Fluorescent | 28% |
| Reflector Lamp | 4% |
| LED Exit | 2% |

Nevertheless, at 73% of sites, only one measure category was installed. At the remaining 27% of sites where two measure categories were installed, the majority included only lighting and domestic hot water measures. High-investment-cost measures such as insulation and HVAC make up only a tiny fraction of measures installed.

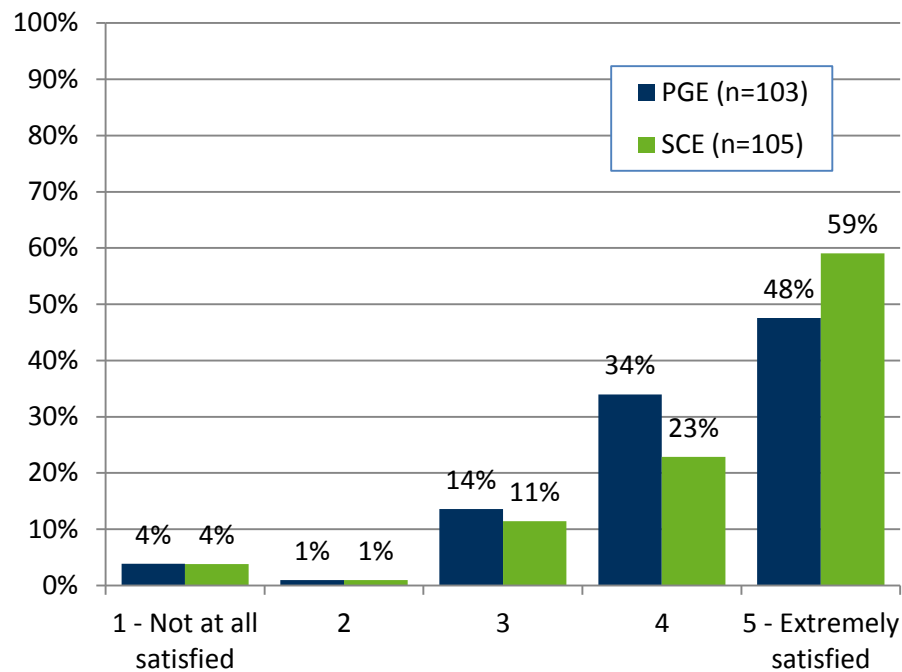
Satisfaction

Satisfaction with MFEER was determined from responses to our survey of program participants. We asked about overall satisfaction, as well as satisfaction with program staff, installation contractors, and equipment. The 2006-2008 process evaluation of SCE's MFEER program had identified significant dissatisfaction with the program, especially associated with the quality of

measures installed and the quality of the measures installed. (We did not have satisfaction data for PG&E’s program from the previous cycle.)

Overall satisfaction with the program was high, with 48% of PG&E participants and 59% of SCE participants “extremely satisfied” with the program. PG&E participants recorded slightly lower satisfaction than SCE participants, with a ten percentage point differential between ratings of “4” and “5” on a five-point scale. The distribution of satisfaction scores, for PG&E and SCE, is shown in Figure 5.

Figure 5. Overall Satisfaction with MFEER, 2011



SCE substantially improved satisfaction with the program since its previous evaluation, as shown in Figure 6. The program reduceddropped from 25% who were less than satisfied (scoring the program “3” or lower on a five-point scale) to 16% less than satisfied.

Figure 6. Change in Overall Satisfaction in SCE’s MFEER Program, 2006-08 and 2011

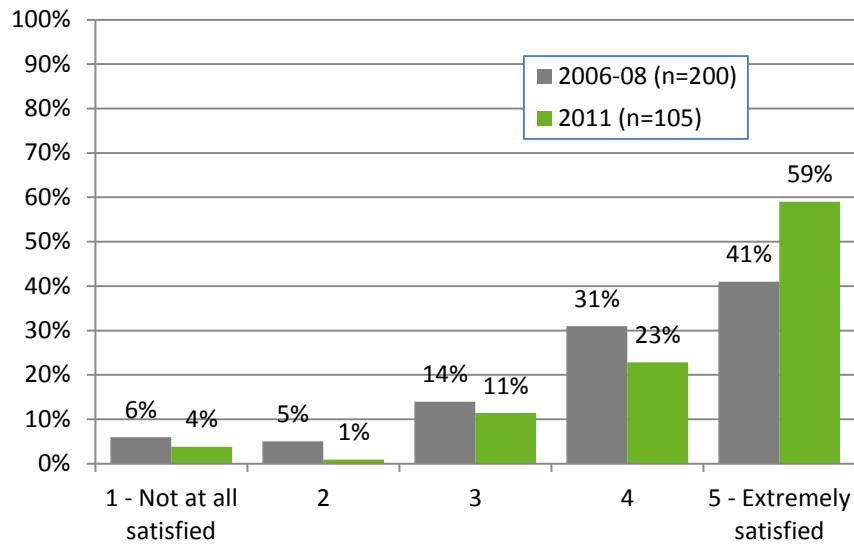


Figure 7 shows satisfaction with program staff. Note that satisfaction with program staff does not appear to be the source of the slightly lower overall satisfaction rating among PG&E participants, because the scores are equivalent to the SCE scores, and are higher than the overall score.

Figure 7. Satisfaction with Program Staff

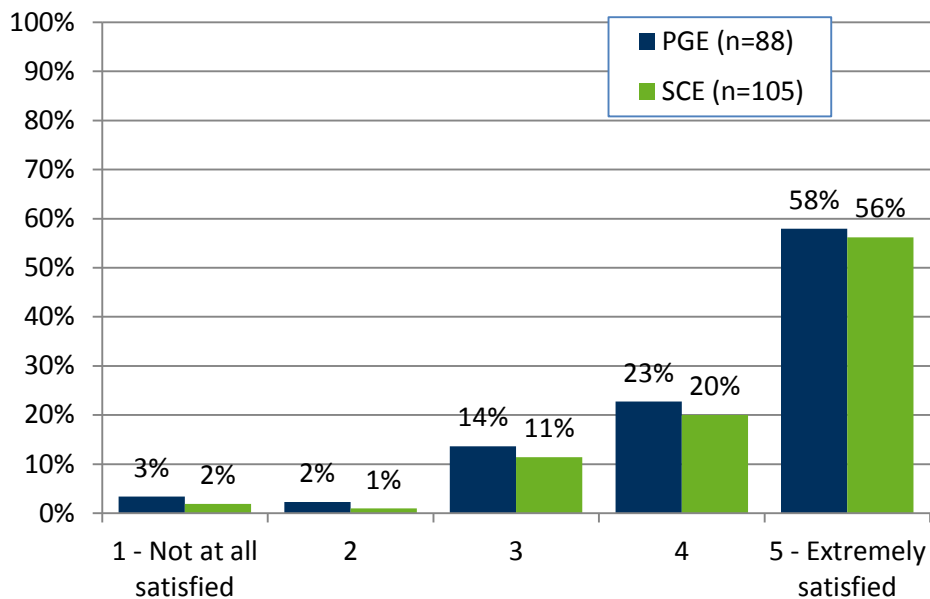


Figure 8 and Figure 9 show satisfaction with the work performed by contractors, in both common areas and tenant areas. Satisfaction is high for both utilities, with more than half of respondents giving the highest score. Nevertheless, PG&E participants give a lower percentage of “extremely satisfied” ratings than SCE participants. This may provide a clue about the lower overall satisfaction recorded by PG&E participants.

Figure 8. Satisfaction with Contractors – Common Areas

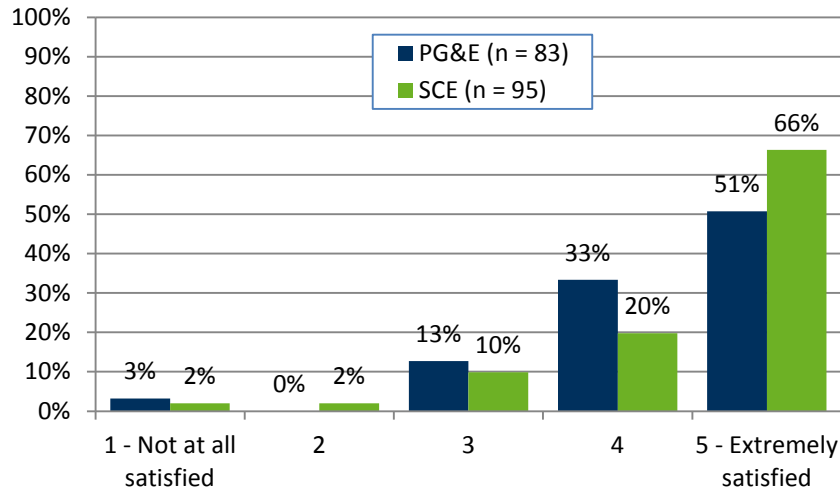


Figure 9. Satisfaction with Contractors – Tenant Areas

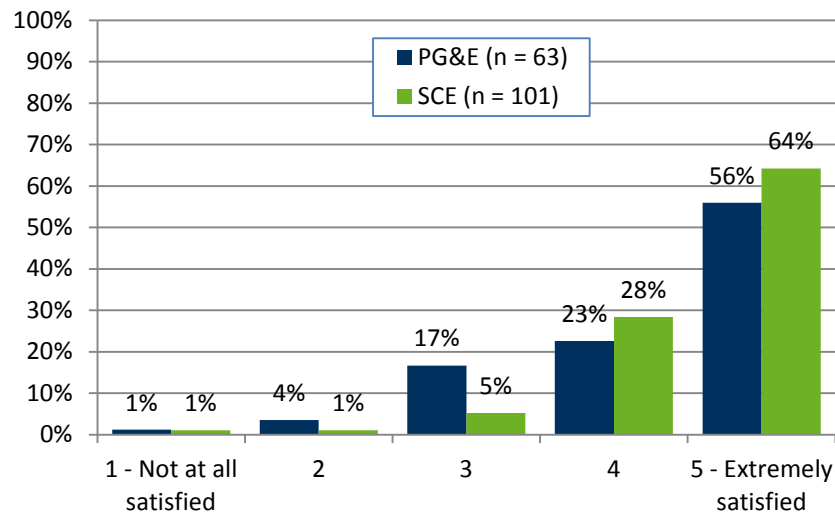
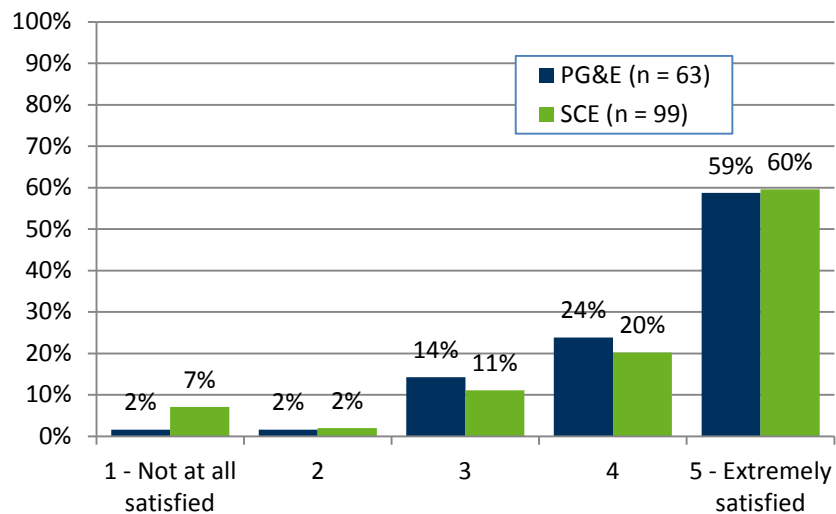
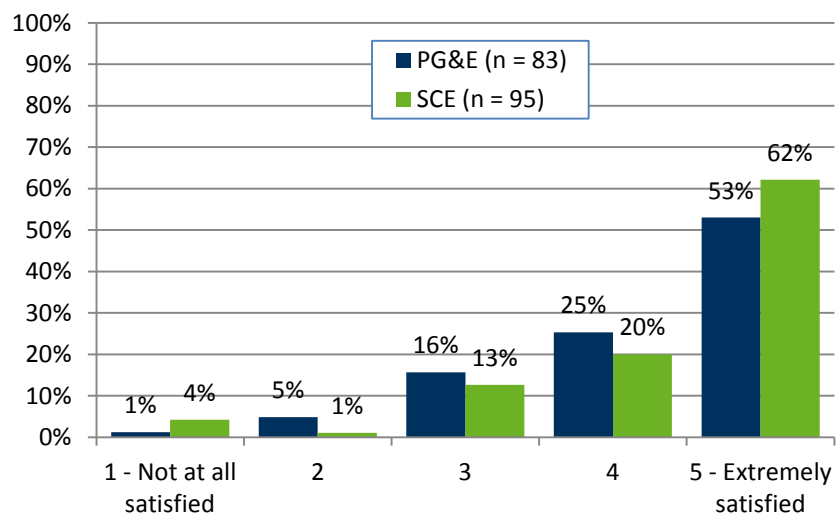


Figure 10 and Figure 11 show satisfaction with the equipment installed by each program. The distribution of responses is similar to the other items, quite good overall, but with a slight indication of softness in the satisfaction expressed by PG&E participants for common area equipment.

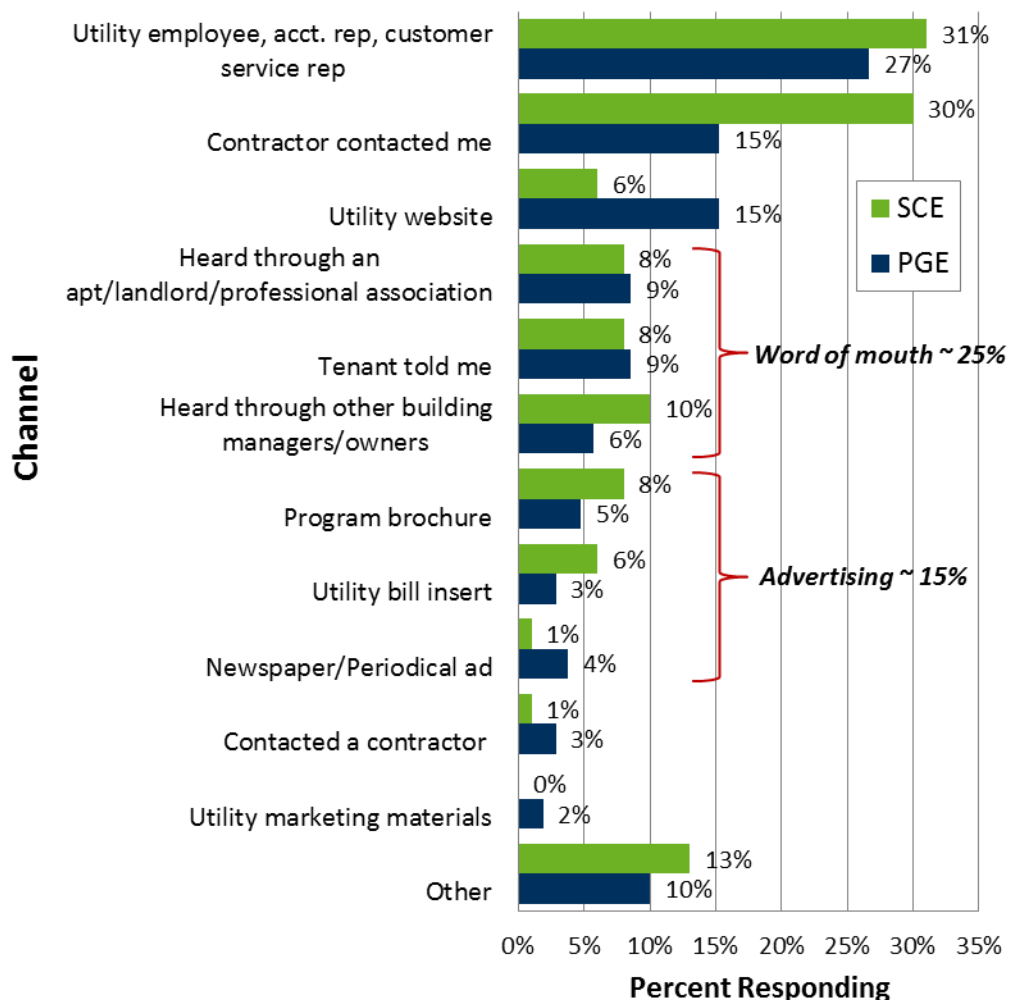
Figure 10. Satisfaction with Installed Equipment – Common Areas**Figure 11. Satisfaction with Installed Equipment – Common Areas**

Utility Outreach

When asked about how they had heard of MFEER, a plurality of survey respondents (27% PG&E, 31% SCE) said they had first heard of the program from direct contact with a utility employee, such as an account representative or customer service representative. For SCE, where we have evaluation results from 2006-2008, this was a big change. At that time, only 5% of respondents said they had learned of the program directly from the utility. We know from interviews with the SCE's MFEER program manager that a significant effort had been undertaken to reach out more directly to customers as a way to improve confidence in, and satisfaction, with the program.

A second important source of information about the program at both utilities were the trade ally contractors, though twice as many SCE participants mentioned this source as PG&E participants. Word of mouth, from various parties, was mentioned by about 25% of respondents as a source of information. Advertising was a less important source of information, though SCE participants than PG&E participants mentioned it more often. Figure 12 shows the percentage of respondents who identified each of eleven channels as a source of information about MFEER.

Figure 12. Principal Channels of Information about MFEER



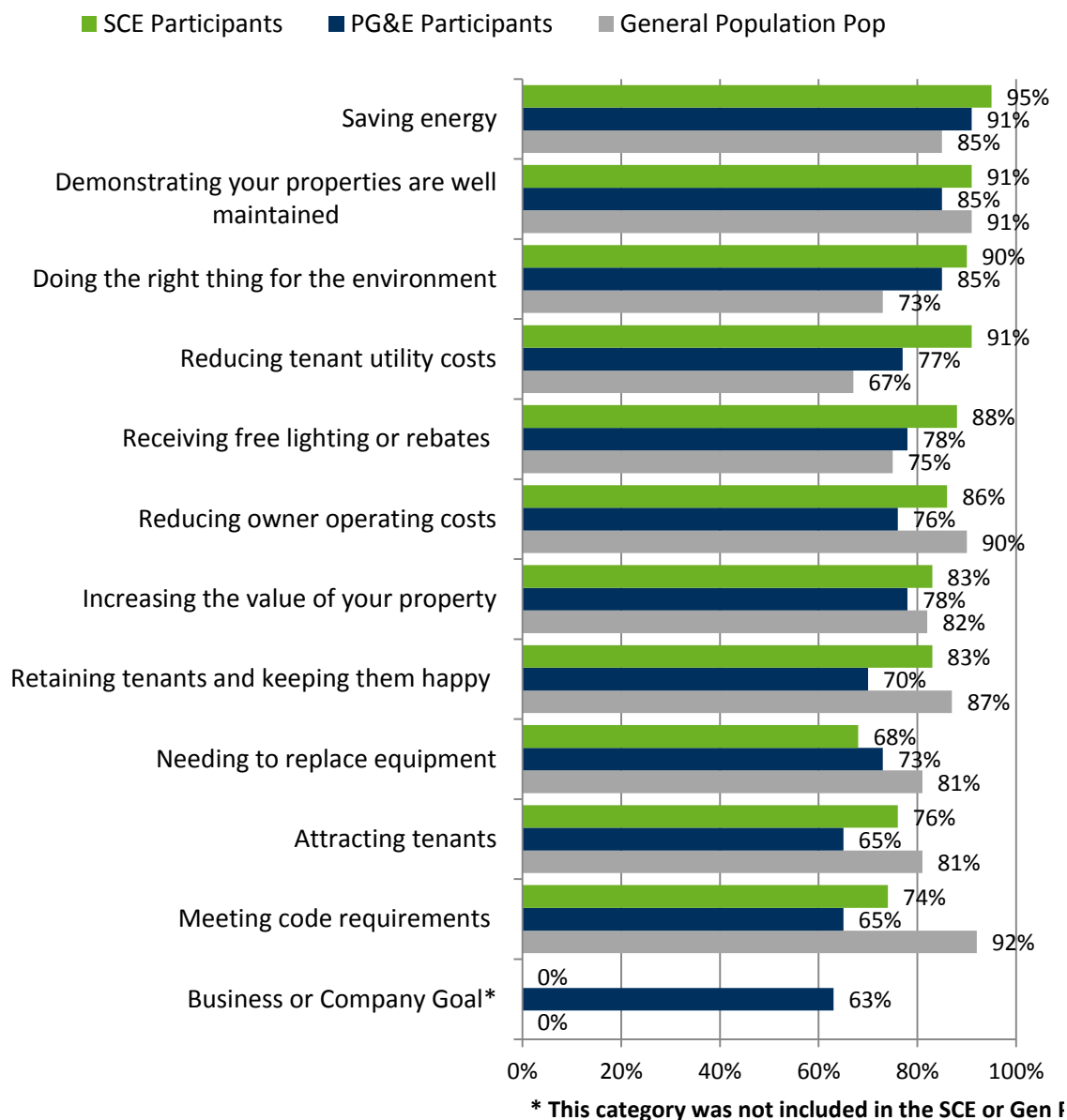
The category “Other” included retailers and vendors as well as references to word of mouth and advertising.

Motivations to Participate

To understand how best to position the program relative to concerns of multifamily property operators, we asked a series of questions about what motivated respondents to participate in the program. We asked a similar question to the general population survey respondents, though we couched the question differently, asking what motivates them to make improvements in their

property. Figure 13 shows the results. The percentages represent respondents who rated the importance of each factor “7” to “10” on an eleven-point scale (i.e., 0 to 10).

Figure 13. Motivation to Participate in MFEER/ Make Property Improvements



All of the items are considered important by a majority of respondents; however, the top three are noteworthy. The generic response “saving energy” can have varied signification, from hard-headed business rationale to altruistic environmentalism. That may be why the motive garnered the highest importance rating overall. Nevertheless, in a context where most energy costs are borne by tenants, it shows that the energy-efficiency message has motivational effect. The second most important factor, demonstrating that properties are well maintained, probably has more targeted appeal to property operators and could well be featured in marketing materials.

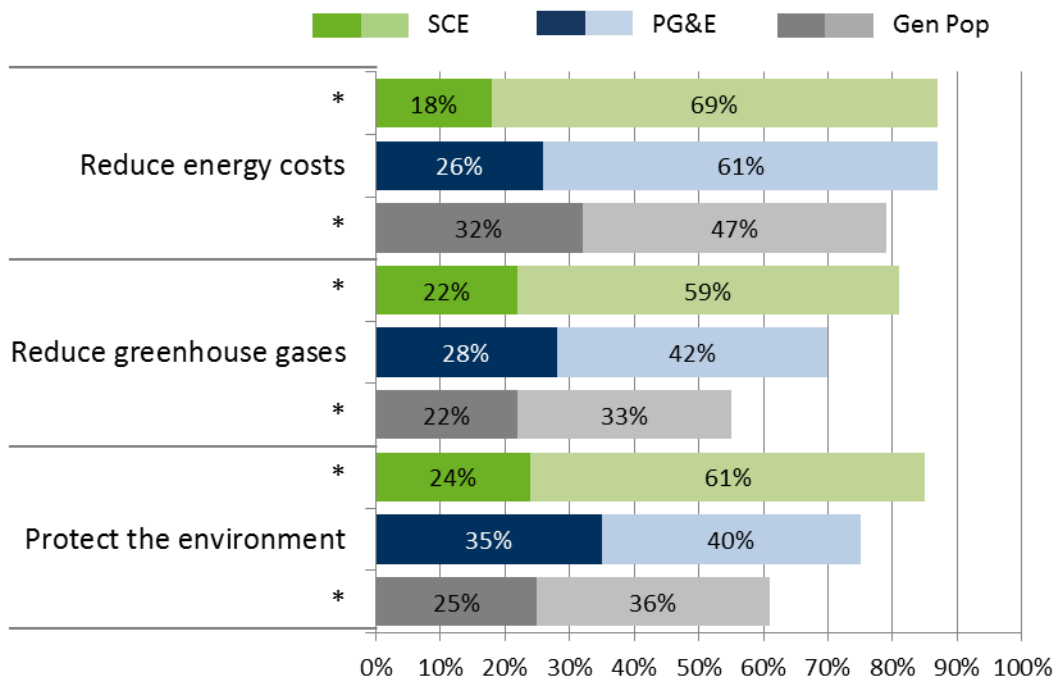
The motive, “doing the right thing for the environment,” was notably less important to the general population respondents than to program participants, suggesting that targeting property operators on the basis of attitudes might pay dividends if a way could be found to accomplish that. Finally, we note that “reducing tenant utility costs” shows significant variability among the three groups, the general population respondents giving only lukewarm importance to this item. We do not know why PG&E’s participants gave this substantially lower importance than SCE’s participants. In general, however, PG&E’s participants rated all items slightly lower than SCE’s.

