



Southern California Multifamily Program Process Evaluation 2014-2015

Volume 1 of 2

Final Report

February 28, 2017

CALMAC ID: SCE0399.01

Prepared for Southern California Edison, Southern
California Gas Company, and San Diego Gas &
Electric

Table of Contents

EXECUTIVE SUMMARY	1
INTRODUCTION AND STUDY OVERVIEW	1
OVERALL CONCLUSIONS AND RECOMMENDATIONS.....	2
Geographic and Temporal Consistency	2
Single Point of Contact.....	3
Program Participant Experiences	3
Expanding to More Comprehensive Measures and Participation	4
Common Area Laundry.....	5
Building Operator Training.....	5
Integration of Disparate Multifamily Programs.....	6
1 INTRODUCTION.....	7
1.1 STUDY BACKGROUND AND HISTORY.....	8
1.2 STUDY METHODOLOGY	12
1.3 STUDY LIMITATIONS.....	13
1.4 REPORT OVERVIEW.....	13
2 MULTIFAMILY PROGRAM APPROACH.....	15
2.1 PRE-EXISTING PROGRAM STRUCTURE AND DETAILS	15
2.1.1 MFEER	18
2.1.2 Middle Income Direct Install Program.....	19
2.1.3 Energy Savings Assistance Program	20
2.1.4 Energy Upgrade California Multifamily (Whole Building Programs).....	22
2.1.5 Additional Background from Program Manager Workshop	24
2.2 FUTURE MULTIFAMILY PROGRAMS.....	30
2.2.1 Market Context	30
2.2.2 General Program Vision Description	31
2.2.3 Current Transitions to the Program Concept.....	35
2.2.4 Regulatory Issues.....	35
2.3 IMPLICATIONS / CONCLUSIONS.....	37
3 IMPLEMENTATION CONTRACTOR WORKSHOP AND INPUT.....	39
3.1 CUSTOMER OUTREACH AND RELATIONSHIPS	40
3.1.1 Single Point of Contact	40
3.1.2 Contractor Cross-Program Referrals	40
3.2 CONTRACTOR CAPABILITIES AND SPHERES OF WORK	41
3.3 PROGRAM STRUCTURE AND PROCESSES	42
3.3.1 Measures and Offerings	42

3.3.2	Program Process	43
3.3.3	Anonymous Contractor Feedback	43
3.4	IMPLICATIONS/CONCLUSIONS	46
4	MARKET INPUT.....	48
4.1	LARGE PORTFOLIO OWNERS AND MANAGERS.....	48
4.1.1	Importance of Energy Efficiency	49
4.1.2	Energy Efficiency Decision Making.....	52
4.1.3	Energy Consumption Tracking	54
4.1.4	Energy Management Challenges	55
4.1.5	Staff Energy Training.....	55
4.1.6	Knowledge of IOU Programs	56
4.1.7	Participation Satisfaction.....	57
4.1.8	Participation Challenges.....	57
4.1.9	Suggested Program Changes - Unprompted	58
4.1.10	Suggested Program Changes - Prompted.....	59
4.1.11	Implications/Conclusions.....	60
4.2	MFEER PARTICIPANTS	62
4.2.1	Respondent and Property Characteristics	63
4.2.2	Program Awareness and Prior Participation	70
4.2.3	Practices Concerning Equipment Purchases and Importance of Energy Efficiency .	74
4.2.4	Information Sources for Energy Efficiency Options, Services, and Programs	76
4.2.5	Decision-making Factors, Drivers, and Intention to Act	80
4.2.6	Building Operations Staff Training Practices	84
4.2.7	Implications / Conclusions.....	87
5	COMMON AREA LAUNDRY.....	88
5.1	LAUNDRY FACILITY CHARACTERISTICS AND EQUIPMENT.....	91
5.1.1	Laundry Facility Characteristics	91
5.1.2	Laundry Equipment.....	94
5.2	MARKET ACTORS.....	97
5.2.1	Laundry Leasing Companies.....	97
5.2.2	Property Level Decision Makers	98
5.2.3	Other Market Actors	99
5.3	LEASE AGREEMENTS AND EQUIPMENT REPLACEMENT PRACTICES	100
5.3.1	Lease Agreements	100
5.3.2	Equipment Replacement Practices.....	104
5.4	POTENTIAL FOR PROGRAM INTERVENTION	108
5.4.1	Toolkit for Consideration of Washer/Dryer Incentive Program	108
5.4.2	Beneficial Activities Beyond Traditional Incentive Programs	113
5.5	CONCLUSIONS AND OPTIONS FOR FURTHER CONSIDERATION	115
6	BOC TRAINING FOR MULTIFAMILY OPERATORS	118

6.1	INTRODUCTION / BACKGROUND.....	118
6.2	EXISTING TRAINING	118
6.2.1	Building Operator Certification Training	119
6.2.2	Other Training Offerings.....	123
6.3	MULTIFAMILY OWNER AND OPERATOR NEEDS.....	124
6.4	CONCLUSIONS / IMPLICATIONS.....	124
7	CONCLUSIONS AND RECOMMENDATIONS.....	126
7.1	OVERALL PROGRAM DESIGN	126
7.2	GEOGRAPHIC AND TEMPORAL CONSISTENCY.....	126
7.3	SINGLE POINT OF CONTACT.....	128
7.4	PROGRAM PARTICIPANT EXPERIENCES.....	128
7.5	EXPANDING TO MORE COMPREHENSIVE MEASURES AND PARTICIPATION	129
7.5.1	Common Area Laundry	130
7.5.2	Building Operator