To get a sense of the company culture related to energy efficiency, we asked respondents to rate how property owners viewed using energy at the property. We asked them to agree or disagree with a statement that the owners:

- Feel a responsibility to decrease the energy use at this property in order to protect the environment;
- Feel a responsibility to decrease energy use at this property in order to reduce greenhouse gasses; and,
- Feel a responsibility to decrease energy use at this property in order to reduce energy costs.

Figure 14 shows the responses from program participants and from respondents to the general population survey. The percentages represent those who agreed with the statements at a level “7” to “10” on an 11-points scale (i.e., zero to ten). The figure also discriminates between relatively low agreement (“7” or “8” in dark shade of color) and higher agreement (“9” or “10” in light shade of color). Program participants are consistently more likely to agree, and more likely to agree strongly than the general population. We again note that PG&E participants register less agreement and lower agreement than SCE participants. The responsibility to reduce energy costs gets the most agreement from all groups; reducing greenhouse gases gets the least agreement.

Figure 14. Expressions of Responsibility Among Program Participants and the General Population



Agree Responsible - 7-10 on 11 point scale.
 Darker shade = 7-8; Lighter shade = 9-10

Percent Responding

Energy-Efficiency Intentions and Behaviors

Figure 15 shows the percentage of survey respondents who said they intended to undertake any of 10 behaviors in the next three years. Among PG&E and the general population survey respondents, there was significant expression of intention to install lighting in tenant units and common areas. Among SCE participants, the proportion intending to install lighting is smaller; this is understandable in light of the fact that nearly all SCE participants had only recently installed efficient lighting.

Perhaps more interesting is the substantial intention among all three groups to increase the energy efficiency of appliances in tenant units. Nearly a quarter of SCE participants said they intended to install efficient HVAC equipment. The same percentage said they intended to do a whole-building energy audit. About 20% of respondents said they intended to market their buildings as energy efficient. From the standpoint of program participation, this would seem to be an ideal intention to cultivate, although we note that the general population respondents had only a slightly lower intention to undertake this behavior.

Figure 15. Intention to Engage in Energy-Efficiency Behaviors of Program Participants and the General Population

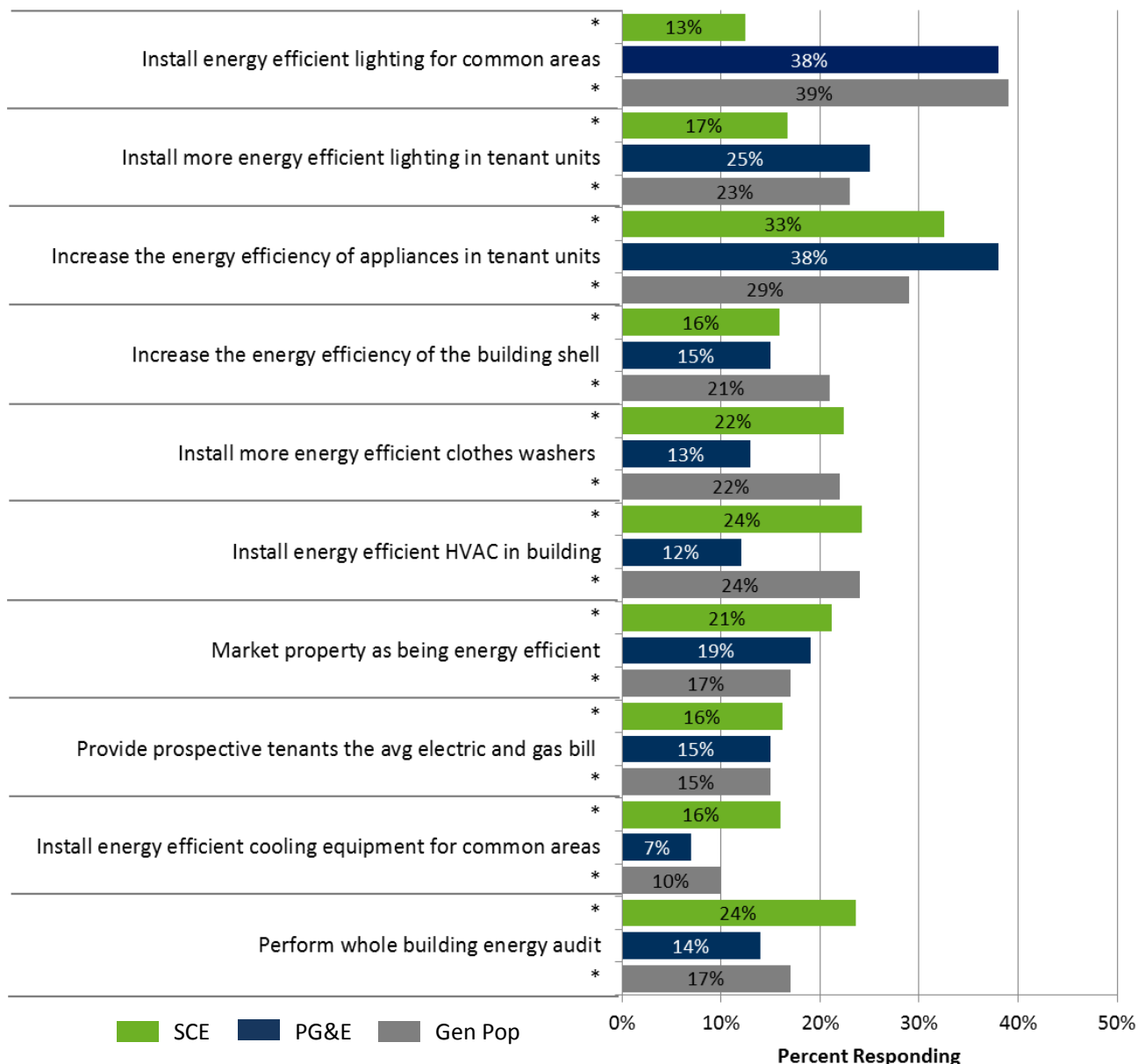
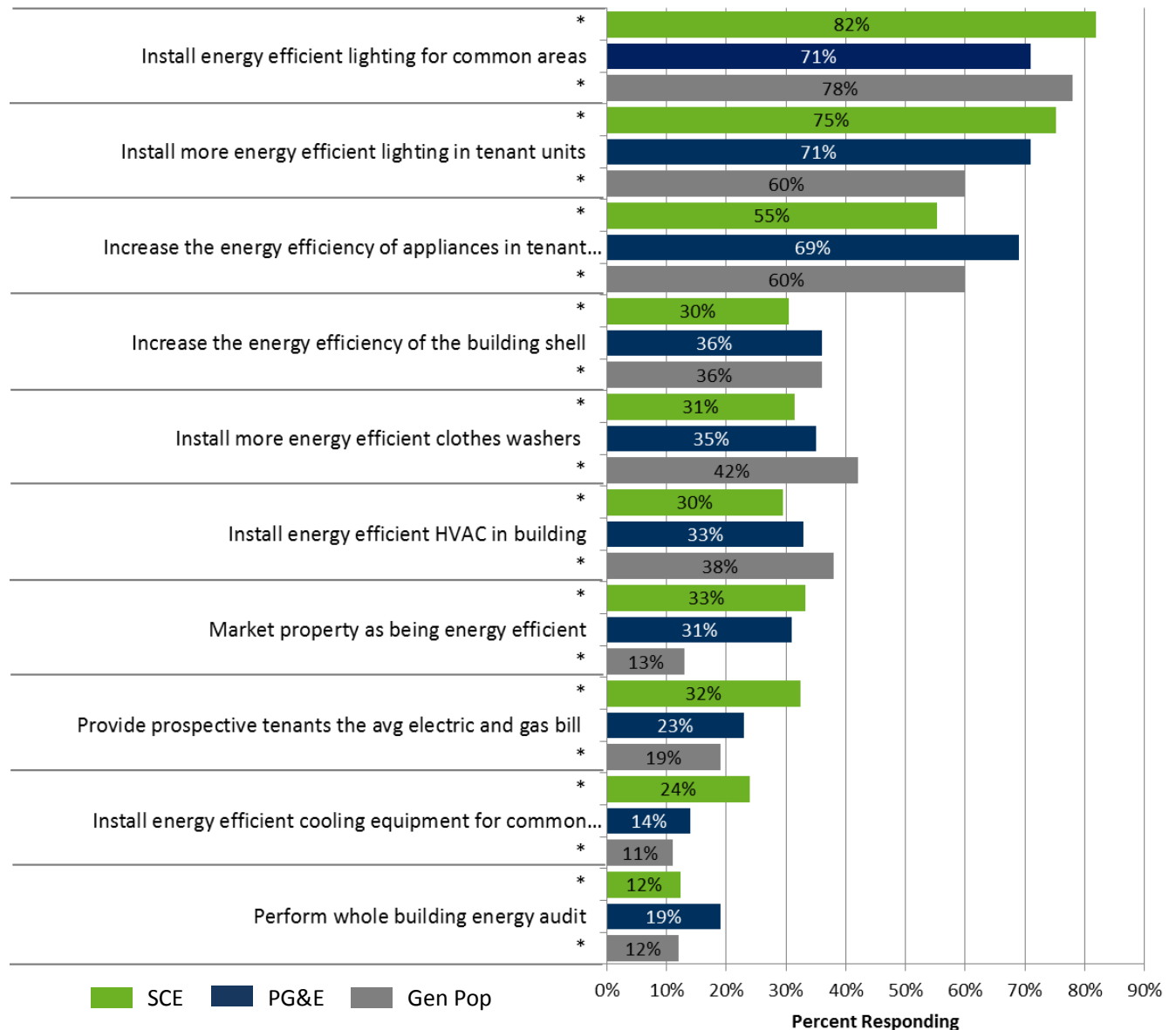


Figure 16 show the percentage of property owners and managers who said they had already undertaken the same set of 10 behaviors. Again, the most respondents mention efficient lighting. Indeed, we know that between common area and tenant area lighting, 100% of SCE respondents had installed lighting by dint of participating in the program. We think it is important that general population survey respondents were less likely to have installed efficient lighting in tenant areas, certainly a pattern that would be predicted by the split-incentive barrier. Over a fairly broad range of items, about one-third of respondents said they had engaged in the behavior, suggesting conversely significant opportunity for additional activity. Note that with

reference to past behavior, rather than future intentions, a stark contrast is seen between program participants and the general population in marketing their property as being energy efficient.

Figure 16. Energy-Efficiency Behaviors of Program Participants and the General Population



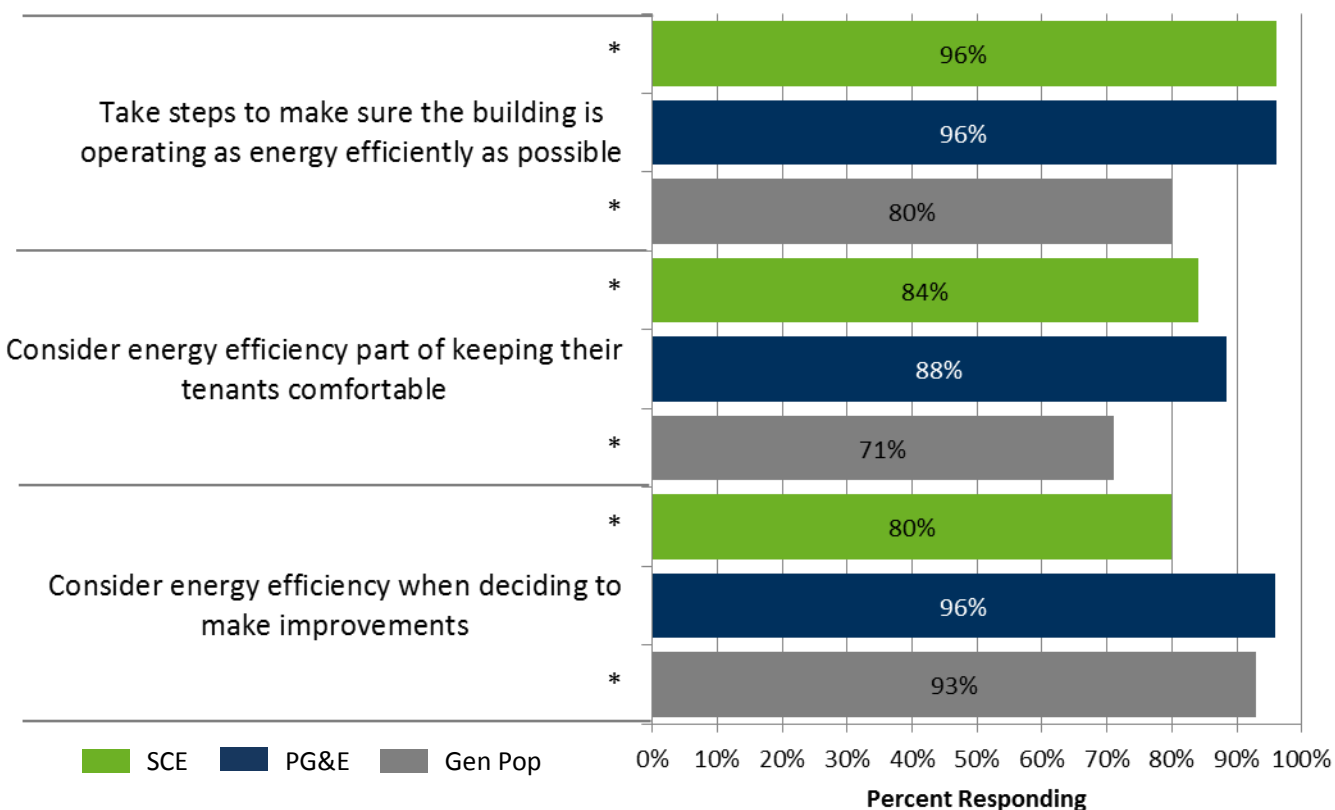
Finally, we asked survey respondents whether their businesses included energy efficiency in their policies and decision making. We asked them the following questions.

- As a routine part of your building maintenance, do you take steps to make sure the building is operating as energy efficiently as possible – such as changing furnace filters or weatherweather-stripping doorways?

- Is energy efficiency considered as part of keeping your tenants comfortable?
- Would you say you always, often, sometimes, or never consider energy efficiency when deciding to make improvements for your property that would affect its energy use? (Recoded to “always” and “often” meaning “yes”; otherwise “no”)

A large majority of respondents from all groups said their companies had these policies in place. The general population survey respondents were less likely to take efficiency steps and consider the relationship between energy efficiency and tenant comfort. Interestingly—and we cannot account for this outcome—SCE participants were less likely than either PG&E participants or the general population to consider energy efficiency when deciding to make building improvements.

Figure 17. Company Energy Policies and Decision Making



Program Materials Review

Purpose and Methods

The overall purpose of Cadmus' review was to assess the content and visual elements of the program materials for adequacy, clarity, and effectiveness of messaging, based on industry best practices. The Cadmus team reviewed all documentation provided by PG&E and SCE program staff, including:

- PG&E's Mass Market Energy Solutions & Services (MMES&S) Multifamily Rebate Program Policies and Procedures manual (Updated 09-14-2011)
- PG&E's Multifamily Quality Assurance and Payment Desk Guide (Version One)
- PG&E's Multifamily Reservation, Data Entry, and Verification Desk Guide (Version One)
- PG&E's Multifamily Properties Program Rebate Catalog
- SCE's MFEER Policies and Procedures Manuals for program years 2010-2012 (Version four)
- Enhanced Inspection Plan for SCE's Multiple Dwellings Programs (dated September 14, 2011);
- Program applications and rebate forms for PG&E and SCE
- PG&E and SCE website and marketing collateral.

We divided these materials into three areas for review: (1) program manuals, (2) data collection instruments, and (3) marketing materials. For each type of material, we developed research questions that guided our review.

SCE Materials

This section summarizes the results of Cadmus' review of materials for Southern California Edison's (SCE) Multifamily Energy-Efficiency Rebate (MFEER) program. Cadmus performed this review as part of the process evaluations for the 2010-2012 program cycle. Based on our review, we describe what is working well and what might be improved for each type of material.

Program Manuals

The objectives for the MFEER policies and procedures manuals are to inform staff of program requirements and to provide guidelines on operational procedures (such as tracking, rebate application measure verification, and funding allocation rules). These were the key questions guiding our review of the program manuals:

- Does the program manual cover all necessary topics to guide new and existing staff members in program implementation?
- Is the program manual organized in a manner that appears intuitive and straightforward for the intended user (target audience)?

At a high level, Cadmus found the program manuals provide thorough direction with good examples and visual elements that support the overall objectives. However, we identified some areas where the manuals could be improved to ensure that critical information is clear and easy to locate. Also, we believe improving the consistency of the formatting and certain language elements would make manuals easier to understand.

Assessments

The MFEER policies and procedures manuals provide detailed information and direction regarding the oversight of each program, such as:

- Specific information about qualifying measures and required submission of documentation, as well as step-by-step procedures for tracking data and reserving rebate funding.
- A clear outline of all program processes and operations, with many useful references (e.g., tables, screen shots, and references to additional information elsewhere).
- Meticulous descriptions of staff roles, responsibilities, and the relationships between staff.

Cadmus' review revealed some inconsistencies in formatting and some minor areas in which the manuals could be improved. These are detailed below.

Level of Detail and General Organization

As a result of the SCE's careful attention to detail, the quantity of material in the policies and procedures manuals is considerable. Thus, streamlining future versions of these documents should render them easier to use. Specifically, having highly detailed materials in appendices should improve the document's usability.

Most users are probably familiar with the explanations about how to use the manual. For example, in Section 104-5 of the MFEER manual, several pages are dedicated to explaining how to navigate screens and enter data. We realize that SCE's experience with new program managers may have shown a need for these instructions; however, having a separate section of user guidelines could streamline the manual.

Cadmus' review also revealed some issues with acronyms. The program acronyms may be familiar to seasoned program staff; however, the number and variety of acronyms in the manuals may be confusing for a new reader.

- In many cases, the meaning of acronyms is not identified with the first uses or, conversely, these definitions are provided multiple times in the manuals.
- There are two acronyms used throughout the manual for the Multifamily Energy-Efficiency Rebate Program: MFRP and MFEERP.

Bold text is used inconsistently; it highlights both key concepts and noncritical information. For example, bolding steps in a process (such as, "Clicking **New** allows you to **add** new information," from MFEERP Manual 104-5), assists readers in identifying key actionable information. However, when noncritical information is also bolded, readers lack the visual cues

for recognizing critical steps. (In MFEERP Manual 104-4, bolding is applied to an explanation rather than an instruction: “They “pop-up” in the middle of other screens, so they’re called **pop-ups.**”)

Summary of recommendations

The Cadmus team suggests that SCE review the policies and procedures manuals—and the specific elements noted here—to improve effectiveness of these materials

- Review the documents with the goal of streamlining them.
- Create a section for general information to contain user manual guidelines (including, for example, standard computer navigation tips).
- Put highly detailed materials in appendices.
- Review bold-formatted text for consistency of use.
- Add a list of acronyms and abbreviations at the beginning of the document or in an appendix. Also, review the manual to ensure consistent use of these acronyms and abbreviations.

Data Collection Guidelines and Materials

The objective of the MFEER Enhanced Inspection plan is to provide guidelines for the inspection procedures for projects installed under the programs. These plans describe: (1) the relative risk associated with each of programs’ outputs; (2) the rate at which outputs of the programs should be inspected; and (3) the expected success rate of inspected outputs.

These were the key questions guiding our review of the Enhanced Inspection Plan and rebate applications:

1. Are there systems in place to ensure reliable data collection?
2. Are there systems in place to ensure project verification and quality?
3. Is there sufficient information to determine any issues with customer eligibility?
4. Are application and rebate forms gathering sufficient information to enable the evaluation?

The objective for the MFEER program rebate application is to collect all necessary customer information to ensure that the application process is documented (including verification of measures eligibility) and to provide data for future evaluations.

Assessment of MFEER Enhanced Inspection Plan

Cadmus was the author of this document; thus, we reviewed our previous work. We observed that the inspection plan was developed at a high level of generality. Consequently, supplemental information about program indicators would be required for program managers to implement the plan fully. Also, the language in the document may be difficult for non-technical readers.

Having a separate document that provides a detailed checklist for potential errors for each program would be valuable. Specifically, the target audience would benefit from supplemental material that contains photographs or other graphics showing passing and failing installation conditions. Such a document would contribute to the clarity and consistency during program inspections and, as measures change, the document would be updated accordingly.

Recommendations for the MFEER Enhanced Inspection Plan

- Create a document providing both a detailed implementation checklist and graphics to show passing and failing installation conditions for each program.
- Review the plan language to determine whether it is appropriate for the target audience.

Assessment of MFEER Program Application

In reviewing the MFEER rebate application at a high level, Cadmus found that the form collects the data necessary to determine customer eligibility and to enable program evaluation. Relative to this, the areas identified for improvement are minor.

The most challenging part of the reservation process is the instructions. Although information is often repeated throughout the application form—sometimes on the same page and within the same list on a page—there is no single place in which all of the required steps are listed for completing the entire process. For example, on page three, Step 5 says that the application package must be completed within 45 calendar days after the reservation confirmation is received. However, there is no clear distinction between the submitted pages for requesting a reservation and remaining pages that need to be submitted to complete the application process.

The order of the forms in the application packet may impede the target audience's understanding of the process. For example, organizing the forms so that potential participants read the measure specifics before they complete the reservation forms would enable participants to confirm the eligibility of their selected measure. Also, the reservation fax forms are not contiguous.

Recommendations for the MFEER Program Application

- Review the application instructions to ensure that they are easily understandable to the potential participants.
- Organize the forms so that potential participants can read the measure specifics before they complete the reservation forms
- Reorder the pages so that the two reservation fax forms (currently on pages 6 and 10) are side by side.

Marketing Materials

The objective of the MFEER marketing materials is to provide potential customers with critical program information and encourage their participation. Industry best practices in energy-efficiency program marketing materials dictate that materials contain a clear call to action, be visually appealing, and be easily understandable by customers.

These were the key questions guiding our review of the program Websites and brochures:

1. Does the Website reflect best practices regarding user experience, architecture, content, and design?
2. Are marketing materials, forms, and brochures professionally designed and formatted, free of errors, consistent with the SCE brand, and easy to read. Also, are these creative and interesting?

At a high level, Cadmus found that the MFEER program marketing materials are adequate for communicating program benefits.

- The MFEER one-page handout contains a comprehensive presentation of program benefits.
- The SCE Website includes tips, guidelines, and self-evaluations useful for participants who want to learn more about energy efficiency.

Relative to this, the areas we identified for improvement are minor. Specifically, while the marketing materials and the program Website provide essential program information, these items could benefit from adjustments to content, design, and messaging so as to:

- Increase consistency
- Be more visually compelling (e.g., more white space and fewer words per page)
- Target prospective participants more accurately
- Increase program information and rebate details.

Materials Review Summary

In Table 21, Cadmus has summarized the content and visual highlights of each review area. Each review area has a summary of what SCE is doing well and what it could refine or improve.

Table 21. SCE Materials Review Summary

| | Content | Visual Elements |
|---------------------------------|--|---|
| Program Documents | | |
| Policies and procedures manuals | Contains good detail regarding roles and responsibilities, as well as program processes and procedures. Has clear direction with additional information elsewhere. | Plentiful and helpful references (table, screen shots, etc.). Font easy to read and amply spaced. |
| | Excessive direction and detail in the body of the manual. Inconsistent and excessive use of acronyms. Uses old program year information (e.g., Control Header document). | Inconsistent use of bold formatting. Process flows difficult to read due to font size. |
| Data Collection | | |
| Enhanced inspection plan | Thorough. | The headings and flow of the information are coherent. |
| | Specific indicators of success and failure could be defined either in this document or in a supplement. Language may be difficult for non-technical readers. | An accompanying visual of the inspection steps would add to the usability. |
| Rebate application | All of the information necessary to determine customer eligibility and to enable program evaluation is collected. | The colors in the document are visually pleasing. Branding elements are consistent with SCE brand. |
| | The package could benefit from clarifying the instructions and re-ordering the forms within the package. | The document unnecessarily repeats information. More white space and clear, consistent headings would make the document more coherent. |

| | Content | Visual Elements |
|----------|---|---|
| Website | The main value proposition messages appear in the third paragraph, pushed lower on the page by a generic image at the top of the page. Best practice keeps critical messages top-of-page. | The MREERP page is visible on the home page and the downloadable rebate form is easily seen on the program page. |
| | Font size is small and content is densely packed. | Some content will fall "below the fold" on personal computers. Design appears to be constricted by the design template of sce.com, which requires the content area to be narrow and long. |
| Brochure | Marketing flyer includes complete program information. | Marketing sales sheet and application/rebate packet have different looks and feels. |
| | Brochure/sales sheet marketing materials content is not consistent with Website and other digital marketing material content. | Font is small and potentially hard to read in some cases. |

PG&E Materials

This section summarizes the results of Cadmus' review of materials for Pacific Gas and Electric (PG&E) Multifamily Energy Efficiency Rebate (MFEER) Program. Based on our review, we describe what is working well and what might be improved for each document Cadmus reviewed.

Multifamily Rebate Program Manual

The objectives of the MMES&S Multifamily Rebate Program Policies and Procedures manual are to inform staff of program requirements and guide their operational procedures for tracking, rebate application measure verification, quality assurance, and funding allocation rules. Cadmus found the program manual provides thorough direction with good examples and visual elements that support these objectives. However, we identified some areas where the manual could be revised so that critical information is clear and easy to locate, and information is not unnecessarily repeated. Also, we believe the manual needs a thorough review to correct formatting and editing errors and improve the quality of PG&E's materials.

The Multifamily Rebate Program manual provides direction about how to oversee the program and presents precise information on qualifying measures and basic processes regarding program participation. The manual explains data entry, rebate payment adjustments, quality assurance procedures, and the protocol for randomly selecting inspections. It offers examples for additional process functions such as how to handle customer disputes. In addition, the manual provides useful links to additional information available elsewhere. Many visual aspects, such as the multifamily checklist, process flow charts, and a central inspection procedure table are clear and easy to read. The areas identified for improvement are relatively minor.

Although the manual is sufficient in describing procedures, the overall clarity could be improved. For example, a reference to "three Mass Market programs" on page 11 is not clear: are all three under the Multifamily Rebate Program (introduced on the first page) or is the Rebate program one of three programs (of which the reader is expected to be aware)? Another example is found in Section 1.25. Although this section is titled "Application Review," the narrative appears to be about on-site inspections. The manual also references additional information without clarification. For example, in Section 1.22, a reference to "specific milestones" is not explained further nor is there direction to where these milestones are listed. Clarifying information would support readers' understanding and ability to navigate the document.

The manual contains numerous minor formatting and other inconsistencies that may distract from critical components of the document. Acronyms are not always spelled out with the first use. Inconsistent spacing between paragraphs and improper page breaks makes reading difficult. For example, the top of page 11 begins with "tomer." This appears to be a continuation of the word "customer" at the bottom of page 10. Sometimes subheadings are repeated in the first sentence in a paragraph. For example, Section 1.4 is titled "Qualifying Energy Efficiency Measures," which is repeated on the next line. With these formatting inconsistencies, the manual lacks the professionalism we believe PG&E maintains.

Finally, we noted a lack of consistency regarding naming conventions both within the Policy and Procedures Manual as well as among program materials in general. For example, within the first paragraph of the Policy and Procedures Manual, the program is referred to as the Multifamily Rebates Program and the Energy Efficiency Multifamily Rebate Offering. The Program Application and Rebate Catalog refer to the Multifamily Properties Program. A marketing case study refers to the title Multifamily Program and includes the subheading PG&E's Energy Efficiency Rebates for Multifamily Properties. PG&E's Website for the program does not include a program name, but uses the heading, Energy Efficiency Rebates for Multifamily Properties. Such inconsistency regarding the program name may be confusing to participating contractors and to customers reviewing various program materials.

Multifamily Quality Assurance and Payment Desk Guide

The objective of the Multifamily Quality Assurance and Payment Desk Guide is to inform staff of the required process to reserve program funding. Cadmus found that the desk guide provides a clear and detailed checklist for verifying the receipt of applications. The checklist includes verification of the CIP report, the application package, the rebate/reservation form, and the database verification. We noted that visual elements could be improved; screen shots, though plentiful, are difficult to read and leave the reader uncertain of their purpose.

Multifamily Reservation, Data Entry, and Verification Desk Guide

The objective of the Multifamily Reservation, Data Entry, and Verification Desk Guide is to inform staff of the required processes for application review, verification, and tracking of applications through data entry. Cadmus found that the desk guide provides detailed guidance on the reservation process. It shows readers the step-by-step process for data entry and processing procedures for rebate applications with many helpful and easy-to-read screen shots.

We noted one area of inconsistency between the multifamily program manual and the desk guide. According to the manual, all rebates require that funding be reserved, although project managers may override this requirement for a customer applying for a single item such as a clothes washer. The Reservation, Data Entry, and Verification Desk Guide, however, indicate reservations are required only for contractors and customers who apply for rebates of \$5,000 or more. The reader does not know which document is correct. As with the manual, the desk guide would benefit from an editing review to improve inconsistent formatting.

Data Collection

For the Multifamily Rebate Program, PG&E's program application is its primary mechanism for collecting the data needed to track program progress, verify participant eligibility, calculate savings, and conduct evaluations. Cadmus reviewed the rebate application for the Multifamily Rebate Program to assess its ability to effectively facilitate these functions. The mobile homes program does not include a formal application process. Instead, data are collected by Synergy and submitted directly to PG&E.

Multifamily Rebate Program Application

The objective of the Multifamily Rebate Program application is to collect all necessary customer information, verify measure eligibility, and capture documentation required for future

evaluations. Cadmus found that the Rebate Program application collects the necessary data to determine customer eligibility and enable program evaluation. Additionally, the form is clear and easy to understand.

Marketing Materials

The objective of the Multifamily Rebate marketing materials is to provide potential customers with critical program information and encourage participation. Industry best practices in marketing energy-efficiency programs dictate that materials contain a clear call to action and be visually appealing and easily understood by customers. Specific materials Cadmus reviewed for the two programs included:

- The Multifamily Program Fact Sheet
- A Multifamily Program Case Study
- Web pages for each program.

Multifamily Rebate Program Materials

At a high level, Cadmus found that the Multifamily Rebate marketing materials communicate program information and benefits and maintain a consistent look and feel within PG&E's brand identity, a marketing best practice. In particular, the Multifamily Rebate Program fact sheet demonstrates concise content, bulleted information, and cross-promotion of other residential programs. It is visually appealing, with adequate white space, and clearly articulates the program's value proposition. It includes a detailed list of eligible program measures and a clear call to action ("To order a Multifamily packet, please call PG&E's Smarter Energy Line at 1-800-933-9555"). However, the fact sheet Cadmus reviewed appeared to be out of date, with a heading, "What's new for 2010" and references to continued rebates from 2009. This content should be updated and revised based on current program information. PG&E's Multifamily Program case study was visually appealing and included compelling verbiage and a call to action. The case study highlighted a direct quote from a program participant emphasizing multiple program benefits gained through personal experience, as well as detail on the participant's project and savings, all best practices for this type of marketing collateral. Because the project dated to 2006, PG&E may wish to consider creating more recent case studies featuring different building types.

PG&E's Multifamily Rebate program Webpage included basic program information but lacked key value words and phrases such as *saving money and energy, upgrades, limited-time funds, and solutions*. These messages should be emphasized by placing them high on the page and via font and/or color. The Webpage includes links to the reservation form and application as well as a detailed program measure catalog, but did not include links to either the fact sheet or case study referenced above. The program does not appear on the PG&E homepage and required three clicks and a good basic knowledge of what to look for to find program information. It is not referred to by name on any Webpage drop-down menus; rather, the link for program information is indicated with the ambiguous heading, *Residential Property Managers and Owners*.

Materials Review Summary

Table 22 summarizes findings from our review of each program manual, data collection, and marketing materials. Each review area summarizes what PG&E is doing well and what could be refined or improved.

Table 22. PG&E Materials Review Summary

| Review Area | Content | Visual Elements |
|--|---|--|
| Program Documents | | |
| Policies and Procedures Manual: Multifamily Rebate Program | Contains good detail regarding roles and responsibilities, program processes and procedures; clear direction with supporting information referred to elsewhere. | Plentiful and helpful references (screen shots, etc.). |
| | Unnecessarily repeats information; omits clarifying details; inconsistent use of acronyms; mistitled sections; inconsistent naming conventions. | Inconsistent use formatting and spacing. |
| Quality Assurance and Payment Desk Guide: Multifamily Rebate Program | Clear and detailed checklists for verification of applications. | Ample screenshots. |
| | | Screenshots are difficult to read. |
| Multifamily Reservation, Data Entry, and Verification Desk Guide: Multifamily Rebate Program | Detailed guidance on the reservation, data entry, and verification processes. | Easy to read, helpful screen shots. |
| | Some information contradicts with the program manual, regarding reservation of funds requirement. | Inconsistent font size on one page and missing link in table of contents. |
| Data Collection | | |
| Multifamily Rebate Application: Multifamily Rebate Program | Well structured, easy to follow, and thorough. | Color coding enhances visual clarity. |
| | | Additional white space on the front page may make the document easier to read. |
| Marketing | | |
| Website: Multifamily Rebate Program http://www.pge.com/myhome/saveenergymoney/rebates/property/ | Web page includes complete program information. | Program page includes downloadable rebate catalog and application form. |
| | Lacks key words and phrases such as saving money and energy, upgrades, limited-time funds, and solutions. Best practice keeps critical messages top-of-page and emphasized via font and/or color. | Program page is not linked from the PG&E homepage and locating to the correct page is difficult. Adding the fact sheet and case study to the Website page would match industry best practice for similar programs. |

| Review Area | Content | Visual Elements |
|---|--|---|
| Materials: Multifamily Rebate Program Program flyer and case study | All marketing materials include complete program information and clear call to action. Multifamily program flyer emphasizes managing costs, upgrading equipment, and receiving cash rebates. | Marketing materials have a consistent look and feel, a best practice. |
| | Program flyer is out of date. | |

PROGRAM CONCLUSIONS AND RECOMMENDATIONS

Comprehensiveness

A key finding of the 2006-2008 process evaluation of SCE's MFEER was that the program relied too heavily on lighting measures for savings, did not achieve savings with other measures, and thus was not as comprehensive as it could be. SCE's MFEER continues to be almost exclusively a lighting program focused on ENERGY STAR[®] CFL fixtures. While PG&E's program is more diversified, lighting measures still make up the majority of installations and savings. Evaluation findings suggest that hurdles are still ahead for achieving diversity of measures and depth of savings.

Why Lighting Dominates

The program design has contributed substantially to the dominance of lighting in the program. First, all of the qualified contractors at SCE, and many of the PG&E contractors are lighting contractors. Like most contractors, lighting contractors are specialists and stick with what they know. They are concerned about their reputations, comfortable only with promoting their own specialty, and limited in their abilities to assess and present multiple efficiency measure options. They also may be unwilling to put owners in touch with other contractors for fear of losing their own jobs or being worried that their own reputations could be at stake.

Second, our interviews with contractors showed that many think that no-cost lighting measures are the only measures that effectively overcome the split incentive barrier. Indeed, SCE contracts with its allies stipulate that the customers pay no cost for certain fixture types, though customers can choose to co-pay for more expensive fixtures.. While PG&E's model intends customers to share the cost, the rebate levels let contractors install no-cost lighting at a profit as long as the fixtures can be obtained at low enough cost. In addition, some behavioral economists would contend there's no price as compelling as "free."

Other factors may also favor lighting – or make other measures less favorable – since it is often perceived as the most convenient, and the least complex and intrusive measure to install, both in common areas and in tenant units. Although MFEER has had some challenges with lighting quality and contractor lighting services, the current program seems to have overcome these challenges.

Owner Hurdles

In our survey of program participants, only 41% of respondents were aware of rebates for measures other than the measures they had received through the program. PG&E participants were most likely to mention lighting and insulation as other program measures, while SCE participants were most likely to mention refrigerators and room air conditioners as other MFEER offerings.

Among participants who were aware of rebates for other measures, the reasons most often given for not installing those measures were financial limitations, high up-front costs, and insufficient

return on investment (ROI). They also said their existing equipment worked and did not need to be replaced.

In interviews and focus groups with owners and managers, owners voiced sincere interest in a more comprehensive approach to assessments and projects. However, when asked to describe such an approach, respondents often mentioned small improvements such as domestic hot water measures. They also made it clear that convenience was important and that they did not want to deal with the inconvenience of multiple contractors and the disruption of multiple visits.

Contractor Hurdles

In interviews, contractors said they would like to offer more products. Suggestions included induction lighting, HVAC tune ups, parking garage lighting, LEDs (interior, exterior, and pool), refrigerators, and solar pool equipment. Contractors, like customers, were apparently unaware of all the rebates offered through the program, since a number of these measures are already available.

Recommendations

- Ensure contractors and owners are aware of the full range of program opportunities through targeted marketing and outreach. Encourage active information seeking, perhaps through website promotions and presence at professional meetings.
- Widen the qualified contractor pool to include more contractors in other specialties. Support mechanisms, such as sales training and incentives, to foster marketing and cross-selling skills for all contractors.
- Investigate other measures that might appeal to customers, such as HVAC tune-ups and refrigerators. Devise and test out incentive structures that reward multiple measures and deeper retrofits or which are performance based. Ensure attractive ROIs and value propositions for all measures.
- Consider allowing customers to upgrade to better products with equivalent incentives or larger co-payments. Consider allowing contractors to propose new measures or to apply for custom incentives based on customer needs.
- Establish quality assurance procedures to ensure convenient and timely program delivery for owners and tenants. Market program convenience and timeliness once established.
- Conduct demonstration projects and create positive case studies and word of mouth to illustrate the benefits of the new program design. These projects could, for instance, support the Energy Upgrade California model of audits and deeper retrofits and savings.
- Work with larger property owners to establish policies for energy efficiency.

Product Selection and Quality

Cadmus uncovered a number of challenges related to the products that the program offered.

Price/Quality Squeeze

To deal with quality problems with both the products and installation offered through MFEER, both utilities took corrective actions. PG&E reduced incentives to encourage low-quality

contractors to drop out of the program. Yet the incentives remained high enough that some contractors still could install lighting at no cost to the customer.

SCE addressed quality problems by asserting tighter control over contractor qualifications. They entered into contracts with the qualified contractors to provide specific lighting measures at fixed reimbursement rates, stipulating that customers pay no cost for certain fixture types, though customers can choose to co-pay for more expensive fixtures. In practice, contractors have pushed the no-cost model as a path around the split incentive barrier. .

However, as the cost of lighting measures has increased, contractors say they have faced a cost/quality squeeze. Higher prices have pushed or led contractors toward fewer and lower cost choices. Insofar as low-cost measures are also lower in quality, the result is likely to undermine the successful work that has been done to improve customer satisfaction.

Also, high rent property managers participating in the focus groups made it clear that low-quality offerings reduce the attractiveness of the program because maintaining high quality is a priority in their properties. Indeed, experiences with low-quality efficiency measures are likely to spread quickly among property owners and managers of all types of properties.

From the utilities' view, the cost/quality squeeze is a byproduct of a business model the contractors have adopted and the avoidance of this squeeze is within the contractors' own control. Program managers note that promotion of lighting retrofits at no cost to property operators is easier than a proposition that requires customers to contribute to the costs, so contractors have taken this approach. However, the effect of EISA raising baseline efficiency and thus reducing energy savings provides less room for cost-effectively increasing incentives—in effect, a benefit/cost squeeze.

Whether a sales model can be developed that retains product quality through customer contributions and, simultaneously continues the volume or participation the programs have achieved, is unknown at this time.

Recommendations

- Continue to emphasize quality throughout the program, but especially for product quality, given its demonstrated ripple effects on program reputation. Quality needs to be a priority in the trade-offs made among incentive levels, product quality, and the measure/product mix.
- Re-evaluate incentive levels annually to ensure they achieve optimal cost-effectiveness, contractor profitability, and customer uptake.

Decision Making

MFEER serves a complex and challenging market. Along with the variety of property sizes and company sizes comes complexity in company structure and decision making. Cadmus' research indicates that approaches to customers need to consider a variety of company variables.

Company Size and Structure

Large property owners and property managers are more likely to have several layers of people involved in decisions to upgrade properties. They also are likely to have regional managers or managers that oversee a group of properties. For some companies, the executive suite must be involved in any significant decisions to upgrade properties.

Contractors focus on larger properties because the payoff is larger. However, since their primary access is at the property level, and their sales approaches may not be corporate, it may be difficult for them to reach and influence corporate executives who decide on upgrades for a wider set of properties. Our research suggests company executives are more likely to be responsive to utility representatives than to contractors.

Small properties and companies have simpler structures that make it easier to reach a key decision maker, but they provide lower opportunities for savings per contact. Nevertheless, they make up a large part of the total market.

ROI

We know from numerous sources that property owners and managers put greatest emphasis on ROI when deciding about investments in their properties. Even if owners and managers feel responsible for saving energy or protecting the environment—and a majority say they do—they tell us these reasons take a back seat to economic considerations. However, some property owners see a connection between energy efficiency and customer preferences, lower vacancy rates and turnover, lower maintenance, and the ability to charge higher rents. These less direct economic benefits can be leveraged in marketing the program.

The MFEER value proposition, as we have noted, to a large extent has avoided concerns about ROI by offering upgrades at no cost to the customer. If the program moves toward more measured cost-sharing it will need to have a compelling business case that takes into account the wider economic, and perhaps other, benefits of energy efficiency investments.

Recommendations

- Customize the engagement model based on the size and understanding of the customer. For big companies and big properties, MFEER should take both a top-down and bottom-up approach to outreach. The idea is that messages from both directions will reinforce one another and broaden the level of buy-in. Big operators are also likely to be more responsive to what they're used to: personal attention from utility corporate personnel. For smaller entities, the current bottom-up outreach approach appears to be working reasonably well.
- In approaching operators of all sizes, lead the conversation to ROI, but help to broaden thinking about the indirect returns accruing to tenant satisfaction.

Marketing and Operations

Contractors say they are generally pleased with the operation of MFEER. Contractors gave PG&E high marks for program management, responsiveness, kick-off meeting, program training, and prompt handling of reservations and rebates. SCE's contractors were also generally positive

about the program, citing high customer satisfaction, real cost savings to property owners, and greater quality assurance under the new program design. .

Contractors noted that most property owners give them positive feedback about the program. SCE's contractors added that the new program structure brings clarity about the program to customers and brings a more consistent messaging.

Recommendations

While contractors like the program, they offered the following recommendations to improve the program.

- Provide additional marketing tools and support. Our focus group research with property managers suggested the program's marketing materials needed to be more targeted and compelling, with approaches for different types of property owners and/or tenant demography. Many customers are interested in comparisons of energy costs per measure, or information on the incandescent lamp phase-out, for instance. PG&E contractors wanted to provide an easier way for contractors to access marketing collateral and the ability for them to use the PG&E logo for contractor materials.
- Provide more help targeting customers. To the extent possible, contractors would like to obtain intelligence on specific multifamily customers to help them target their outreach. For instance, the utilities may be able to share the results of their own marketing and evaluation research, which could support marketing efforts.
- Continue help with overcoming past reputation problems by ensuring product and contractor quality, streamlining reservation and application submittal processes and communicating better with contractors about inspections of installed measures, since such inspections can delay payment.

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APPENDIX A. FOCUS GROUP FINDINGS

Introduction

Through the Multifamily Energy Efficiency Rebate Program (Multifamily Program), Southern California Edison (SCE) and Pacific Gas & Electric (PG&E) encourage owners and managers of multifamily rental properties to install more-efficient equipment in common areas and in rental units. As part of a larger process evaluation contract, Cadmus conducted focus groups to assess the awareness, knowledge, attitudes, and behaviors of building owners and managers concerning energy-efficiency upgrades for their multifamily properties. The results of this research will assist SCE and PG&E in developing specific strategies to improve their services to this traditionally hard-to-reach sector. The research will also be used to inform a larger process evaluation of the program.

Cadmus conducted six focus groups with multifamily building owners and managers (participants): three in Irvine with SCE customers and three in San Francisco with PG&E customers. Cadmus worked closely with SCE and PG&E to design, recruit, and conduct the research. Participants represented diverse types of ownership and properties, ranging from small, individually owned luxury sixplexes to company-owned or –managed buildings with hundreds of units. All participants were involved with decisions to make energy-efficiency upgrades to their properties. Participants also characterized the rental market as robust and “ideal for owners.” In total, 53 owners (n=17) and building managers (n=36) of multifamily properties participated.

Summary of Key Findings

Similarities Across Multifamily Segments

Multifamily owners and managers across all rent levels were similar in many important ways. Similarities across the focus groups are described below and summarized in the table below.

Largest operating costs. All groups reported that their two largest operating costs are for tenant and common-area water and for common-area electricity. Many participants said water bills (which often include substantial sewer fees) are a greater concern than electricity bills because property owners pay the full bill (due to lack of individual meters), rates are high and rising rapidly, and owners have limited control over the amount of water their tenants use. Thus water costs can be large, less certain, and more difficult to manage than electricity bills.

All participants said they were concerned about the continued rise of utility costs; they voiced strong interest in controlling these operational costs. When asked about tenant awareness of energy use, most participants thought their tenants were not very aware of how they use energy.

Maintenance and upgrade decisions. Across all three segments, the most common spending limit for property managers without prior approval from owners was \$1,000. Depending on the relationship with the owner and the type of property, some had authority to spend much less (up to \$50) or much more (up to \$10,000).

The vast majority of participants handled minor maintenance themselves or used in-house staff. For larger or more technical jobs, such as changing HVAC systems, participants tended to use “favorite” vendors with whom they had well-established relationships. They regarded these

vendors as valuable and essential assets to managing their properties and resisted using new vendors. Most participants did not have maintenance contracts with these trusted vendors.

Most participants reported that up-front costs were the most significant barrier to installing high-efficiency equipment at their properties.

Perceptions about the Multifamily Program. Based upon reading a program description or looking at a brochure about the Multifamily Program, all three segments reported uncertainty about who was targeted in the program (owners, property managers, or both) and what array of measures were available with what financial benefits. Still, the majority of participants were still interested in the program if it reduced their operating costs. Many added that the program interested them if the resulting upgrades help them maintain or increase the happiness of their tenants. Participants explained that having happy tenants means less turnover, fewer complaints and maintenance requests, better care of apartment units and the property overall, and in some cases, a better quality of life for tenants. Some participants also mentioned that the upgrades could help attract the desired type of tenant for their properties.

Attracting greater program participation. Most participants suggested that program participation would increase if the Multifamily Program built stronger ties between the program and the trade associations for apartment owners and managers. Owners and managers say they rely upon these associations for industry information and see them as a credible source of guidance. They also said incentives that offset the added incremental costs for installing higher-efficiency equipment are a key component in attracting participants. Finally, they said it was important to make program steps simple and convenient and to emphasize the program's financial and other benefits (i.e., keeping tenants happy).

Table A - 1. Similarities Across Multifamily Segments

| Areas of Similarity | Description |
|--|---|
| Operating Costs | |
| Top operating costs | Water (and sewage) fees, common areas and tenant units |
| | Common-area electricity |
| Who pays utility bills | Most units all electric and individually metered; tenants pay bills |
| | Most water master-metered; owner/manager pays bill for entire property, must factor in variable cost through rent or prorate cost among tenants |
| Tenant awareness of energy use | Most think tenants pay little attention to how they use energy |
| Maintenance and Upgrade Decisions | |
| Spending limits without owner approval | Usually up to \$1,000 but some much less (up to \$50) and some much more (up to \$10,000) depending on owner relationships with property managers |
| Maintenance | Minor maintenance handled in-house; vendors do major work |
| Vendors | "Favorite" vendors nearly always in place and used |
| | Do not have vendor under contract |
| | Rely on word-of-mouth recommendations for vendor selection |
| Barriers to investment | Upfront costs |
| Perceptions about the Multifamily Program | |

| Areas of Similarity | Description |
|---|--|
| Reactions to program description and brochure | Unclear who program is targeting |
| | Interested in participating in the program if it promises: <ul style="list-style-type: none"> • Savings on operating costs • Increases in tenant happiness |
| Importance of incentives | Incentive must be large enough to offset incremental costs of buying high-efficiency models |
| Attracting Greater Program Participation | |
| How to best reach owners/managers | Participants trust/rely upon apartment associations |
| Advice to increase participation | Program participation must be simple and the benefits clear |

Differences Across Multifamily Segments

While the rent level segments had many similarities, they also differed in some notable ways, as described below and summarized in Table A – 2.

Operating costs. Although participants across the three segments agreed that water and energy were their top operating costs, some other costs surfaced for individual segments. Within the lower-income properties, owners and managers sometimes paid for their tenants' gas and electric bills; if so, they identified these costs as significant. Participants who owned or managed lower-rent apartments also reported that property taxes were a major operating cost. Those owning or managing medium-rent apartments said that permitting fees could be a large concern.

Maintenance and upgrade decisions. When asked what factors most influenced them when deciding on equipment upgrades, the three segments had distinct priorities, as follows:

- The lower-rent segment was most interested in protecting and increasing the value of their properties
- The medium-rent segment said they were most focused on keeping their tenants happy (i.e., high retention, fewer problems)
- The high-rent segment said reducing operating costs drove their decisions.

The focus groups suggested some nuances in the way program benefits should be relayed to different segments. In addition to the overarching benefit of lowering operating costs, those with lower-rent properties wanted to protect property values and emphasize environmental benefits; those with medium-rent properties wanted to see a potential to increase rents; and those with high end properties wanted to see more sophisticated financial analysis and benefits for the environment.

Although up-front costs were the greatest barrier to efficiency investments across the groups, the following differences surfaced for secondary barriers:

- Lower- and high-rent property owners and managers said they were concerned about obtaining approval from their managers and about the time it would require.
- Medium-rent property owners and managers said they were concerned about disrupting their tenants and obtaining permits.

Interest in Multifamily Program. Participant comments on a new brochure (for PG&E groups only) suggested some differences in information needs for the segments. Participants with medium and high-rent properties said they wanted to see specific costs and savings numbers for investments made through the program, while participants with lower-rent properties said they were concerned the program funding was limited and might not be dependable.

Reaching and Attracting Program Participation. While all groups suggested trade associations as the best way to reach them about the program, participants representing lower-rent properties suggested bill inserts as a good secondary channel while medium-rent participants said they preferred direct mail.

When asked about the themes that would attract them to improve the energy efficiency of their properties, both low- and high-rent property owners and managers said they wanted to hear how it benefited their operating budget and the environment. Participants with medium-rent properties said they thought energy efficiency could be used as a good selling point to potential tenants.

When asked why they might hesitate to install energy efficient equipment, the segments differed in their answers as follows:

- Participants with lower-rent properties reported that they were most concerned over the quality of the equipment.
- Participants with medium-rent properties expressed frustration that they had not achieved enough savings from previous energy-efficiency investments.
- Participants with high-rent properties said they had to balance the need to maintain the aesthetics of the property with the potential savings; they stressed that they often found energy-efficient equipment (e.g., lighting) less attractive than traditional equipment.

Table A - 2. Summary of Differences

| Areas of Difference | Description | | |
|--|-------------------------------------|---|---|
| | Low Rent | Medium Rent | High Rent |
| Operating Costs | | | |
| Other major operating costs | Tenant electric and gas (If paying) | Permitting fees | |
| | Property taxes | | |
| Maintenance and Upgrade Decisions | | | |
| What makes a winning proposition | #1 Increase/protect property value | #1 Keep tenants happy | #1 Lower operating costs |
| Benefits of investment | #1 Keep tenants happy | #1 Increase rent | #1 Keep tenants happy |
| | #2 Increase/ protect property value | #2 Keep tenants happy | #2 Increase/protect property value |
| Barriers to investment | #2 Approval | #2 Disruption to tenants | #2 Approval |
| | #3 Time | #3 Permitting | #2 Time |
| Perceptions about the Multifamily Program | | | |
| Program description and brochure | Concern over funding | Want more numbers re costs/savings | Want to see specific numbers re costs/savings |
| Attracting Greater Program Participation | | | |
| Why they are interested in energy efficiency | Better for their budget | Good selling point | Better for their budget |
| | Environmental stewardship | | Environmental stewardship |
| How to reach them | #2 Bill inserts | #2 Direct mail | |
| Hesitation to invest in energy efficiency | Quality of equipment | Already taken action and not seen savings | Have to balance aesthetics and savings |

Top-Level Findings

Focus group participants had many questions about who the Multifamily Program targets, what it offers, and how it works. The program interested them but they wanted more clarity and specifics. The program information provided to property owners and managers in the focus groups tended to raise more questions than it answered. Participants weren't sure who could participate in the program: tenants, managers, owners, or all three. They also had questions about what measures and costs the program covers and the steps they needed to take to participate.

Participants tended to perceive the barriers to program participation as greater than its benefits. Participants, especially property managers, repeatedly said it seemed program participation would require too much time and effort for the potential benefits. They also stressed that they probably would encounter great difficulty in obtaining approval for large comprehensive jobs. In addition, they raised concerns about the quality of measures and program vendors.

Participants said up-front cost is the primary barrier to energy-efficient investments. Even with incentives, the owners and managers were uncertain that they would be able to afford to cover the incremental costs between standard and high-efficiency equipment.

While saving on operating costs is the number one motivation for participating, secondary motivations are also important to emphasize. The desire to “keep tenants happy” was a central theme.

Research Background Goals, and Methods

Background and Overall Research Goal

As part of a larger process evaluation, Cadmus conducted focus groups to assess the awareness, knowledge, attitudes, and behaviors of building owners and managers concerning energy-efficiency upgrades to their multifamily properties. Cadmus conducted six focus groups with multifamily building owners and managers (participants). Cadmus used three rent levels—lower rent, medium rent, and high rent—to segment the groups. Participants represented diverse types of ownership and properties, ranging from small, individually owned luxury sixplexes near the ocean to company-owned or –managed buildings with hundreds of units. In total, 53 owners (n=17) and building managers (n=36) of multifamily properties participated. We screened all participants to ensure that they were involved with decisions to make energy-efficiency upgrades to their properties.

Research Questions

Key research questions addressed in the focus group included:

1. What are the primary benefits that property owners and managers want as a result of improving their properties?
2. What are the key barriers that prevent property owners and managers from improving their properties?

3. What are the major operating costs?
4. What factors do property owners and managers consider when deciding whether to make major improvements, and how are these decision made?
5. How do property owners and managers identify and employ vendors?
6. Where do multifamily building owners and managers find information to help manage their properties, and how they would like to receive information from utilities?

The results of this research will inform SCE and PG&E as they continue to fine-tune their multifamily programs.

Methods

Cadmus worked closely with SCE and PG&E to develop a screener to aid with the recruitment of participants and to develop discussion guides.¹⁸ In concert with SCE and PG&E, Cadmus determined that rent levels would be the key variable used in this study to separate the recruited groups into three types of customers: high, medium, and low rent.¹⁹

Cadmus conducted the first set of focus groups on Wednesday, October 19 in Irvine, Calif. with SCE customers and on Thursday, November 17 in San Francisco, Calif. with PG&E customers. We conducted three focus groups at each location. Overall, 53 multifamily customer representatives, i.e., property owners and building managers, participated. The total number of participants by group and segment are shown below.

Table A - 3. Segment Details (n=53)

| Utility | Segment | Total |
|--------------------|-------------|-------|
| SCE | Lower Rent | 10 |
| | Medium Rent | 8 |
| | High Rent | 10 |
| PGE | Low Rent | 7 |
| | Medium Rent | 10 |
| | High Rent | 8 |
| Total Participants | | 53 |

We selected group locations that would ensure representation across the two service territories. We used full-service focus group facilities for both locations. Each group discussed similar questions, although the exact wording of questions and the amount of time spent discussing each question varied. Each group lasted approximately one and a half hours, and participants received a financial incentive for attending.

¹⁸ The Recruitment Screeners and Discussion Guides are very similar in nature, but do have slight variations at the request of the clients..

¹⁹ Originally the groups were also to be segmented by whether or not participants had taken part in the Multifamily Program. However, the availability of participants was limited and the groups ended up being mixed.

Structure and Approach

We researched similarities and differences among the low-, medium-, and high-rent property owners and managers. We covered the following topics:

- The characteristics of focus group participants
- Views of the current rental market
- Costs and use of resources
- Maintenance and equipment decision making
- Interest in the multifamily program
- Reaching out and attracting program participation
- Attaining the State of California's 40% energy reduction goal.

As with all qualitative research, these results are not statistically representative of all SCE and PG&E multifamily property owners and managers. Indeed, the research highlighted the wide diversity within this target audience. Our goal in reporting these focus group results is to present balanced and qualitative insights, along with memorable highlights, in order to help SCE and PG&E refine their multifamily programs and related outreach strategies.

Characteristics of Focus Group Participants

Cadmus conducted two focus groups per segment, for a total of six focus groups across the two service territories. Within these groups, 36 participants were multifamily property managers and 17 were owners. (See Table A - 4.)

Table A - 4. Attendee Details (n=53)

| Utility | Segment | Owner | Manager | Total |
|---------|-------------|-------|---------|-------|
| SCE | Lower Rent | 6 | 4 | 10 |
| | Medium Rent | 2 | 6 | 8 |
| | High Rent | 4 | 6 | 10 |
| PGE | Low Rent | 0 | 7 | 7 |
| | Medium Rent | 4 | 6 | 10 |
| | High Rent | 1 | 7 | 8 |
| Total | | 17 | 36 | 53 |

The majority (44) of the focus group participants reported that they were always involved with making decisions regarding property retrofits and equipment upgrades. The remaining participants (9) said they were sometimes involved with these decisions.

Of the 53 participants, just under one-third (17) said they had participated in an SCE or PG&E multifamily program. Participation in the programs was dispersed throughout all three segments, as shown in Table A - 5.

Table A - 5. Attendee Program Participation Details (n=53)

| Utility | Segment | Participant | Nonparticipant |
|---------|-------------|-------------|----------------|
| SCE | Low Rent | 4 | 6 |
| | Medium Rent | 1 | 7 |
| | High Rent | 3 | 7 |
| PGE | Low Rent | 2 | 5 |
| | Medium Rent | 4 | 6 |
| | High Rent | 3 | 5 |
| Total | | 17 | 36 |

Views on the Current Rental Market

When we asked about the larger rental market, all segments agreed it was robust. Participants owning and managing both high- and medium-rent properties indicated that the market was “ideal for owners” with nearly no seasonal change and nearly 100% occupancy. The low-rent property owners and managers agreed, but some reported a slight twist on their tenant populations, since some properties are targeted to seniors, mixed family, disabled, or formerly homeless people. In these cases, turnover was very low. As one property manager put it, they are “always full; the only time there is a vacancy is [when there is a] death or when someone goes to jail.”

Operating Costs

We asked focus group participants in both service territories to describe what their major operating costs are, who paid for utilities (i.e., tenants or owners), and whether they were interested in reducing their energy costs. We also asked why they might be hesitant to invest in energy-efficient equipment. Similarities and differences across the segments on these topics are discussed in the next sections.

Similarities Across Multifamily Segments

Significant Operating Costs

Across all three segments, participants agreed on key operating costs. The vast majority (49) of the focus group participants reported that their tenants pay for their own electricity and gas²⁰ and property owners pay for the remaining utilities such as water, trash, sewage, and common-area electricity and/or gas. When asked to single out which of the utilities are most expensive, they chose water and common-area electricity.

²⁰ If natural gas is used for heating or cooking

Interest in Reducing Energy bills

Participants across the three segments were interested in reducing common-area electricity bills. They were less concerned, however, about individual apartment electricity costs, as most tenants pay for their own electricity. Participants indicated they did not think their tenants are very aware of their own energy consumption.

Differences Across Multifamily Segments***Significant Operating Costs***

A few minor differences arose among the segments when key operating costs were considered. First, several low-rent participants reported that they pay for all utilities, including tenant electricity and gas. These tended to be senior, disabled, or formerly homeless residents. In addition, a few of the low-rent participants indicated that property taxes were among the most expensive operating costs. Another difference was identified by medium-rent participants. Several of these participants mentioned that permitting fees were among the most expensive operating costs. As one medium rent participant said, “I’m getting nickel and dimes [on permitting fees].”

Interest In Reducing Energy Bills

Although the majority of focus group participants wanted to save money on energy bills, the reasons behind this interest varied by segment. For example, owners and managers of low-rent properties said reducing energy bills “saves money, but also [creates] less pollution.” Another low-rent participant said that “most [of his] tenants don’t speak English [but he] made an impassioned plea to them to save as parents of the next generation.” Others in the low-rent segment indicated that energy efficiency was a good idea because reducing energy consumption saved money on the annual operating budget, which allowed them to complete other upgrades to the property.

Participants with medium-rent properties said they thought lower utility bills for the property and within units “could be a good selling point” for new tenants, although there was some uncertainty as to how accurate the savings would be, making them hesitant to tell new tenants about potential savings. They said it was critical for managers to be honest with prospective tenants to ensure long-term positive relationships with them.

Participants with high-rent properties were generally supportive but somewhat less enthusiastic about installing energy-efficient equipment. As one high-rent participant put it, “I kind of look at [energy efficiency] like women who have to wear high heels when they prefer to wear flats. Maybe [energy efficient] lighting isn’t that aesthetic, but it’s helping our environment and saving us money, so to me the aesthetics aren’t as important.”

Hesitancy in Installing Energy-Efficient Equipment

When asked why they might be hesitant to install energy-efficient equipment, each segment had its own trends. For example, low-rent owners and property managers tended to be more focused on the quality of energy-efficiency products. One low-rent participant told a story about a recent negative experience with low-flow shower heads in tenant units. Overall, these participants were interested in opportunities to save, with the caveats that the products had to be of good quality and fit within the cost benefit equation.

The sticking point for medium-rent owners and managers was twofold: (1) tenants do not appear to be aware of their own energy consumption and are paying for their own utility bills, so there is little motivation for the owner to invest in more efficient equipment and (2) participants who had already taken energy efficiency actions tended to feel they had already done what they could and had not been impressed with the results. As one participant put it, “I’ve done nearly everything that can be done... [even put in] a new steam heater, but it didn’t make much of a difference,” i.e., he did not see the level of savings he had anticipated.

For those owning and managing high-rent properties, the challenge appeared to be balancing savings and aesthetics. One participant said, “Of course I’m interested in saving money, but not at the expense of the building looking bad, and what I have found is that the low-energy light bulbs make the building look like a nursing home. I want them to look like incandescents [in appearance and light quality].”

Maintenance and Equipment Decision Making

We asked focus group participants to describe how maintenance is handled, including the selection of vendors, i.e., contractors, and how decisions are made regarding improvements to their multifamily properties.

Similarities Across Multifamily Segments

Discretionary Spending Limits

Across the three segments, most property managers needed to obtain approval before spending any significant amount of money for property improvements. The most common discretionary budget limit was \$1,000. However, caps on independent spending could be as low as \$50 and as high as \$10,000.

Approaches to Maintenance and Property Improvements

Property owners’ and managers’ approaches to maintenance and property improvement decisions were nearly identical among the three segments. Each group reported that regular maintenance and minor repairs were handled internally either by themselves or building staff. They said they use independent vendors for larger items such as HVAC replacement or a painting project. This was also the case with anything related to health and safety. Only two participants, one in the low-rent segment and one in the medium-rent segment, reported having a full-time maintenance staff that handled all maintenance issues.

Nearly all participants indicated that they had favorite vendors, but none reported keeping vendors on contract. When asked where they found their vendors, word of mouth was by far the most common answer. As one participant with a medium-rent property put it, “I always talk to someone I know and trust.” Others avenues for identifying vendors included apartment associations, Yellow Pages, Google, Craigslist, Yelp reviews²¹, and issuing an RFP.

²¹ Google, Craig’s list, and Yelp are online sources.

What Makes a Winning Proposition

We asked focus group participants to describe what makes a project a winning proposition for upgrading their properties, especially investing in energy-efficiency improvements. The format of these questions was changed from the first set of groups in Irvine to the second set of groups in San Francisco. Thus we are able to present more quantifiable results, as shown in Figure 1, for the San Francisco groups. The Irvine groups offered similar insights and these are discussed in the narrative below after San Francisco results are presented.

Similarities Across Multifamily Segments

In San Francisco, participants developed the following list of criteria they thought were most important to use when considering new projects:

- Return on investment
- Rebates
- Higher rents
- Security and safety
- Tenant happiness
- Lower operating costs
- Curb appeal/aesthetic
- Environmental stewardship
- Availability of equipment
- Increasing and protecting property value
- Reliable and proven equipment.

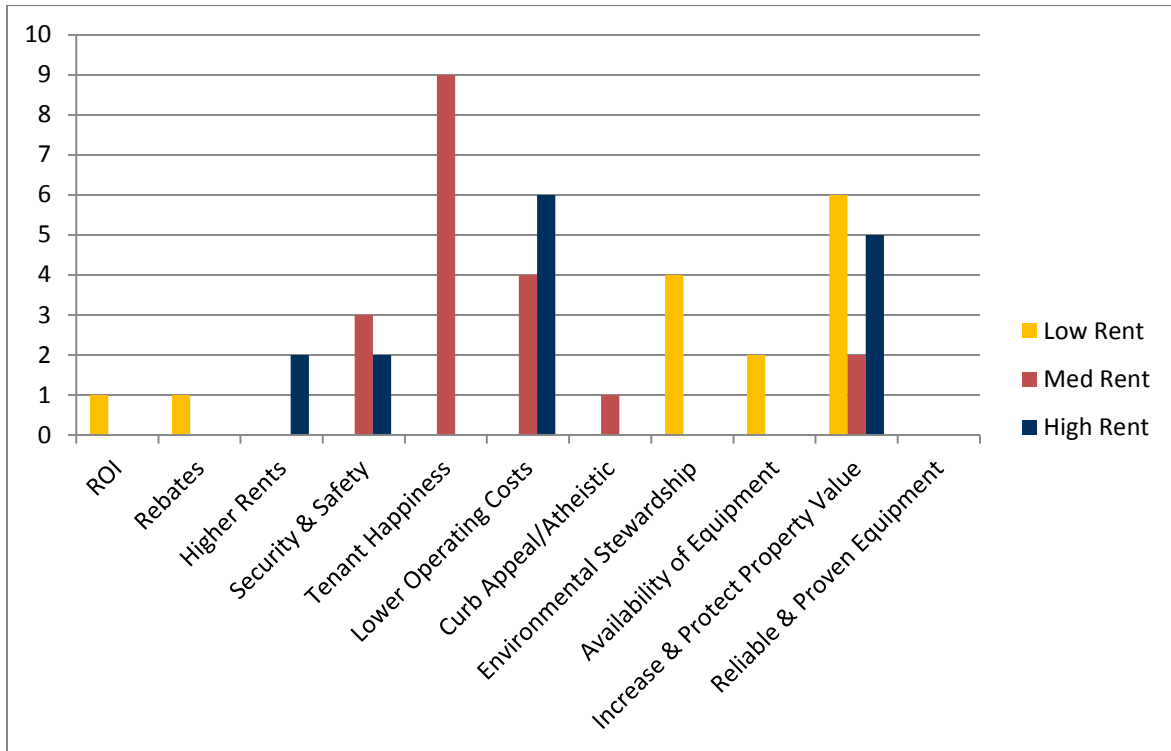
In Irvine, the groups listed essentially the same criteria with the addition of two items offered by the low rent groups: (1) the timeframe or convenience of installation, and (2) preference for free equipment. There was no mention of environmental stewardship in the low-rent groups.

Differences Across Multifamily Segments

Although the list of criteria was essentially the same across the three segments and in both sets of focus groups, once ranked, each segment had different preferences.

The San Francisco groups were asked to choose their top two features from the criteria. As shown in Figure A-1, although there is overlap between the segments each has a different order of preference. For example, low-rent property owners and managers reported the decision to invest in energy-efficient equipment or upgrades is highly motivated by increasing and protecting their property value (6). Medium-rent property owners and managers are clearly most interested in tenant happiness (9). High-rent property owners and managers ranked lower operating costs (6) as the most important consideration, although this was closely followed by increasing and protecting their property value (5).

Figure A - 1. Criteria for a Winning Proposition (n= 25)²²



²² Two participants only voted once, therefore there were only 48 total ranking votes.

Barriers to Participation

In beginning of each focus group session, we asked participants to think about the barriers they have faced in implementing property improvements, as well as the benefits they hoped to capture when upgrading the property.

The six groups reported very similar barriers, as well as benefits related to improving their properties. Common barriers included:

- Cost
- Time
- Permitting
- Disruption to tenants
- Identifying quality contractors
- Finding quality equipment
- Infrastructure i.e., old buildings
- Approval i.e., from owner/upper management

Cost was the most common barrier mentioned by all three segments. The segments differed on what barriers took second place. For example, both the low- and high-rent participants indicated that approval was the second most common barrier to improving their properties, whereas the medium-rent participants reported that concern over disruption to the tenants was the second most common. This can be correlated with the wining proposition exercise, where medium-rent participants reported that keeping tenants happy was the most motivating factor when deciding on improvements.

When looking at the third most common barrier reported by the groups, both participants with low- and high-rent properties said it was how much time it would take to take part in the program. The medium-rent participants were concerned with permitting²³. Since part of the discussion regarding the permitting process was the time permitting required; therefore, all three segments agreed that time can be a significant barrier.

Benefits to Participating

Focus group participants cited the following benefits for participating in the program:

- Good return on investment
- Ability to increase rents
- Increasing/keeping tenants happy

²³ The medium-rent participants did indicate that time was the fourth most common barrier.

- Lowering operating costs
- Improving curb appeal/aesthetic
- Improving security and safety
- Keeping, increasing and protecting property value.

Although all six groups identified many of the same benefits, the segments did not agree on the benefits that motivated them the most. For example, although both owners and managers of low- and high-rent properties indicated that keeping their tenants happy was the most important benefit of participating, the medium-rent participants reported that increasing the rent was the most significant benefit. However, it is important to note that in other parts of the focus group discussion, medium-rent participants said that keeping their tenants happy was a strong motivation to improve their properties.

Similarly to the primary benefit, low- and high-rent property owners and managers agreed that increasing and protecting the property value was a highly attractive benefit, although the low-rent participants also indicated strong preference for improved security and safety of the property. This mirrors the low-rent participants' primary motivation for property improvements, i.e., to increase and protect property value, as reported in the winning proposition exercise.

The medium-rent property owners and managers most often described ensuring their tenants' happiness as the second most common benefit to property improvements, which echoes their response in the winning proposition exercise. Regarding tenant happiness, participants in all three segments were quick to point out the relationship between happy tenants and increased retention, which reduces the strain on managers and owners to keep the building at capacity. In addition, medium and low-rent participants saw the connection between happy tenants and decreased maintenance. As one medium rent participant put it, "happy tenants take care of the building." Therefore, the principal motivation for change appears to be maintaining tenant happiness with additional benefits to the manager and owner such as leverage to increase rent and tenant retention.

Interest in the Multifamily Program

We read the following statement to all groups. It describes the multifamily program:

The Multifamily Energy Efficiency Rebate Program provides residential multifamily property owners and managers with prescribed rebates for energy-efficiency products to retrofit existing properties of two or more units. The products include lighting, HVAC, insulation, windows, and hot water measures and can be installed in individual units and in common areas.

We asked focus group participants (36) who had not participated in the Multifamily Program how interested they were in the program now, and whether they thought they might participate. The second set of groups (in San Francisco) was also given a brochure to reference during this portion of the discussion.

Similarities Across Multifamily Segments

One common thread among the three segments was that participants were not clear who the program is targeting or what it offered. Even the groups who could refer to the brochure were

uncertain of how the program worked and who might benefit. This was clearly stated by one high-rent participant who simply said, “[I] don’t know who the brochure is targeting.” Despite this, the majority of the participants in all segments were still interested in possibly participating.

Of those who had already participated (17), many expressed confusion regarding what was offered by the program. As one high-rent participant who had already received lighting put it, “I guess I haven’t been informed about the other products, whenever I’ve been told about it [the program] it’s just been about lighting.”

Another similarity among the three segments is their emphasis on the significance of incentive levels. Participants stressed the importance of providing an incentive that was large enough to offset the up-front cost of the energy-efficient equipment. One high-rent participant summed it by saying “I’m definitely interested [in the program] and want to know more, but I still don’t have the three or four thousand [dollars] to make the replacements.”

Differences Across Multifamily Segments

Although the groups agreed incentives are important, they were not aligned as to how high incentives have to be in order to be meaningful. For example, the low-rent segment participants expressed excitement to learn that the program offered \$35 and free haul-away of old, inefficient refrigerators. As one participant excitedly exclaimed, “I can get paid to replace my refrigerator!” This was in sharp contrast to the medium- and high-rent segments who did not view this amount to be meaningful. As one high-rent participant put it, “Thirty-five dollars is not worth the hassle. Where am I going to put the refrigerator while I wait for [the utility] to come get it?”

For those who viewed the brochure, another difference was that the medium- and high-rent property owners and managers were keenly interested in seeing more numbers, i.e., costs and savings, in the brochure. As several indicated, they “need more information” to make the case for participation to management. A main concern for low-rent participants was the wording on the brochure that indicated program funding was “first come, first served.” One participant expressed the low-income group’s concern when he worriedly said, “This is not a permanent thing.” Low-rent groups were hesitant to take the time and effort it would require to participate if the funding might not be reliable.

Reaching Out and Attracting Program Participation

We asked participants how their utility can reach out to them regarding the Multifamily Program and what advice they could offer for increasing participation.

Similarities Across Multifamily Segments

Reaching out

The majority within all three segments said that presentations through apartment associations would be the best way to encourage them to participate, as that these associations would lend the program credibility and managers and owners already have strong ties with them.

Differences Across Multifamily Segments

Reaching out

Utility bill inserts were the second most popular form of communication for the low-rent owners and managers, whereas the medium-rent owners and managers preferred direct mail. There was no clear runner up for the high-rent owners and managers. Additional marketing tactics suggested by the groups included:

- Phone call from the utility
- Utility presentation by utility staff
- E-mail from the utility
- Program pamphlet or brochure
- Billboards
- Facebook
- Trade shows
- Partnering with equipment companies

Similarities Across Multifamily Segments

Best Advice

We asked participants to give their best piece of advice. All three segments emphasized the importance of simplicity of program participation, clarity of the benefits and process, and ensuring quality, as illustrated by their comments below:

- "Don't have me sign up for it [the program]; just reward me for doing it. I don't have time to sign up." (low-rent participant)
- "The program [equipment and contractors] needs to be quality." (low-rent participant)
- "Tell me what my saving are going to be; present to me what is going to be done in a very simple way." (medium-rent participant)
- "Bottom line is the dollar, costs must be clear." (medium-rent participant)
- "The easier it is, the better; it needs to be painless."(high-rent participant)
- "Spell out the benefits: [it] has to be clear, savings and money, and easy to implement." (high-rent participant)

Attaining a 40% Energy Reduction in California

Near the end of each group, the property owners and managers were asked how utilities could encourage people to help the state of California attain a 40% statewide energy reduction goal. Overall, participants were not optimistic that the goal would be reached as planned. One low-rent participant said, “You can’t tell someone how to live.”

Despite this uncertainty, participants were willing to brainstorm possible ways to help reduce energy consumption. The most common suggestion from all three segments focused on energy generation, i.e., the increased production and use of alternative energy sources, with solar being the most common source mentioned.

Other recommendations included:

- Provide more energy education (low-rent participant)
- Offer rebates for co-generation (low-rent participant)
- Offer incentives for equipment e.g., occupancy sensors, that “make it easy to change behavior” (medium-rent participant)
- Increase rebates for tankless hot water heaters (medium-rent participant)
- Increase interest in efficiency programs to maximize savings (high-rent participant)
- Target commercial buildings, e.g., office buildings (high-rent participant)
- Offer tiered rates based on how many kWh are used (high-rent participant).

The recruitment screeners and discussion guides follow.

SCE Recruitment Screener

Hello, I'm _____ from Fieldwork, an independent research firm, calling on behalf of Southern California Edison, your local electric utility. SCE would like to include customers in a research study in the Irvine area. Let me assure you we are not trying to sell you anything. We are organizing a focus group to discuss energy efficiency upgrades in multifamily complexes and how owners and managers decide what to buy. ***[If needed: This focus group is a group discussion with other customers led by a trained moderator to gather input].*** Qualified respondents who participate in the focus group will receive \$150 to thank them for their time. May I ask you a few questions? It should only take about 5 minutes. **[If yes, continue. If no, check to see if there is a better time to talk. If no, terminate.]**

1. Please confirm that Southern California Edison provides electricity for the multifamily building you own or manage at the following address **[INSERT ADDRESS FROM SAMPLE]**.

1. Yes
2. No/Don't know **[Thank and terminate]**

2. Are you the...?

1. Building owner
 2. Property manager/owner representative
 3. Apartment or Facilities Manager
 4. None of the above **[Ask for referral. If not, Thank and terminate]**
3. How many individual units do you own or manage at all properties you are responsible for?
1. Up to 4 **[Thank and terminate]**
 2. 5 or more: how many? **[Record Response]**
4. Are all the units rentals or is the building a condominium complex?
1. All rentals **[Continue]**
 2. Condominium complex **[Thank and terminate]**
5. The Multifamily Energy Efficiency Rebate Program, sponsored by Southern California Edison, provides multifamily property owners and managers with rebates for energy-efficient equipment including lighting, HVAC, insulation, windows, and hot water heaters for individual units or common areas. Have you ever taken part in this program?
1. Yes **[Participating Group]**
 2. No/Don't know **[Nonparticipating Group]**
6. How often are you involved with choosing and/or buying energy-using equipment such as appliances and lighting or making upgrades to other aspects of your buildings that might affect its energy use, such as installing insulation? Would you say you are...?
- Always or usually involved
- Sometimes involved
- Rarely or never involved **[Thank and terminate]**
7. Now please take a moment to think about your typical rent for a *one* bedroom unit **in this building**. Which of the following best describes the typical rent?
- Up to \$750 **[Low Income Group]**
- Between \$751 and \$1250 **[Medium Income Group]**
- Above \$1251 **[High Income Group]**
- Don't know **[Thank and terminate]**
- Don't have any one bedroom units **[ASK Q8]**
8. OK, how about the typical rent for a *two* bedroom unit in this building. Is it ...?
1. Up to \$975 **[Low Income Group]**

2. Between \$976 and \$1550 **[Medium Income Group]**
 3. Above \$1551 **[High Income Group]**
 4. Don't know **[Thank and terminate]**
 5. Don't have any two bedroom units
9. If you had to describe the main type of tenant you have in this building, would you describe that tenant as:
1. Having a lower income, needing Section 8 housing or other low income housing such as HUD funded programs **[Low Income]**
 2. Having a high income, needing an elegant, spacious apartment with the best amenities, security, and location **[High Income]**
 3. Having a middle income, needing an apartment that has mid-range amenities, but with incomes that are not low or high. **[Middle Income]**
 4. Don't know **[Thank and terminate]**

10. Tie-Breaker Question: If the LEVELS OF INCOME identified across 6, 7, and 8 are inconsistent say:

To meet the purposes of our study, we need apartment owners and managers with three different types of buildings based on if their tenants in a specific building are most often low, middle, or high income. That's why we asked you about your rent levels and to describe the income levels of your tenants. In your case the answers have fallen into both the [____ and ____ income categories]. Could you tell me which of these two income categories BEST fits how you see the amenities and target tenants for your apartment – luxury for high income tenants, basic for lower income tenants, or in-between – not luxury and not low income. **[Use the answer from this question to sort respondents if there is a tie.]**

- Luxury/High-Income
- Middle Income
- Low Income

11. Do your tenants pay for their own electricity bill or is electricity included in the rent?
1. Tenants pay
 2. Electricity is included in the rent

[This next question screens for their ability to articulate their thoughts; i.e., add value to the session]

12. How interested would you be in taking part in a discussion about how you decide to make improvements to your apartment buildings?
- Very interested **[Continue]**

- Somewhat interested **[Continue]**
 Not too interested **[Thank and terminate]**
 Not at all/Don't know **[Thank and terminate]**

13. Why do you say **[fill in response from Q12]**

14. **[RECORD GENDER – Recruit mix as it falls]**

- Male
 Female

15. What is the name of the company you work for/own?

[Continue if they are a candidate for either of the groups: Participating/Nonparticipating – low, med, or high income]

Invitation:

I would like to invite you to participate in this discussion on **[DATE TBD]** in Irvine. We are offering a \$150 incentive to those who can join us for the 90 minute discussion. Does this sound like something you could participate in?

- No -> Thank you for your time. **[End call]**
 Yes -> Thank you. As mentioned earlier, the focus group will be no longer than 90 minutes and held at **[INSERT FACILITY AND DIRECTIONS]**. Will **[INSERT APPROPRIATE GROUP TIME]** work for you?
- Nonparticipant Group: Low-Income 12:00 noon
 - Nonparticipant Group: High-Income 6:00 p.m.
 - Participant Group: Med-Income 8:00 p.m.
- No -> Thank you for your time. **[End call]**
 Yes -> Thank you. May I ask your e-mail address or preferred phone number so I can send a reminder to you when we get closer to the date?

RECORD ALL INFORMATION ON COVER SHEET

Name: _____

Preferred Telephone number: _____

E-mail: _____

Date contacted: _____

Please feel free to contact me if you have any questions prior to the focus group at **[INSERT FACILITY NUMBER]**. Thank you again for your time and we look forward to getting your feedback on the program.

[Provide directions and details about parking, which will be paid for, in the confirmation message.]

SCE Discussion Guide

Introduction (10 min)

1. As we go around the table, please introduce yourself. Tell us 1) if you're a building owner or manager, 2) how long you have been involved in the business of operating/managing multi-family properties, and 3) how many buildings and units your company owns or manages. (Probe to understand corporate size and structure as appropriate.)
 - a. Also, when we called you about participating in this group, we referred to a specific multifamily rental building. Could you please describe that building? We'll want you to keep that building in mind – and any that are very similar to it in terms of tenants and rents charged -- during our discussion here tonight. *[Refer to screener profile for building reference.]*
2. Now I'd like to hear what you wrote about the barriers to improving this type of building.
3. And now tell me about the benefits you are looking for when you improve this type of building.
4. Now, please tell me what types of improvements tend to be at the top of your list for buildings like this one. Why?

Costs and Use of Resources (10 min)

Now let's talk about various costs at the rental property we referred to when we asked you to join this focus group and any others that are very similar. *[Remind them of the type of rental property: low, med., high-income rents/tenants.]*

5. What are your biggest operating costs? What changes have you noticed in operating costs in recent years?
6. What changes have you seen in energy costs for this rental property? How important are energy costs compared to other operating costs you incur?
7. How interested are you in cutting energy bills at this property? Why or why not?
8. How do your tenants pay for energy? Is it part of their rent? A prorated share of the bill? Individually metered units (they pay their own)?
9. Do you think your tenants are aware of their energy use?
10. Do you ask your tenants to try to save energy or communicate with them in any way about their energy use?
11. What are the barriers to reducing energy use in this building?
12. What are the potential benefits of reducing energy use at this building?

Maintenance and Equipment Decision Making (30 min)

Now I'd like you all to tell me more about how decisions are made to maintain or upgrade this building and any similar ones you own or manage. First we'll talk about maintenance, then about

larger improvements, such as replacing equipment. In each case we'll talk generally, but then talk more specifically about actions that affect the energy use in the building.

1. How is maintenance handled at the building? Who decides what maintenance will be done? Is there a regular schedule of it or is more of an as-needed approach, or does it depend on the type of maintenance? Who performs the maintenance? *[Probe: changing furnace filters, furnace/air conditioner tune-up, adjusting common area temperature controls, putting common area lighting on timers, weather-stripping, etc.]*
2. Now let's talk about bigger upgrades that take more capital. *[Probe: What would you include here? Would things like changing appliances, HVAC systems, and installing insulation be included here?]* How do you find out that improvements like may be needed for this building?
3. Who gets involved in deciding whether or not an improvement will be made?
4. Does the decision-making process vary by the type or cost of the improvement?
5. What factors are considered for major improvements? What makes these improvements a 'winning proposition?' *[Probe below, if not mentioned]*
 - a. The value of the building and/or its ability to attract/retain tenants?
 - b. Reduced maintenance?
 - c. The economic circumstances of your tenants?
 - d. Tenant benefits, such as comfort, health?
 - e. Making the building more energy efficient? *[Probe: How does this relate to tenants paying/not paying for their utility bills impact the decision to install energy-efficient equipment?]*
6. Who gives the final approval for various types of improvements?
7. Is there a set budget for equipment or upgrades? *[Probe: is it annual?]*
8. How are improvements timed or scheduled?
9. Is there any sort of company or building policy that dictates what kinds of replacements are purchased? *[Probe: For energy related improvements, are there guidelines for certain energy-efficiency levels for HVAC equipment or insulation levels?]*
10. Who is typically involved in making the types of upgrades/improvements we've been talking about, or does it depend on the type of upgrade?
11. *[If use contractors]* How do you/would you find a contractor? *[Probe: word of mouth, internet, someone you've worked with before, etc.]*
12. What level of turnover do you experience in managing these buildings? How does that turnover affect the kinds of decisions we've been talking about?

Program Participation (15 min)²⁴

Now I'd like to talk about SCE's Multifamily Energy Efficiency Rebate Program that you participated in.

13. How did your company first hear out about SCE's program?
14. Why did you decide to participate in it?
15. How well did the program work for you?
 - a. How did you decide what equipment or upgrades to submit for the rebate process? e.g., HVAC, lighting, insulation, windows
 - b. If you sought help, did you get the help you needed?
 - c. How satisfied were you with the contactor process i.e., selection, scheduling, quality of work
 - d. How satisfied were you program process i.e., ease of application, timing of rebate check, amount?
 - e. How satisfied have you been with the equipment or upgrades installed? Why?
 - f. **To address challenges brought up:** Does anyone have recommendations that might make *[INSERT CHALLENGE e.g., submitting the rebate]* easier?
16. The program is considering having an approved contractor list you would need to choose from to install equipment that is rebated through the program. How would having such a list affect your view of participating in the program? *[Probe: quality, lack of competition, ease of identification/selection, etc.]*

Efficiency Actions Outside the Program (10 minutes)²⁵

17. Outside of participating in the SCE Multifamily Rebate Program, have you installed high energy-efficiency equipment (e.g., Energy Star rated) either in individual apartments (e.g., lighting or appliances) or in common areas (e.g., *lighting, insulation, HVAC, etc.*) in this building?
 - a. If yes: What did you install and how satisfied have you been with these purchases? Why?
18. Have you taken any other types of steps to make your buildings more "resource efficient?" (e.g., *energy or water conservation projects*)? If so, how did that work out?
19. Do you have any current plans to reduce energy use in your building? If so, what?
 - a. What benefits do you expect to see from doing these projects? *[Probe: Is it ever a selling point to tenants or buyers to have a more water efficient building?]*

²⁴Asked only of program participants

²⁵Asked only of program participants

Program Awareness and Interest (15 min)²⁶

20. Have you heard about SCE's Multifamily Energy Efficiency Rebate Program?

[IF NEEDED: The Multifamily Energy Efficiency Rebate Program provides residential multifamily property owners and managers with prescribed rebates for energy-efficiency products to retrofit existing properties of two or more units. The products include lighting, HVAC, insulation, windows, and hot water measures and can be installed in individual units and in common areas.]

21. For those of you who hadn't heard about the program, what do you think might be attractive about participating for the type of rental properties we've been discussing?

a. Do you think you might participate in the future? Why/why not?

22. For those of you who had heard about it, where did you hear about it and what did you hear?

a. Can you tell me why you haven't taken part in the program to date?

Sources of Information and Wrap Up (10 min)

Now just a few last questions.

23. Where do you go to get information or resources to help you manage this and similar rental properties? *[Probe: contractors, associations, internet resources]*

24. What is the most effective way of reaching you with utility program information?

25. One last question before you go. Based on today's discussion, what is your best piece of advice for SCE to encourage greater participation in their Multifamily Energy Efficient Rebate Program?

Thank you for sharing your opinions and taking the time to participate. Your input is greatly appreciated. And don't forget to pick up your incentive on your way out.

²⁶ Asked only of program nonparticipants

PG&E Recruitment Screener

Hello, I'm _____ from Fieldwork, an independent research firm, calling on behalf of Pacific Gas and Electric, your local electric utility. PG&E would like to include customers in a research study in the Bay Area. Let me assure you we are not trying to sell you anything. We are organizing a focus group to discuss energy-efficiency upgrades in multifamily complexes and how owners and managers decide what to buy. ***[If needed: This focus group is a group discussion with other customers led by a trained moderator to gather input]***. Qualified respondents who participate in the focus group will receive \$150 to thank them for their time. May I ask you a few questions? It should only take about 5 minutes. **[If yes, continue, if no – check to see if there is a better time to talk- if no, terminate]**

1. Please confirm that Pacific Gas and Electric provides electricity for the multifamily building you own or manage at the following address **[INSERT ADDRESS FROM SAMPLE]**.
 - a. Yes
 - b. No/Don't know **[Thank and terminate]**

2. Are you the...?
 - a. Building owner
 - b. Property manager/owner representative
 - c. Apartment or Facilities Manager
 - d. Neither **[Ask for referral – If not, Thank and terminate]**

3. How many individual units do you own or manage at all properties you are responsible for?
 - a. Up to 4 **[Thank and terminate]**
 - b. 5 or more: how many? **[Record Response]**

4. Are all the units rentals or is the building a condominium complex?
 - a. All rentals **[Continue]**
 - b. Condominium complex **[Thank and terminate]**

5. The Multifamily Energy Efficiency Rebate Program, sponsored by Pacific Gas and Electric, provides multifamily property owners and managers with rebates for energy-efficient equipment including lighting, HVAC, insulation, windows, and hot water heaters for individual units or common areas. Have you ever taken part in this program?
 - a. Yes **[Participating Group]**
 - b. No/Don't know **[Nonparticipating Group]**

6. How often are you involved with choosing and/or buying energy using equipment such as appliances and lighting or making upgrades to other aspects of your buildings that might affect its energy use, such as installing insulation? Would you say you are...?
- Always or usually involved
 - Sometimes involved
 - Rarely or never involved **[Thank and terminate]**
7. Now please take a moment to think about your typical rent for a *one* bedroom unit **in this building**. Which of the following best describes the typical rent?
- Up to \$850 **[Low Rent Group]** **[SKIP TO Q9]**
 - Between \$851 and \$1400 **[Medium Rent Group]** **[SKIP TO Q9]**
 - Above \$1401 **[High Rent Group]** **[SKIP TO Q9]**
 - Don't know **[ASK Q8]**
 - Don't have any one bedroom units **[ASK Q8]**
8. Ok, how about the typical rent for a *two* bedroom unit in this building. Is it ...?
- a. Up to \$1100 **[Low Rent Group]**
 - b. Between \$1101 and \$1700 **[Medium Rent Group]**
 - c. Above \$1701 **[High Rent Group]**
 - d. Don't know **[Thank and terminate]**
 - e. Don't have any two bedroom units **[Thank and terminate]**
9. If you had to describe the main type of tenant you have in this building, would you describe that tenant as :
- a. Having a lower rent, needing Section 8 housing or other low-rent housing such as HUD funded programs **[Low Rent Group]**
 - b. Having a high rent, needing an elegant, spacious apartment with the best amenities, security, and location **[High Rent Group]**
 - c. Having neither low nor high rent; needing an apartment that has mid-range amenities. **[Middle Rent Group]**
 - d. Don't know **[Thank and terminate]**
10. **Tie-Breaker Question: If the LEVELS OF RENT identified across 7, 8, and 9 are inconsistent say:**

To meet the purposes of our study, we need apartment owners and managers with three different types of buildings based on if their rents in a specific building are most often low, medium, or high. That's why we asked you about your rent levels and to describe the rent

levels. In your case the answers have fallen into both the [____ and ____ rental categories]. Could you tell me which of these two categories BEST fits how you see the amenities and target tenants for your apartment – luxury for high rent, basic for lower rent, or in-between – not luxury and not low rent. **[Use the answer from this question to sort respondents if there is a tie.]**

- Luxury/High-Rent
- Middle Rent
- Low Rent

11. Do your tenants pay for their own electricity bill or is electricity included in the rent?
- a. Tenants pay
 - b. Electricity is included in the rent

[This next question screens for their ability to articulate their thoughts i.e., add value to the session]

12. How interested would you be in taking part in a discussion about how you decide to make improvements to your apartment buildings?
- Very interested [Continue]
 - Somewhat interested [Continue]
 - Not too interested [Thank and terminate]
 - Not at all/Don't know [Thank and terminate]

13. Why do you say **[fill in response from Q12]**

14. **[RECORD GENDER – Recruit mix as it falls]**

- Male
- Female

15. What is the name of the company you work for/own?
-

[Continue if candidates fulfill both requirements – rent group and participating/non-participating:

1. HIGH RENT/PARTICIPANT (10)

2. MIDDLE RENT/PARTICIPANT (10)

3. LOW RENT/PARTICIPANT (5) AND LOW RENT/NONPARTICIPANT (5).

ALL OTHERS THANK AND TERMINATE]

Invitation:

I would like to invite you to participate in this discussion on November 17th in San Francisco. We are offering a \$150 incentive to those who can join us for the 90 minute discussion. Does this sound like something you could participate in?

- No -> Thank you for your time. **[End call]**
- Yes -> Thank you. As mentioned earlier, the focus group will be no longer than 90 minutes and held at **[INSERT FACILITY AND DIRECTIONS]**. Will **[INSERT APPROPRIATE GROUP TIME]** work for you?
 - Participant Group: High-Rent 4PM
 - Participant Group: Middle-Rent 6PM
 - Mixed Group (5 parts/5 nonparts): Low-Rent 8PM
- No -> Thank you for your time. **[End call]**
- Yes -> Thank you. May I ask your e-mail address or preferred phone number so I can send a reminder to you when we get closer to the actual date?

RECORD ALL INFORMATION ON COVER SHEET

Name: _____

Preferred Telephone number: _____

E-mail: _____

Date contacted: _____

Please feel free to contact me if you have any questions prior to the focus group at **[INSERT FACILITY NUMBER]**. Thank you again for your time and we look forward to getting your feedback on the program.

[Provide directions and details about parking, which will be paid for, in the confirmation message.]

PG&E Discussion Guide²⁷

Introduction (10 min)

1. As we go around the table, please introduce yourself. Tell us 1) if you're a building owner or manager, 2) how long you have been involved in the business of operating/managing multi-family properties, and 3) how many buildings and units you own or manage and where.
 - a. When we called you about participating in this group, we referred to a specific multifamily rental building. Could you please describe that building? We'll want you to keep that building in mind – and any that are very similar to it in terms of tenants and rents charged -- during our discussion here tonight. [*Refer to screener profile for building reference.*] Finally, please briefly tell us how the rental market for your property (ies)?
2. Now I'd like to hear what you wrote about the barriers to improving this type of building.
3. And now tell me about the benefits you are looking for when you improve this type of building.
4. Now, please tell me what types of improvements tend to be at the top of your list for buildings like this one. Why?

Costs and Use of Resources (10 min)

Now let's talk about various costs at the rental property we referred to when we asked you to join this focus group and any others that are very similar. [*Remind them of the type of rental property: low, med., high-income rents/tenants.*]

5. What are your biggest operating costs? What changes have you noticed in operating costs in recent years?
6. What changes have you seen in energy costs for this rental property? How important are energy costs compared to other operating costs you incur?
7. How interested are you in cutting energy bills at this property? Why or why not?
8. How do your tenants pay for energy? Is it part of their rent? A prorated share of the bill? Individually metered units – they pay their own? (*If tenants pay their own...*) **How does having tenants pay their own energy bills affect how you think about saving energy in your buildings?**
9. Do your tenants **ever talk to you about their utility bills or ask for more efficient equipment? If so –tell me about these conversations? Do you think your tenants are aware or concerned about their utility bills?** Do you ask your tenants to try to save energy or communicate with them in any way about their energy use?

²⁷ Additional questions requested by Client week of groups in bold

10. **If you were able to tell prospective tenants that living in your apartments would result in lower electric and gas heating bills than in similar apartments, would that appeal to them?**

11. What are the barriers to reducing energy use in this building?

12. What are the potential benefits of reducing energy use at this building?

Maintenance and Equipment Decision Making (30 min)

Now I'd like you all to tell me more about how decisions are made to maintain or upgrade this building and any similar ones you own or manage. First we'll talk about maintenance, then about larger improvements, such as replacing equipment. In each case we'll talk generally, but then talk more specifically about actions that affect the energy use in the building.

13. How is maintenance handled at the building? Who decides what maintenance will be done? Is there a regular schedule of it is more of an as-needed approach, or does it depend on the type of maintenance? Who performs the maintenance? *[Probe: changing furnace filters, furnace/air conditioner tune-up, adjusting common area temperature controls, putting common area lighting on timers, weather-stripping, etc.]*

14. Now let's talk about bigger upgrades that take more capital. *[Probe: What would you include here? Would things like changing appliances, HVAC systems, and installing insulation be included here?]* How do you find out that improvements like may be needed for this building?

15. Do you have contracts for any of your maintenance services? If yes – Which types of services do you contract out to pre-decided service provider, which ones stay in-house?

16. For a key building component like HVAC, to what level or scale of issue do you resolve the problem yourself with existing maintenance staff or hire a specialized contractor?

17. If you were to hire a new contractor, how would you identify and select them?

18. Have you ever been pitched or presented with a proposal to implement energy efficiency in your building? *If yes, please briefly describe what the proposal included.*

19. Who gets involved in deciding whether or not an improvement that involves energy efficiency upgrades will be made?

20. Does the decision-making process vary by the type or cost of the improvement?

21. What factors are considered when you are deciding whether or not to make major improvements that will affect your building's energy use? What makes these improvements a 'winning proposition?' *[Probe below, if not mentioned]*

f. Increasing the value of the building?

g. Reducing maintenance?

h. **Reducing energy bills over time? What level of reduced bills would be attractive?**

i. **Help attract or retain tenants?**

i. How? The economic benefits for of your tenants?

- ii. **How? Tenant benefits, such as comfort, health?**
 - iii. **Do you think having energy efficient units will be more important in the future in terms of attracting and retaining tenants?**
 - j. The ability to raise the rent/charge more for the units? **Probe: What factors do you consider when you are thinking about increasing the rent?**
 - k. **Having a rebate program helps reduce the costs of the improvement?**
 - i. **What level of rebate would you find adequate? (Add levels to probe).**
 - l. **Being able to finance the improvements on your utility bill at a low interest rate?**
 - m. Your contractor or maintenance supplier recommended it?
 - n. Making the building more energy efficient?
22. Who gives the final approval for various types of improvements?
23. Is there a set budget for equipment or upgrades? [*Probe: is it annual?*]
24. How are improvements timed or scheduled?
25. Is there any sort of company or building specification (pre-determining the type – brand of product that is stocked/ordered for replacements) that dictates what kinds of replacements are purchased? [*Probe: For energy related improvements, are there guidelines for certain energy-efficiency levels for HVAC equipment or insulation levels?*]
26. What impact do building codes have upon your decision making in terms of making repairs or upgrades?
27. Who is typically involved in making the types of upgrades/improvements we've been talking about, or does it depend on the type of upgrade?
- a. [*If use contractors*] How do you/would you find a contractor? [*Probe: word of mouth, internet, someone you've worked with before, etc.*]
28. What kind of (decision making; staff; contractor; tenant) turnover do you experience in managing these buildings? How does that turnover affect the kinds of decisions we've been talking about?

Program Awareness and Interest (15 min)

29. What have you heard about PG&E's Multifamily Energy Efficiency Rebate Program?
Where did you hear about it?

The Multifamily Energy Efficiency Rebate Program provides residential multifamily property owners and managers with prescribed rebates for energy-efficiency products to retrofit existing properties of two or more units. The products include lighting, HVAC, insulation, windows, and hot water measures and can be installed in individual units and in common areas. [HAND OUT BROCHURE]

- a) What reactions do you have to the brochure?
- b) What attracts you about participating in this program?

- c) What questions or concerns do you have?
- d) How would you find a contractor to do the work? What would you think about the program having a list of approved contractors to choose from who are well versed in providing the program services? [*Probe: quality, lack of competition, ease of identification/selection, etc.*]
- e) Do you think you might participate in the future? Why/why not?

Program Participation (15 min)

Now I'd like to talk about PG&E's Multifamily Energy Efficiency Rebate Program that you participated in.

- 30. Why did you decide to participate in it?
- 31. How well did the program work for you?
 - g. How did you decide what equipment or upgrades to submit for the rebate process? e.g., HVAC, lighting, insulation, windows
 - h. What program components and offerings did your use? (e.g. lighting, HVAC, insulation, roofing, windows, etc.)
 - i. If you sought help, did you get the help you needed?
 - j. If you used a contractor for this MF EE Rebate program, were they knowledgeable and informed about the program, and able to answer your questions?
 - k. How satisfied were you with the contractor process i.e., selection, scheduling, quality of work
 - l. How satisfied were you program process i.e., ease of application, timing of rebate check, amount?
 - m. How satisfied have you been with the equipment or upgrades installed? Why?
 - n. **To address challenges brought up:** Does anyone have recommendations that might make [INSERT CHALLENGE e.g., submitting the rebate] easier?

Efficiency Actions Outside the Program (10 minutes)

- 32. Outside of participating in the PG&E Multifamily Rebate Program, have you installed high energy-efficiency equipment (e.g., Energy Star rated) either in individual apartments (e.g., lighting or appliances) or in common areas (e.g., *lighting, insulation, HVAC, etc.*) in this building?
 - b. If yes: What did you install and how satisfied have you been with these purchases? Why?
- 33. Have you taken any other types of steps to make your buildings more "resource efficient?" (e.g., *energy or water conservation projects*)? If so, how did that work out?

34. Do you have any current plans to reduce energy use in your building? If so, what?

What benefits do you expect to see from doing these projects? [*Probe: Is it ever a selling point to tenants or buyers to have a more water efficient building?*]

Sources of Information and Wrap Up (10 min)

Now just a few last questions.

35. Where do you go to get information or resources to help you manage this and similar rental properties? [*Probe: contractors, associations, other owners/managers, internet resources*] **What sources would influence you the most (probe: testimonials)?**
36. What is the most effective way of reaching you with utility program information?
37. **The state of California wants to reduce energy use by 40% over the next decade. What ideas do you have for doing that within your rental properties.**
38. **As we've discussed, one way to reduce energy is to improve the efficiency of the equipment and the building itself. Another way to reduce use is to ask people to save energy. A third way to save energy is to produce it using a renewable energy source such as solar or wind power. What are your reactions to installing solar or wind power at your properties?**
39. One last question before you go. Based on today's discussion, what is your best piece of advice for PG&E to encourage greater participation in their Multifamily Energy Efficient Rebate Program?

Thank you for sharing your opinions and taking the time to participate. Your input is greatly appreciated. And don't forget to pick up your incentive on your way out.

APPENDIX B. PROGRAM MANAGER INTERVIEWS

Introduction

Cadmus conducted interviews with key program stakeholders in Southern California Edison's (SCE) and Pacific Gas and Electric's Multifamily Energy-Efficiency Rebate (MFEER) programs. Cadmus conducted these interviews with program managers and with the programs' implementation contractors as part of process evaluations for the 2010–2012 program cycle. The interviews allowed us to clarify key points in the program process and to determine how the delivery model changed during 2010 and 2011.

Purpose and Methods

Cadmus' interviews (in combination with other process evaluation tasks) primarily sought to assess the effectiveness of program design and implementation, including marketing and outreach, and actions taken to improve the program. Consequently, Cadmus developed a set of researchable issues for each program, integrating these into structured interview instruments. Structured interviews focused on the following:

- Roles and responsibilities of program staff and implementers.
- Program processes and procedures, training opportunities, and progress regarding educating contractors on program goals, including the incentive mechanism's effectiveness.
- Perceived program participation barriers, and staff approaches for overcoming those barriers.
- Descriptions of all program services, educational processes with outputs, and expected outcomes from each activity.
- Expected savings opportunities and market effects.
- Perceived successes and future challenges.
- Data resources, databases, and tracking system processes for securing required data.
- Documentation of evaluation and key researchable issues for data collection and analysis.

PG&E

Program Overview

PGE's MFEER program provides high-efficiency appliances, boilers and water heating, HVAC, lighting, and pool filtration pumps and motors to multifamily building managers and owners as direct install measures, at little or no costs to customers. Measures most commonly implemented through the program include:

- Energy-efficient lighting (hard-wired fixtures and lamps) in dwellings and common areas
- Energy-efficient exterior lighting

- Showerheads.

Both customers and contractors are eligible to receive rebates on qualifying equipment. Cadmus' interviews with six program contractors provided opportunities to clarify key points in the program's process.

Participation

Cadmus interviewed six contractors (contact information was provided by PG&E) who were active in the program. Those interviewed included:

- A sustainability specialist for a property management company
- Contractors specializing in energy efficiency, lighting, electrical work, and heating and cooling.

In most cases, contractors marketed the program directly to property managers and owners through canvassing, cold calls, and leveraging networks or previous client relationships. Occasionally, they attended trade shows or handed out pamphlets to increase awareness about the program.

In most cases, contractors initiated engagements with customers by explaining the program, conducting walk-through evaluations, and providing customers with proposals that specify the number of measures to be installed, installation timeframes, and warranty information. Customers then signed a reservation form, which was submitted to PG&E to ensure funds were available to cover the full cost of proposed measures. Upon installing the specified measures, contractors submitted a detailed program application form, specifying quantities, types, and locations of installed measures to PG&E. These applications are the primary data collection vehicle for PG&E and allowed reimbursement of equipment capital expenditures.

The contractors reported high satisfaction levels with program staff and processes. Three contractors stated, *"the program is one of the best in California."* They attributed this to PG&E's speed and efficiency in approval turnaround, excellent communication and responsiveness of program staff. As one contractor said, *"I've had a really good and professional working relationship with [PG&E staff]."*

Program Benefits

Implementing contractors cited the following program benefits to customers:

- **Customer Satisfaction.** According to one contractor, *"all the properties are very happy. They understand the benefits and like that they're going green and doing their part to make a change in the world, particularly in hard economic times."* Another contractor attributed the program with improving the aesthetics of the building and increasing the level of comfort for his customers and their tenants, *"without exception, the tenants and the people that work in the common areas tell us how much better the light looks and feels—spaces that used to be dark are lit with a brighter, whiter light, and the sound of the magnetic ballast has been reduced."*
- **Cost and Energy Savings.** Customers paid little or no up-front costs for many measures, and experienced savings in their energy bills. One contractor credited the program with

providing *“the benefit of property improvement with energy savings at a low cost [as well as] the savings benefit of starting their maintenance [for those measures] at a new fresh level.”* Another contractor stated his customers were glad to be able to *“reduce their energy costs and carbon footprint.”*

- **Customer Service.** Every customer received an energy-savings evaluation, during which the contractor walked through the property, documented findings, and discussed opportunities. One contractor noted that the evaluation allowed customers to install measures they would not have initiated on their own: *“Some customers were completely unaware of the savings potential and wouldn’t have [known] had the program not existed.”* All interviewed contractors reported that they handled the rebate process and paperwork for their customers. One contractor stated that his customers were *“overwhelmingly appreciative of the fact that the entire rebate process is handled by the contractor.”*
- **Quality Assurance.** PG&E’s adjustments to the rebate levels, types of qualified measures offered, and contractor requirements allowed greater control over service quality. Several contractors noted that, in previous years, the program had suffered from poor workmanship being conducted by unqualified contractors, but that such incidents had decreased significantly following these adjustments by PG&E. One contractor stated, *“Contractors who would have been motivated to participate purely to leverage the large rebate amount without providing quality services were less inclined to participate. Also, [as the types of program-qualified measures changed] contractors who weren’t able to work with the newer measures couldn’t continue participating in the program.”* Another contractor reported additional contractor rules provided further screening: *“If you’re not at the cycle kick-off meeting, you’re not allowed into the program.”* Furthermore, interviewed contractors agreed that, over time, contractors providing poor service were ultimately *“weeded out by the market.”*

Program Challenges

During Cadmus’ interviews, program staff and contractors cited the following, remaining challenges:

- **Split incentives.** According to one contractor, some property managers lacked motivation to implement measures in tenant units, *“managers [are] less inclined because they don’t pay the electric bill and won’t see the savings.”* One property manager explained, *“the primary incentive for us is to drive down the cost of the whole property [using common area measures], while in-unit installations only affect the ‘marketability’ of our units.”* Another property manager reported occasional hurdles in scheduling installation times with his tenants, but said, *“these challenges were rare and were usually overshadowed by the benefits customers see from the program.”*
- **Reputation for poor performance.** Property managers who had negative experiences in the past with contractors offering poor-quality services or those that didn’t honor their warranties were less inclined to participate in the program. One contractor noted, *“The bad contractors who were just trying to milk the system have made it harder for us to do business with the disgruntled customer who ‘got bitten once’ and doesn’t want to risk it again.”*

- **Products.** Several contractors cited challenges associated with property managers' reluctance to bear the costs of replacing products. Warranties for program measures range from two to five years; when warranties end, property managers must pay to repair or replace measures. One contractor explained, *"the customer has a hard time finding the replacement bulbs and even then, the bulbs can sometimes cost more than it would to replace the fixture."*
- **Raising measure costs.** Several contractors indicated that the costs of many lighting products have increased over the past year, due to rising rare earth metal costs. Since contractors provide program measures at no or little cost to customers, and are confined to fixed reimbursement rates, increasing product prices limits their profitability. According to one contractor, *"as rebate levels have gone down and prices have gone up, the customer costs have gone up which has affected how marketable the program is as well as how profitable it is to the contractor."* A second contractor further explained, *"we're getting squeezed and this has impacted the quality of the measures we're installing. I've seen some contractors installing stuff from China that's ENERGY STAR rated but not under warranty and not tested. The products are poorly made and look terrible."* As measure costs increase beyond PG&E's reimbursement rate, contractors must eliminate measures from their offerings, or lose money on the measures.

Potential Improvements/Lessons Learned

Interviewed implementation contractors suggested the following improvements:

- **Products.** Offering high-quality products has been critical to the program's success. If costs continue to increase, however, product ranges will become more limited. One contractor described this issue by saying, *"We need to be able to purchase the product for less [or close to less] than the rebate amount so we can offer it to the customer for free [or at a low cost]. This can limit our ability to offer selection and quality to our customers."* Several contractors suggested increasing rebate amounts to match product cost increases. Multiple contractors also indicated the program would benefit from expanding the range of available measures or services, including: HVAC tune-ups, whole building energy audits, LEDs, pool solar heating systems, refrigerators, induction lighting, garage or outdoor parking lighting, and more common area lighting options.
- **Reservation Process.** Contractors currently fax reservation requests to PG&E staff. Multiple contractors suggested replacing the fax submittal process, which can be cumbersome and time consuming, with electronic submittals, via e-mail or an online system. One contractor indicated frustration with the fax process, since *"there is no way to receive confirmation that the fax has been received"* by PG&E, which can cause confusion and delays.
- **Funding Process.** Contractors' ability to continue to effectively deliver the program requires that they be reimbursed for project investments in a timely manner. One contractor explained that streamlining the submittal process for program applications and expediting reimbursement would improve their ability to effectively deliver the program. He indicated submitting applications with ink signatures through the mail delayed the process and incurred postage and paper costs, and suggested PG&E allow electronic submittals through e-mail. Another contractor suggested providing more transparency in

the application process, regarding the approval timeline: *“After the application is sent in, the process can become a ‘black hole’ where you have no idea whether it’s being processed, or audited until you get the reimbursement check.”* A second contractor indicated better communication regarding whether or not PG&E performs an inspection on installed measures allow them to manage client expectations regarding approval timelines and scheduling audits, especially since *“multiple entries [into the apartments] can already cause them annoyance.”*

- **Marketing Materials.** Contractors’ ability to make sound and persuasive arguments about program benefits is crucial to the program’s success over the long term. One contractor indicated providing a table of measures or services, and their associated potential energy and cost savings, would benefit contractor marketing efforts as it would *“give [contractors] more credibility, particularly if PGE stands behind the numbers.”* Another contractor suggested that additional information about upcoming regulations, such as phase-outs of certain products, would aid his marketing, as it would create a sense of expediency for installing program measures related to the regulations.

SCE

Program Overview

Launched in 2005, SCE’s MFEER program was redesigned in 2010. The MFEER program primarily provides high-efficiency lighting to multifamily building managers and owners as direct install measures at no costs to customers. Measures most commonly implemented through the program include energy-efficient lighting (hard-wired fixtures and lamps), exit signs, and occupancy sensors in dwellings and common areas; and energy-efficient exterior lighting. During the 2011 program year, seven contractors, selected through a competitive RFP process, implemented the program. Cadmus’ interviews with program staff and program implementation contractors provided opportunities to clarify key points in the program process and learn how the delivery model changed during 2010 and 2011.

During its lifetime, the MFEER program’s operations and delivery have evolved and improved considerably. All interview subjects reported program implementation had expanded, and new systems had been put in place to help them better manage projects, work with clients, and ensure quality implementation. Customers provided positive feedback; the program was on track to meet its savings goals.

According to SCE staff, the MFEER program faced past challenges associated with split-incentive barriers, unscrupulous contractors, and installation of poor quality measures. Because few controls were placed on which contractors could promote the program and use its incentives to offset energy-efficiency improvement costs, SCE had little control over measures installed or workmanship quality. In several instances, poor-quality measures were installed, and contractors did not honor warranties (in some cases, the contractor simply disappeared). As a consequence, the program experienced low customer satisfaction and acquired a negative reputation. As noted by one contractor: *“[contractors] were getting frustrated because customers were turning them away if they had heard bad feedback about the program.”*

In 2011, SCE redesigned the program, shifting from prescriptive rebates to a no-cost, direct-install delivery structure, addressing barriers associated with building owners' reluctance to invest in tenant improvements. To address quality concerns, SCE issued a competitive RFP to all previously participating contractors, and selected seven contractors with performance records sufficiently positive to represent the program. These contractors had to enter a contract, which included measure specifications and fixed measure reimbursements, so SCE could control costs and quality of measures installed.

This redesign proved instrumental in improving program participation and quality of contractors' work and measures installed. It also helped SCE address customer satisfaction issues, complaints of poor workmanship, and measures failing prematurely. Program participation prior to the redesign, however, precluded some properties from qualifying for the MFEER program.

Participation

In most cases, SCE's approved contractors marketed the program directly to property managers and owners. They explained the program, conducted a walk-through evaluation, and provided customers with a proposal that included numbers of fixtures to be installed, installation timeframes, and warranty information. Customers then signed a reservation form, which was submitted to SCE to ensure that available funds covered the full cost of proposed measures. Upon installing the specified measures, the contractors filled out a detailed program application form, specifying numbers, types, and locations of installed measures, which allowed reimbursement for their capital outlay.

Program Benefits

Implementing contractors cited the following program benefits to customers:

- **Customer Satisfaction.** According to one contractor: *"Most properties have positive feedback. They see significant savings. They follow up with customers...and 90% of feedback from managers and tenants is very good."* Another contractor reported property owners being more interested in installing energy-saving equipment in common areas, where they would benefit from the cost savings, but: *"They ask us to come back to do tenant units [also] when they see how nice the fixtures are."*
- **Cost Savings.** Customers paid no up-front costs for many measures, and saw savings in their energy bills. One contractor credited the program with providing *"property improvement with new lighting [and] energy savings products with minimal cost."*
- **Customer Service.** Every customer received an energy-savings evaluation, in which the contractor walked the property, documenting findings and discussing opportunities. As one contractor stated, the evaluations sought to *"improve customer education and experience."* The new program design also allowed contractors to specify measures not available in the old program model.
- **Quality Assurance.** SCE's adjustments to the program allowed greater control over measure quality. By limiting the total number of participating contractors in the program, SCE could provide them with timely feedback on their performance, and greater opportunities to interact with program staff, promoting installation best practices across the board. Contractors reported satisfaction with changes made, stating the redesign

“brings clarity about the program to customers, streamlines some of the program in terms of information and brings a more consistent message – it’s a better program than in the past.” Another contractor explained the program provides positive benefits to owners and *“makes suppliers happy and creates jobs.”*

Program Challenges

During Cadmus’ interviews, program staff and implementation staff cited the following, remaining challenges:

- **Split incentives.** According to one contractor, some property managers lacked motivation to implement measures building-wide, indicating *“for tenant areas, managers [are] less interested because they don’t get the savings. They are only interested in common areas.”* Further, property managers considered coordinating measure installation with tenants beyond their job duties, with one contractor expressing: *“some property managers complain about headaches during [the] installation process.”*
- **Reputation for poor performance.** Due to previous program challenges, if managers heard about bad experiences at another property, they might not want to participate in the redesigned program. One contractor noted: *“[the] earlier program design created a lot of problems and word got around...that’s the biggest obstacle.”*
- **Products.** Several contractors cited challenges associated with property managers’ reluctance to bear the costs of replacing products. Warranties for program measures range from two to five years; when the warranties end the property managers bear the costs for repair or replacement of the measures. One contractor explained: *“After the renovations, there is a cost to replacing the bulbs. They are more expensive so their maintenance cost after the warranty period ends is higher.”* Another contractor stated: *“Overall customers are happy; except some properties are paying higher expenses for replacement bulbs and some owners are not happy [with that].”*
- **Raising measure costs.** Several contractors indicated costs of many lighting products have increased over the past year, due to rising costs of rare earth metals. As contractors must provide program measures at no cost to customers, and are confined to fixed reimbursement rates, increased products prices limits their profitability. According to one contractor: *“The program is working fine, [but] the rate they are paying is not flexible so cost inflations are difficult to absorb.”* A second contractor further explained: *“The price of fixtures and bulbs has gone up 15% to 20% in 18 months, [but contractors] get a fixed rebate and have to provide products to customers for free.”* This results in a diminishing list of products contractors can offer to customers. As measure costs increase beyond SCE’s reimbursement rate, contractors must eliminate measures from their offerings or lose money on the measures.
- **Implementation Obstacles.** There have been some minor obstacles to implementing the redesigned direct-install program. One contractor stated, that the direct-install design can be a challenge for building managers because *“This first step is logistics. Tenant disturbance is a concern [and] the amount of time for install is a concern.”*

Potential Improvements/Lessons Learned

Interviewed SCE staff and the implementation contractors suggested the following improvements:

- **Eligibility.** Some property managers want to participate in the redesigned program, but are disqualified, having participated in the previous program. One contractor suggested: *“If there is a property over 300 units that have had a very bad experience and removed the fixtures, and it’s been over 3 to 4 years, allow that property to participate again.”*
- **Data.** One contractor reported it would be beneficial to access SCE data to target customers for participation. Specifically, a list of properties having not participated in the program would facilitate target marketing. Also, as many property managers break down energy savings to forecast future maintenance costs, one contractor suggested energy-usage data would allow projecting a manager’s cost savings during and after the warranty period.
- **Products.** Offering high-quality products proves critical to the program’s ability to maintain its positive track record following its redesign. If costs continue to increase, however, the range of products will become more limited. One contractor described this issue, saying: *“There’s only so much [money available] per measure, but within that they need to buy quality products with warranties and support.”* Several contractors suggested rebate amounts be increased to match increases in product costs. Multiple contractors also indicated the program would benefit from expanding the range of available measures, including more common area products.
- **Funding.** Contractors’ ability to continue to effectively deliver the program depends on their rapid reimbursement for project investments. One contractor explained streamlining the submittal process for program applications and expediting reimbursement would improve their ability to effectively deliver the program. He indicated submitting applications with wet signatures through the mail delayed the process, and suggested SCE allow an interim, electronic submittal to *“start the process for payment before they can send the application through the mail. Mail holds up the paper work.”*

APPENDIX C. LARGE PROPERTY OPERATOR INTERVIEWS

Cadmus interviewed nine large, multifamily key decision makers from Southern California Edison (SCE) and Pacific Gas and Electric's (PG&E) service territories. We recruited the properties based on size and service territory location. Cadmus conducted the interviews in person at each of the multifamily properties during the week of February 6, 2012, as part of a larger process evaluation for the 2010–2012 Multifamily Energy Efficiency Rebate (MFEER) Program.

Purpose and Methods

Through the interviews (in combination with other process evaluation tasks), Cadmus primarily sought to assess the effectiveness of program design and implementation. Consequently, we developed the following set of researchable topics, and integrated relevant questions into structured interview instrument:

- Market and property characteristics
- Energy-efficiency awareness, concerns, responsibility, and intention
- Making efficiency decisions
- Increasing program participation.

Interview Findings

Market and Property Characteristics

The majority of respondents indicated that the multifamily market is stable and they expect the market to continue to improve. As one respondent said, “[*there is a*] light at the end of the tunnel.” Even with the recent recession most respondents feel positive, reporting that due to the increase in foreclosures, more people are choosing to live in multifamily units because “[*they*] cannot afford homes.” However, several respondents noted that the market is closely linked to the economic circumstances of the immediate surrounding area.

There was a wide variety in the number of units that respondents reported owning and/or managing (i.e., between two and 2,500), as well as a wide range in the number of total units in the relevant service territory (i.e., between 300 and 20,000). The majority of the properties in California are located in or near urban areas. Nearly all respondents reported that their companies also own or manage properties outside of California, including Arizona, Colorado, Idaho, Illinois, Nevada, New York, Ohio, Oregon, Utah, and Washington.

Respondents also described a broad assortment of property types and tenant populations. Buildings range from more than 100 years old to brand new, and from low-income to high-end concierge properties. Although there is a range of tenants, from students and young families to retirees, the majority of respondents agreed that most of their properties are geared toward the middle-income sector.

All but one of the property management companies we interviewed expects to increase their number of rental properties over the next five years. They expect this increase will be a mix of acquisitions and new property development. However, one respondent predicted that his company will decrease their holdings over the next five years, as the “*principal owner is getting old and wants to get into more commercial [properties].*”

When asked the biggest issues the company deals with at their rental properties, respondents listed a number of overlapping concerns, including rebuilding rents (i.e., recovering from depressed rental amounts due to the recession), keeping occupancy rates high, and paying utility bills. Additionally, respondents mentioned challenges with obtaining city permits and handling tenant complaints.

Energy-Efficiency Awareness, Concerns, Responsibility, and Intentions

Operating Costs

The highest operating costs reported by respondents were utilities, payroll, and property taxes. Other costs they mentioned were debt from purchasing buildings and from making unit investments at turnover. Respondents gave a wide range of the percent of their total operating budget that is related to energy costs, from 10% to 50%, which is partly dependent on whether tenants pay for their own utilities. Although tenants’ financial responsibility varies by property, as some units are individually metered while others have centralized meters, the majority of respondents indicated that most of their tenants pay for their own utilities. When units are not individually metered, often the total utility cost is divided by the number of units such that utility bill is still paid by the tenants.

Energy-Efficiency Concerns

Although nearly all respondents expressed a moderate to high concern over energy costs, a few were disinterested in taking significant action to preemptively reduce their energy consumption. As one respondent said, “*Why would I put in all this energy-efficiency stuff? It doesn’t save me anything.*” However, other respondents reported that energy costs are “*extremely*” important, and noted that they look at them daily. One respondent said, “*[I am] devoting most of my time implementing as many energy savings features as I can.*”

Common-Area Efficiency

Although the majority of respondents said common-area energy efficiency is a high priority, especially with increased utility rates, they had varying views on how to invest in energy efficiency. One respondent summed up the views by saying, “*The challenge is not should we improve, but how to improve with a good ROI.*” However, not all respondents saw the value of energy efficiency. One respondent who ranked common-area energy efficiency a low priority said, “*Maintaining [the] curb appeal of the building is [our] number one [priority], and then preservation of the asset [i.e., building]. Reducing utility [costs] is in there as well [as a priority], but we make our money on rental income.*”

When asked what actions they had taken to make their common areas more energy efficient, installing energy-efficient lighting was reported most often, with nearly all respondents saying their properties had received efficient bulbs and fixtures through the MFEER Program.

Additional measures they installed included controls on hot water heaters and boilers, ENERGY STAR[®] appliances, and water saving devices such as low-flow toilets and showerheads. Their future plans to further reduce energy use in common areas included replacing more lights, installing occupancy sensor and double-paned windows, and achieving pool efficiency through lighting and heating measures. One respondent said he was not planning take any further actions to reduce his properties' common-area energy use.

Respondents estimated that if they were to implement all possible energy-efficiency actions, they could reduce their common-area energy bills by 5% to 30%. The exact estimation from each respondent varied by property, the size of the property and common areas, the age of the building, and available savings opportunities. One property manager stated, *"The way they [the buildings] use energy is different; [such as] high-rise buildings versus garden style."* Respondents listed a variety of upgrades that would be necessary to produce the estimated 5% to 30% savings, such as drip irrigation systems, upgraded pool heating and space heating, additional lighting changes, added insulation and weather-stripping, and window replacements.

Tenant Unit Efficiency

Most respondents said that making individual tenant units as energy efficient as possible is a low priority. The primary reason was the lack of an acceptable return-on-investment (ROI), as the tenants pay for their own utilities. One respondent said, *"The robust rebates are for common areas."* However, two respondents rated the energy efficiency in tenant units as a high priority because, *"In the long run, it [energy efficiency] saves us money and keeps the tenants happy [i.e., increases retention]."*

Only one respondent reported that his company had not installed any energy-efficiency measures in the tenant units; the rest of the respondents listed installing measures such as ENERGY STAR appliances, lighting fixtures and bulbs, and low-flow devices. Respondents' future energy-efficiency plans included additional appliance upgrades and weatherization measures.

Similar to potential common area savings, if respondents were to implement all the energy-efficiency actions possible in tenant units, they anticipate a 5% to 30% reduction in the tenants' utility bills. To produce the expected savings, respondents reported that they would need to install additional lighting upgrades, low-flow toilets, and insulation, as well as replace windows and upgrade HVAC systems (for individually metered units).

Most respondents are interested in having energy-efficiency education provided for their tenants, particularly when they move in. One respondent reported that her company already provides energy-efficiency education, but is still interested in seeing what the utilities would offer.

The majority of respondents said that energy-efficiency operations and maintenance practices are important. One respondent said, *"We get reminded every week by the corporate office [to be energy efficient]. We are always looking for ways to save [money]."* Another respondent, whose company has an environmental policy, said, *"It [energy efficiency] is very important; it is part of our culture and brand."*

Making Efficiency Decisions

Capital Improvements

The majority of respondents indicated that they make capital improvement decisions on an as-needed and building-by-building basis, and that they rely on tenants and managers to notify supervisors of upgrade or replacement needs. Only one respondent reported that his company creates an annual capital improvement budget and schedule.

Respondents agreed that some investments, such as new appliances, are most often taken care of by the maintenance staff, whereas more comprehensive projects can involve several additional stakeholders such as the property owner, sustainability officer, director of operations, or outside consultant(s). Depending on the company, the final approval for energy-efficiency upgrades may also come from a variety of stakeholders including, but not limited to, vice president, owner, maintenance supervisor, contractor, director of finance, director of operations, sustainability officer, or investment team.

The majority of respondents agreed that they do consider energy efficiency when selecting new equipment, particularly for appliances and hot water systems. Two respondents reported that their company has a designated person who oversees energy use. These individuals monitor energy use and identify new opportunities to save, including participating in utility programs and applying for rebates. Respondents from these two companies also reported having an energy-efficiency/environmental policy. A third respondent reported that an outside consultant performs those same tasks.

Contractors

All respondents reported using standard suppliers, i.e., contractors. Some respondents said they might be concerned about participating in an energy-efficiency program that requires the use of a program-certified contractor. Their primary reasons for this concern were previous negative experiences with program contractors and the uncertainty of unknown contractors (i.e., lack of trust). One respondent stated, *“You’re dealing with peoples’ homes. Trust is key, we don’t want the cheapest person because it doesn’t help if the tenants get upset.”* The remaining respondents said they would not be concerned about using program-certified contractors, because they would likely do a background check on the contractor before any work commenced, such as verifying their certificate of insurance and union affiliation.

Factors for Consideration

Respondents widely agreed on the following key factors they consider when making energy-efficient improvements:

- **Attractive ROI.** Respondents considered this to be very important and reported tolerating a two- to five-year payback.
- **Increased Property Values and Reduced Operating Costs.** Although respondents consider these factors, most think about them as a function of ROI.
- **Making the Property Environmentally Sound.** A minority of respondents reported considering this factor, although *“it’s [still] not as important as ROI.”*

- **Tenant Retention.** All respondents agreed that attracting and retaining tenants is a key factor to consider. One respondent even mentioned having facilitated tenant focus groups regarding energy efficiency, and another mentioned that they have employees test energy-efficiency products first to ensure they select the best quality product.
- **Owner and Staff Recommendations.** Respondents acknowledge that they consider owner and staff recommendations, but only for measures with an acceptable ROI.
- **Increased Rent and Reduced Utility Bills.** One respondent said that being able to increase rent is “*the only reason to upgrade.*” However, not everyone agreed. Another respondent credited the market for controlling the amount of rent, and two others reported owning properties under rent control, so increasing the rent is not an option.
- **Rebates.** Respondents agreed that rebates are their largest consideration for making energy-efficiency improvements, “*if we know about them.*”
- **Tax Benefits and Attractive Financing.** Respondents reported that they may consider these factors for larger projects such as solar, but not for building upgrades.
- **Simplicity and Convenience.** Although respondents want the improvements to be hassle free, this is not a significant factor. One respondent said, “*We do what we have to.*”
- **Corporate Policy.** The majority of respondents do not have corporate policy regarding energy efficiency.

Most of the respondents stated that the key considerations for improvements to tenant units are different from the key considerations for improvements to common area, as “*common areas are priority, [and] tenant[units] are secondary.*” However, at least one respondent noted that “*the merit of the project is what we can accomplish, not where.*” All respondents agreed that cost is a critical barrier to making energy-efficient upgrades in both common areas and tenant units.

The majority of respondents indicated that nonfinancial and financial benefits are related, as illustrated by the following anecdotes:

- “*For our company, we want to show ourselves as forward thinking and tenant focused, but cost [is] key.*”
- “*If we are financially saving money, then we will have better resident retention.*”
- “*You can’t be in business without being a responsible member of the community.*”
- “*You can’t divorce sustainable from ROI or health and environment.*”
- “*We believe that when a project has a good ROI and is good for the environment, we need to do the project.*”

However, several respondents indicated that the financial benefits are the most important. One respondent said, “*ROI is most important; each property is owned by investors who want a good rate of return.*” Another said, “*Green is gaining steam, but financial benefits are still the most important.*”

Increasing Program Participation

Utility Program Awareness

All respondents reported having some level of awareness of the MFEER Program offered by SCE and PGE, and all but one respondent recognized the program description below.

The Multifamily Energy Efficiency Rebate Program provides residential multifamily property owners with prescribed rebates for energy-efficiency products to retrofit existing properties. The products include lighting, HVAC, insulation, windows, and hot water measures and can be installed in individual units and in common areas. The programs generally offer to pay part or all of the incremental cost of upgrading buildings and equipment to a higher level of efficiency than code or what would be standard equipment.

The one respondent who did not recognize the program description indicated that she had only been aware of lighting rebates. All but one respondent said that at least some of their properties had participated in the program.

Respondents noted first learning of the program from the utility Website and through vendors. The one respondent who works with an independent consultant was notified about the program by the consultant. Although the majority would prefer to hear about energy-efficiency programs from a utility representative, several reported that they currently have no relationship with the utility. One respondent said, “*I don’t even know how to find a rep. I would like a rep to call me.*” Two respondents mentioned they prefer to hear about new programs from a trusted vendor, because “*they vet it [the program],*” while another respondent prefers to hear from peers, concluding with “*I trust my peers. I don’t trust vendors.*”

When asked about their impressions of the program, respondents were noncommittal: “*They don’t [the program doesn’t] stand out.*”

Getting More Involved

Respondents listed the following variety of items that would help them decide to participate in a program:

- Peer testimonials
- Compelling ROI
- Equipment quality and warranty
- Robust rebate levels and secure funding
- Program flexibility (i.e., contractor selection and product choices).

Respondents strongly emphasized that partnering with large multifamily properties requires consistent, frequent, and clear communication. They agreed that it would be very helpful to have a direct point of contact at the utility to inform them about different energy-efficiency opportunities. One respondent said, “*I just need to talk to someone who will work with me.*” Another respondent urged, “*[Utilities] need to get directly in front of us. They need to get in*

front of key executives; property-level management can't make the decisions." Another respondent said, *"We're looking to partner, let's get started."* Other suggestions to help increase partnership included allowing for program flexibility (in terms of the eligible measures, timing, and contractors), and providing support after the program is complete to ensure the quality of installed equipment.

Several respondents indicated that they are not averse to solar and wind energy, particularly solar, but clearly stated the payback for those technologies is not yet justifiable, as illustrated by the following anecdotes:

- *"The programs I've seen do not make any sense with the initial expense."*
- *"We'd be a good candidate, but haven't seen it to be compelling financially for us."*
- *"I'm for on-site generation, I think it's a masterful way to control expense; however, payback has not been justifiable."*

Respondents estimated they could reduce the total energy bills between 15% and 50% by doing everything possible to become more energy efficient, with one respondent stating, *"In an ideal world we could reduce 100%, though we would probably spend an absurd amount [of money] doing it."* The most common actions respondents think they will take to reduce their properties' energy consumption include upgrading outside lighting, replacing boilers, and installing LEDs.

When asked specifically what utilities could do to encourage them to save more energy, respondents indicated that offering common area energy assessments, providing significant rebates with secure funding, and having measures with short ROIs would be compelling. Additionally, respondents suggested that utilities could encourage higher energy savings at multifamily properties by working with them during rental vacancies, increasing one-on-one contact, and ensuring quality control over vendors and products.

APPENDIX D. MFEER PARTICIPANT SURVEY INSTRUMENT

Introduction

Hello, my name is [INTERVIEWER NAME] from Marketing Excellence, and I'm calling on behalf of [SOUTHERN CALIFORNIA EDISON/PG&E], your local electric utility. [SOUTHERN CALIFORNIA EDISON/PG&E] wants to learn about your recent experience with the [IF SCE READ "Multifamily Energy Efficiency Rebate Program"; IF PG&E READ "Multifamily Properties Program"].

May I speak with the person who decided to participate in the [SCE/PG&E Multifamily Program] for the property at [SERVICE ADDRESS FROM SAMPLE]?

1. Yes, speaking to the decision maker [SKIP TO A5]
 2. Yes, call transferred to someone else [REINTRODUCE]
 3. Yes, but at a different number [RECORD NAME AND NUMBER; THANK AND TERMINATE]
 4. No [THANK AND TERMINATE]
- 98. (DON'T KNOW) [SKIP TO A2]
- 99. (REFUSED) [THANK AND TERMINATE]

[IF NEEDED: Let me assure you, I'm not selling anything. Your responses are confidential and will be used to improve the program.]

[IF NEEDED: This survey should take about 20 minutes of your time. Is this a good time for us to speak with you?] [IF NOT, SET UP A CALL BACK APPOINTMENT]

[Why are you conducting this study?: Studies like this help [SOUTHERN CALIFORNIA EDISON/ PG&E] better understand what energy efficiency programs and services their customers want.]

[Concern about the call or study: If you would like to talk with someone from [Southern California Edison/ PG&E] about this study, feel free to call Caroline Chen at SCE at [Phone Number], and Andy Fessel at PG&E at [Phone Number].

[If respondent says they have already filled out/completed a survey] say: Thank you very much for your help with that survey. This is a separate study to gather more in-depth feedback from participating property owners and managers. We would greatly appreciate your help to make this program better. If you qualify to take part in the study, you will receive a \$50 incentive for your personal use or as a donation to the American Red Cross.]

[IF A1= -98] This may have been when a contractor came out to your building and installed lighting (fixture and bulbs) in your tenants' units and /or in the common areas. You may also

have applied for a rebate for appliances, ceiling fans, room air conditioners, high efficiency exit signs, and/or water heaters. Are you the person who decided to participate in this program?

1. Yes **[SKIP TO 0]**
2. No
- 98. (DON'T KNOW)
- 99. (REFUSED)

[IF A2= 2 OR -98] Our records show the property at **[SERVICE ADDRESS FROM SAMPLE]** participated in the **[SCE/PG&E Multifamily Rebate Program]**. Is there someone else who would be familiar with participating in this program?

1. Yes
2. No **[THANK AND TERMINATE]**
- 98. (DON'T KNOW) **[THANK AND TERMINATE]**
- 99. (REFUSED) **[THANK AND TERMINATE]**

Can I speak to the person who decided to participate in the program?

1. Yes, call transferred to someone else **[REINTRODUCE "Hello, my name is [INTERVIEWER NAME] from Marketing Excellence, and I'm calling on behalf of [SOUTHERN CALIFORNIA EDISON/PG&E], your local electric utility. [SOUTHERN CALIFORNIA EDISON/PG&E] wants to learn about your recent experience with the [IF SCE READ "Multifamily Energy Efficiency Rebate Program"; IF PG&E READ "Multifamily Properties Program"] AND START WITH A5]**
2. Yes, but at a different number **[RECORD NAME AND NUMBER; THANK AND TERMINATE]**
3. No **[THANK AND TERMINATE]**
- 98. (DON'T KNOW) **[THANK AND TERMINATE]**
- 99. (REFUSED) **[THANK AND TERMINATE]**

To compensate you for completing this interview, we are offering a \$50 incentive; we can send this incentive to you or, if you prefer, it can be donated on your behalf to the American Red Cross. Which option would you prefer?

1. Myself
2. The American Red Cross

Responsibility

First I'd like to know a little more about you and your company.

Does your company own the property at [ADDRESS], manage it, or do you both own and manage it?

1. Owns only – does not manage
2. Manages only – does not own
3. Owns and manages properties
- 98. (DON'T KNOW) [TERMINATE POLITELY]
- 99. (REFUSED) [TERMINATE POLITELY]

And what is the best way to describe your role at your company? Are you the . . .? [READ LIST]

1. Property owner
2. Property manager
3. Both property owner and manager
4. Maintenance or facilities supervisor
5. Other
- A1a. [SPECIFY]
- 98. (DON'T KNOW)
- 99. (REFUSED)

How long have you been managing/owned this particular property?

[RECORD MONTHS]

[RECORD YEARS]

How many years have you been in the business of owning, managing, or maintaining multifamily properties?

[RECORD YEARS]

How many units do you or your company own or manage at the [ADDRESS] location?

[RECORD NUMBER OF UNITS]

How many additional units do you own or manage at other locations?

[RECORD NUMBER OF UNITS]

- 97. Only one property/No Other Units/properties

For the efficient equipment or improvements that you installed through the program, did you need to get the approval of someone else higher up in your company, such as an owner or manager?

1. Yes
2. No
- 98. (DON'T KNOW)
- 99. (REFUSED) **[TERMINATE POLITELY]**

If you had to describe the main type of tenant you have in this building, would you describe that tenant as :

1. Having a high income, expecting an elegant, well-planned apartment with the best amenities, security, and location **[High Income]**
2. Having a middle-income, expecting an apartment that has mid-range amenities, neither luxury nor low-budget. **[Middle Income]**
3. Having a lower income, cost being a dominant consideration, possibly needing Section Eight housing or other low income housing assistance such as HUD funded programs **[Low Income]**
4. Other
 - A1b. **[SPECIFY]**
- 98. (DON'T KNOW)
- 99. (REFUSED)

Awareness

Now I'd like to find out more about your experience with energy efficiency.

Have you ever looked for information on how to make your property more energy-efficient, such as looking for high efficiency appliances, lighting, or insulation? AKA: AWARE

1. Yes
2. No **[SKIP TO C3]**
- 98. (DON'T KNOW) **[SKIP TO C3]**
- 99. (REFUSED) **[SKIP TO C3]**

[IF C2=1] When purchasing or replacing energy-using equipment in your common areas or tenant units, what sources of information do you use to help you make a decision? **[DO NOT READ. ACCEPT MULTIPLE RESPONSES.]**

1. Internal maintenance staff
2. Our regular installation contractor
3. An outside installation contractor we may hire or consult with occasionally
4. Equipment distributors/ wholesalers
5. Equipment manufacturers
6. Equipment dealers/ retailers
7. Apartment/trade associations (presentations and newsletters)
8. Our electric or gas utility representative
9. Our electric or gas utility website
10. Our own research on the Internet
11. Retailer salesperson referral (on floor of retail store)
12. Other

A1c. **[SPECIFY]**

-98. (DON'T KNOW)

-99. (REFUSED)

Using a scale of 0 to 10 where 0 means strongly disagree and 10 means strongly agree, how much do you agree with each of the following statements? **[RECORD RATING: -98= DON'T KNOW, -99= REFUSED]AKA: AWARE**

- a. Inefficient use of energy has negative impacts on the environment
- b. Using energy efficient appliances and equipment can result in sizeable savings on energy bills

Which of the following labels or programs for energy efficiency have you heard of? **[RECORD RESPONSE: 1=YES, 2= NO] AKA: AWARE**

- a) ENERGY STAR
- b) Most efficient or Tier 2 ENERGY STAR
- c) Consumer Elect
- d) Flex Your Power
- e) Engage 360
- f) Top Ten
- g) Energy Upgrade California

My next questions are specific to your participation in the [IF SCE READ “Multifamily Energy Efficiency Rebate Program”; IF PG&E READ “Multifamily Properties Program”] at [SCE/PGE]. For these questions, please focus on the property at [ADDRESS].

How did you hear about the Multifamily program? **[DO NOT READ; SELECT ALL THAT APPLY]**

- 1. Contractor contacted me
- 2. I contacted a contractor and he/she mentioned the program
- 3. Tenant told me
- 4. Heard through an apartment/ landlord/professional association
- 5. Heard through other building managers/owners
- 6. Utility bill insert
- 7. Utility television ad
- 8. Newspaper/Periodical ad
- 9. Utility website
- 10. Utility employee, account representative, customer service representative
- 11. Program brochure
- 12. Other
 - A1d. **[SPECIFY]**
- 98. (DON'T KNOW)
- 99. (REFUSED)

Using a scale of 0 to 10 where 0 means Not at all Important and 10 means Very Important, how important were each of these factors in motivating you to participate in the [SCE/PG&E] Multifamily program? [RANDOMIZE THE ORDER] [RECORD RATING FOR EACH] AKA: CONCERN

- a. Attracting tenants
- b. Retaining tenants and keeping them happy
- c. Needing to replace equipment
- d. Saving energy
- e. Reducing owner operating costs
- f. Reducing tenant utility costs
- g. Demonstrating your properties are well maintained
- h. Increasing the value of your property
- i. Doing the right thing for the environment or being greener
- j. Meeting code requirements
- k. Receiving free lighting or rebates to lower the cost of new equipment

Again, using a 0 to 10 scale where 0 means Not at all Important, and 10 means Very Important, how important is it to your tenants that you have high efficiency versions of these types of equipment in your buildings and units?[RECORD RATING; -96= N/A for those who do not offer the equipment] AKA:CONCERN

- a. Lighting in common areas
- b. Lighting in units
- c. Washing machines
- d. Refrigerators
- e. Heating systems
- f. Air conditioners and other cooling systems

And, once again using a scale of 0 to 10 where 0 means you were Not at all a Concerned and 10 means you were Very Concerned, how concerned were you about these aspects of participating in the Multifamily Program? [RECORD RATING FOR EACH]

- a. Contractors providing high quality products and services
- b. Arranging for and allowing contractors into occupied tenant units to make changes to the energy efficiency of lighting or other equipment
- c. Getting approval to participate from others, including owners
- d. The time and paperwork required
- e. The accuracy of how much money you would save
- f. **[IF INSTALLED LIGHTING]** Finding replacement bulbs
- g. **[IF INSTALLED LIGHTING]** The cost of replacement bulbs
- h. **[IF INSTALLED EQUIPMENT]** The up-front cost of equipment

Our records show that you installed these energy efficiency improvements in your property(ies), is that correct? **[NOTE TO INTERVIEWER: IF RECORDS AND RESPONDENT ANSWERS DISAGREE, USE RESPONDENT ANSWERS.] [RECORD RESPONSE: 1= YES, 2=NO, -98= DON'T KNOW]**

- a. **[IF INSTALLED COMMON AREA LIGHTING]** Energy efficient lighting for common areas/outdoors
 - b. **[IF INSTALLED TENANT LIGHTING]** Energy efficient lighting in tenant units
 - c. **[IF INSTALLED EQUIPMENT]** Other energy efficiency improvements, such as efficient appliances or improving the building shell, such as installing insulation.
- 98. (DON'T KNOW)
- 99. (REFUSED)

[IF C9A AND/OR C9B=1 AND C9C=2 OR -98] Before now, were you aware that the Multifamily Program offers rebates for energy efficient equipment and improvements other than for the efficient lighting you received?

1. Yes
 2. No **[SKIP TO C14]**
- 98. (DON'T KNOW)
- 99. (REFUSED)

[IF C10=1 OR C9c=1] Aside from the energy efficient equipment or improvements for which you received rebates through the program, what other rebates for energy efficient equipment or improvements did you know the program offered? [Allow multiple responses]

1. Compact fluorescent light bulbs (CFLs)
2. Energy Star *interior* fluorescent fixtures No
3. Energy Star *exterior* fluorescent fixtures
4. T5/T8 fluorescent lamps
5. Energy Star exit signs
6. Lighting occupancy sensors/photocells
7. Energy Star refrigerators
8. High performance dual-pane windows
9. Attic/wall insulation
10. Energy star room air conditioners
11. Heat pumps
12. Package terminal air conditioners (PTACs)
13. Energy-efficient pool pumps
14. Other

A1e. [SPECIFY]

- 98. DON'T KNOW
- 99. REFUSED

(C11=1-14) What were the major factors that prevented you from installing these other types of energy efficiency improvements at your property(ies)?

1. Existing equipment worked fine/had useful life left
2. Unaware of/unable to ID which existing equipment inefficient/needed replacement
3. Tenants pay their own utility bills
4. Lack maintenance staff to install measures
5. Lack of time/not a priority
6. Financial limitations
7. Lack of information on energy savings or costs
8. Question reliability of energy efficient equipment
9. Energy savings estimates for equipment are unreliable
10. Fuel prices were low
11. New to building
12. Timing
13. Technology unavailable
14. Replacing on an as-needed basis
15. It was unnecessary
16. Other

A1f. [SPECIFY]

-98. DON'T KNOW

-99. REFUSED

[IF C11=1-14] How did you hear about these other rebates?

1. Contractor
2. Utility representative
3. Utility website
4. Word of mouth/others in the business
5. Industry association
6. Other

A1g. [SPECIFY]

-98. (DON'T KNOW)

-99. (REFUSED)

Did you receive financial assistance, incentives, or a rebate from any source other than [SOUTHERN CALIFORNIA EDISON/ PG&E/] for the energy efficiency equipment that was installed?

- 5. Yes
- 6. No **[SKIP TO 1]**
- 98. (DON'T KNOW) **[SKIP TO 1]**
- 99. (REFUSED) **[SKIP TO 1]**

[IF C14=1] Who did you receive financial assistance, rebates, or incentives from? **[DO NOT READ, SELECT ALL THAT APPLY]**

- 1. Contractor
- 2. Dealer
- 3. Manufacturer
- 4. Local government
- 5. State tax credit
- 6. Federal tax credit
- 7. Other State rebate/assistance
- 8. Bank loan/financing
- 9. Other utility
 - A1h. **[SPECIFY]**
- 1. Other
 - A1i. **[SPECIFY]**
- 98. (DON'T KNOW)
- 99. (REFUSED)

Who installed the energy efficiency improvements? Was it a contractor, your own internal staff, or a combination of both?

- 1. Only the Contractor
- 2. Only internal staff
- 3. A combination of contractor and internal staff
- 98. (DON'T KNOW)
- 99. (REFUSED)

Satisfaction

Now I'd like to ask you for feedback about the equipment and services you received through the Multifamily Program.

Common Area Improvements

(ONLY ASK D1-D5 IF RESPONDENT MADE COMMON AREA IMPROVEMENTS)

1. First I am going to ask you about your satisfaction with the work done in the *common areas*. On a scale of 0 to 10, with 0 meaning “not at all satisfied” and 10 meaning “extremely satisfied,” how satisfied are you with the *overall quality of the work performed by the contractor* for the energy efficiency improvements in the *common areas* at [ADDRESS]? **[EMPHASIZE WORDS IN ITALICS SINCE QUESTIONS ARE VERY SIMILAR.] [RECORD RATING; -98= DON'T KNOW, -99= REFUSED]**

[IF D1= 0-4] Why were you less than satisfied with the quality of the contractor's work in the common areas? **[ALLOW MULTIPLE RESPONSES]**

1. The equipment broke down/ malfunctioned
2. The quality of the equipment was not up to our standards
3. The quality of the installation was not up to our standards
4. We did not like the way the product looked
5. The installers did not meet our standards
6. The job took too long
7. The installers were too disruptive, or messy
8. Other

A1j. **[SPECIFY]**

-98. (DON'T KNOW)

-99. (REFUSED)

On a scale of 0 to 10, with 0 meaning “not at all satisfied” and 10 being “extremely satisfied,” how satisfied are you with the *performance* of the equipment installed by the contractor in the *common areas* at [ADDRESS]? **[EMPHASIZE WORDS IN ITALICS.] [RECORD RATING; -98= DON'T KNOW, -99= REFUSED]**

[IF D3= 0-4] Why were you less than satisfied with the performance of the equipment in the common areas? **[ACCEPT MULTIPLE RESPONSES]**

1. The equipment broke down/ malfunctioned
2. The quality of the equipment was not up to our standards
3. The quality of the installation was not up to our standards
4. We did not like the way the product looked
5. The installers did not meet our standards
6. The job took too long
7. The installers were too disruptive or messy
8. Other

A1k. **[SPECIFY]**

-98. (DON'T KNOW)

-99. (REFUSED)

Did the contractors who installed or managed the energy efficiency improvements provide any performance guarantees for the installed equipment?

7. Yes
8. No
- 98. (DON'T KNOW)
- 99. (REFUSED)

Tenant Area Improvements

(ONLY ASK D6-D12 IF RESPONDENT MADE TENANT AREA IMPROVEMENTS)

Now I am going to ask you about your satisfaction with the work done in the tenant units.

On a scale of 0 to 10 with 0 meaning “not at all satisfied” and 10 meaning “extremely satisfied,” how satisfied are you with *overall quality of the work performed by the contractor* for the energy efficiency improvements in the tenant units at **[ADDRESS]**? **[EMPHASIZE WORDS IN ITALICS.] [RECORD RATING; -98= DON'T KNOW, -99= REFUSED]**

[IF D6= 0-4] Why were you less than satisfied with the quality of the contractor's work in the *tenant areas*? **[ACCEPT MULTIPLE RESPONSES]**

1. The equipment broke down/ malfunctioned
2. The quality of the equipment was not up to our standards
3. The quality of the installation was not up to our standards
4. We did not like the way the product looked
5. The installers did not meet our standards
6. The job took too long
7. The installers were too disruptive, or messy
8. Other

A1l. **[SPECIFY]**

-98. (DON'T KNOW)

-99. (REFUSED)

On a scale of 0 to 10 with 0 meaning "not at all satisfied" and 10 meaning "extremely satisfied," how satisfied are you with the *performance* of the equipment installed by the contractor in the *tenant units* at **[ADDRESS]**? **[EMPHASIZE WORDS IN ITALICS.] [RECORD RATING; -98= DON'T KNOW, -99= REFUSED]**

[IF D8= 0-4] Why were you less than satisfied with the performance of the equipment in the *tenant units*? **[ACCEPT MULTIPLE RESPONSES]**

1. The equipment broke down/ malfunctioned
2. The quality of the equipment was not up to our standards
3. The quality of the installation was not up to our standards
4. We did not like the way the product looked
5. The installers did not meet our standards
6. The job took too long
7. The installers were too disruptive, or messy
8. Other

A1m. **[SPECIFY]**

-98. (DON'T KNOW)

-99. (REFUSED)

Did the contractors who installed or managed the energy efficiency improvements in the tenant units provide any performance guarantees for the installed equipment?

1. Yes
2. No
- 98. (DON'T KNOW)
- 99. (REFUSED)

Did these contractors provide any information on manufacturer warranties for the installed equipment?

1. Yes
2. No
- 98. (DON'T KNOW)
- 99. (REFUSED)

Were these contractors responsive to any questions or complaints that you had?

1. Yes
2. No
9. I didn't have any questions or complaints
- 98. (DON'T KNOW)
- 99. (REFUSED)

Satisfaction with Rebates and Rebate Forms

Did you receive a rebate check from the [INSTALLATION YEAR] [Southern California Edison/ PG&E] multifamily program for the energy efficiency measures installed at [ADDRESS]?

1. Yes
2. No **[SKIP TO D19]**
10. (Don't know) **[SKIP TO D19]**
11. (Refused) **[SKIP TO D19]**

Did the amount of the rebate check meet your expectations?

1. Yes
2. No
- 98. (DON'T KNOW)
- 99. (REFUSED)

Did you fill out any rebate application forms for the [INSTALLATION YEAR] [Southern California Edison/ PG&E] multifamily program?

1. Yes
2. No **[SKIP TO D19]**
- 98. (DON'T KNOW) **[SKIP TO D19]**
- 99. (REFUSED) **[SKIP TO D19]**

Did you find the rebate application forms to be reasonable in terms of length and level of detail?

1. Yes
2. No
- 98. (DON'T KNOW)
- 99. (REFUSED)

After the rebate application was submitted, did the rebate check arrive in a reasonable amount of time?

1. Yes
2. No
- 98. (DON'T KNOW)
- 99. (REFUSED)

About how many weeks after you submitted the rebate application did the rebate check arrive?

[RECORD # of WEEKS]

- 98. DON'T KNOW
- 99. REFUSED

Did you interact with the [Southern California Edison/ PG&E] multifamily program staff during the energy efficiency improvements at [ADDRESS]?

1. Yes
2. No
- 98. (DON'T KNOW)
- 99. (REFUSED)

Using a scale of 0 to 10 where 0 = "not at all satisfied" and 10 = "extremely satisfied," how satisfied have you been with the way that the [Southern California Edison/ PG&E] staff has responded to any questions you had about the energy efficiency improvements at [ADDRESS]? **[RECORD RATING; -98= DON'T KNOW, -99= REFUSED]**

[IF D20= 0-4] Why were you less than satisfied with the utility staff?

[RECORD RESPONSE]

- 98. (DON'T KNOW)
- 99. (REFUSED)

[IF RECENT INSPECTION] Our records indicate that your property was visited by an inspector in the past year to inspect the equipment that **[Southern California Edison/ PG&E]** provided rebates for. Do you recall this inspection?

1. Yes
2. No **[SKIP TO D25]**
- 98. (DON'T KNOW) **[SKIP TO D25]**
- 99. (REFUSED) **[SKIP TO D25]**

Using a scale of 0 to 10 where 0 = “not at all satisfied” and 10 = “extremely satisfied,” how satisfied were you with the ways this inspection was conducted? **[RECORD RATING; -98= DON'T KNOW, -99= REFUSED]**

[IF D23= 0-4] Why were you less than satisfied with this inspection process?

[RECORD RESPONSE]

- 98. (DON'T KNOW)
- 99. (REFUSED)

Using a scale of 0 to 10 where 0 = “not at all satisfied” and 10 = “extremely satisfied,” how satisfied have you been with the **[INSTALLATION YEAR] [Southern California Edison/Pacific Gas & Electric]** Multifamily Program as a whole? **[RECORD RATING; -98= DON'T KNOW, -99= REFUSED]**

[IF D25= 0-4] Why were you less than satisfied with this program?

[RECORD RESPONSE]

- 98. (DON'T KNOW)
- 99. (REFUSED)

Would you recommend this program to another property manager or owner of other multifamily properties?

1. Yes
2. No
- 98. (DON'T KNOW)
- 99. (REFUSED)

Do you have any suggestions for ways the program could be improved? **[DO NOT READ]**

12. Wouldn't change anything/keep program as is
13. Include additional types of equipment
14. Increase rebates
15. Simplify the installation process
16. Provide more information
17. Use better contractors
18. Improve quality/accountability
19. Provide a better warranty
20. Get a message to my owners
21. Other

A1n. **[SPECIFY]**

- 98. (DON'T KNOW)
- 99. (REFUSED)

Intention/Behavior/Maintenance

5. [If more than one property: Now I'd like to think about all the properties that you manage.] Please tell me if your company has already taken these energy saving actions, is currently taking them, or is planning to take them **within the next three years** at any of your properties. **[CODE TO SKIP ACTIONS TAKEN THROUGH PROGRAM] [-97= NOT APPLICABLE]**

AKA: INTENTION & BEHAVIOR

| Behaviors/ investments | G1_1. Have you/Are you ... | G1_2. [IF G1_1=2] Do you have plans to... in the next three years |
|---|----------------------------|---|
| a. Install/ed/ing energy efficient lighting for common areas/outdoors | 1. Yes 2. No | 1. Yes 2. No |
| b. Install/ed/ing energy efficient cooling equipment for common areas | 1. Yes 2. No | 1. Yes 2. No |
| c. Install/ed/ing energy efficient HVAC in building | 1. Yes 2. No | 1. Yes 2. No |
| d. Install/ed/ing more energy efficient clothes washers for the common area? | 1. Yes 2. No | 1. Yes 2. No |
| e. Increases/ed/ing the energy efficiency of the building shell, such as putting in insulation | 1. Yes 2. No | 1. Yes 2. No |
| f. Had a whole property energy audit performed by a building professional | 1. Yes 2. No | 1. Yes 2. No |
| g. Increases/ed/ing the energy efficiency of appliances in tenant units | 1. Yes 2. No | 1. Yes 2. No |
| h. Install/ed/ing more energy efficient lighting in tenant units | 1. Yes 2. No | 1. Yes 2. No |
| i. Market/ed/ing your properties as being energy efficient | 1. Yes 2. No | 1. Yes 2. No |
| j. Provide/ed/ing prospective tenants the average electric and gas bills for units before they rent | 1. Yes 2. No | 1. Yes 2. No |

[IF ANY GI_2=1] For the improvements that you are planning to make in the next three years, would your organization consider making these improvements without rebates or assistance in installation from **[Southern California Edison/Pacific Gas and Electric]** Multifamily Program?

1. Yes
2. No
- 98. (DON'T KNOW)
- 99. (REFUSED)

[IF ANY GI_2=2] What are your reasons for not planning to make similar energy efficiency improvements over the next three years? **[ALLOW MULTIPLE RESPONSES]**

1. Already did all cost-effective energy efficient improvements
 2. Unaware of/unable to identify measures
 3. Tenants pay their own utility bills
 4. Lack maintenance staff to install measures
 5. Lack of time/not a priority
 6. Financial limitations
 7. Lack of information on energy savings or costs
 8. Question reliability of energy efficient equipment
 9. Energy savings estimates for equipment are unreliable
 10. Fuel prices were low
 11. New to building
 12. Timing
 13. Technology unavailable
 14. Replacing on an as-needed basis
 15. It isn't unnecessary
 16. Other
- A1o. **[SPECIFY]**
- 98. DON'T KNOW
 - 99. REFUSED

Would you say you always, often, sometimes, or never consider energy efficiency when deciding to make improvements for your property (ies) that would affect its/their energy use? This might include the efficiency level of appliances and lighting or changes to doors, windows and the building shell. AKA: MAINTENANCE

1. Always consider
 2. Often
 3. Sometimes
 4. Never consider
- 98. (DON'T KNOW)
- 99. (REFUSED)

And, as a routine part of your building maintenance, do you take steps to make sure the building is operating as energy efficiently as possible – such as changing furnace filters or weatherstripping doorways --? AKA: MAINTENANCE

1. Yes
 2. No
- 98. (DON'T KNOW)
- 99. (REFUSED)

Is energy efficiency considered as part of keeping your tenants comfortable? AKA: MAINTENANCE

1. Yes
 2. No
- 98. (DON'T KNOW)
- 99. (REFUSED)

Site Characteristics and Efficiency Views

Finally I'd like to know more about the specific property you own or manage at [Give Address], and then some general views on energy efficiency.

What percent of the units in the property at [ADDRESS] use a central heating system?

[RECORD RESPONSE]

- 98. (DON'T KNOW)
- 99. (REFUSED) [TERMINATE POLITELY]

What percent of units at that property at [ADDRESS] use a central cooling system?

[RECORD RESPONSE]

- 98. (DON'T KNOW)
- 99. (REFUSED) [TERMINATE POLITELY]

What percent of units use a central hot water system?

[RECORD RESPONSE]

- 98. (DON'T KNOW)
- 99. (REFUSED) [TERMINATE POLITELY]

What percent of your tenants at [ADDRESS] pay for their own electric bills?

[RECORD RESPONSE]

- 98. (DON'T KNOW)
- 99. (REFUSED) [TERMINATE POLITELY]

What percent of your tenants at [ADDRESS] pay for their own water bills?

[RECORD RESPONSE]

- 98. (DON'T KNOW)
- 99. (REFUSED) [TERMINATE POLITELY]

[PG&E ONLY] What percent of the tenants at this building have natural gas?

[RECORD RESPONSE]

- 97. Not Applicable
- 98. (DON'T KNOW)
- 99. (REFUSED) [TERMINATE POLITELY]

Of those that have natural gas, how many pay for their own natural gas?

[RECORD RESPONSE]

- 97. Not Applicable
- 98. (DON'T KNOW)
- 99. (REFUSED) [TERMINATE POLITELY]

Does your organization have an energy policy – such as formal or informal rules about buying equipment that has a certain level of energy efficiency?

- 1. Yes
- 2. No
- 98. (DON'T KNOW)
- 99. (REFUSED)

Does your organization have a person who, as part of their job responsibilities, is charged with managing energy use at your property(ies)? **AKA: RESPONSIBILITY**

1. Yes
2. No
- 98. (DON'T KNOW)
- 99. (REFUSED)

Do you specifically market your building as a green building?

1. Yes
2. No
- 98. (DON'T KNOW)
- 99. (REFUSED)

Now please rate how (**Owner or owner rep:** you, as the owner [or owner -representative]) (**Property manager:** the owners) of the property at [SERVICE ADDRESS FROM SAMPLE] view using energy at that property. Using a scale from 0 to 10, where 0 means strongly disagree and 10 means strongly agree, how much do (you) (the owners) agree with each of these statements? [RECORD RATING: -98= DON'T KNOW, -99= REFUSED] **AKA: RESPONSIBILITY**

- a. (I/We/They) feel a responsibility to decrease the energy use at this property in order to protect the environment.
- b. (I/We/They) feel a responsibility to decrease energy use at this property in order to reduce greenhouse gasses.
- c. (I/We/They) feel a responsibility to decrease energy use at this property in order to reduce energy costs.

Closing

[IF A5=1; OTHERWISE SKIP TO G3] As I mentioned earlier, we are going to mail you a \$50 incentive check as a thank you for completing this questionnaire. We have [NAME] at [ADDRESS] on file in our records, is this where you would like us to send your incentive?

1. Yes
2. No

To which name and address would you prefer we mail the incentive check?

[RECORD NAME AND ADDRESS]

Do you have any other comments and especially any further recommendations for improving the Multifamily Program?

22. Yes

A1p. [SPECIFY]

23. No

-99. (REFUSED)

[TO ALL RESPONDENTS] Thank you for your taking the time to give us your views. [SOUTHERN CALIFORNIA EDISON/ PG&E] will use the results of these interviews to improve their multifamily programs.

Pre-code: Aware of utility energy efficiency programs [1=YES; 2=NO] AKA: AWARE

Pre-code: Aware of utility rebates or incentives [1=YES; 2=NO] AKA: AWARE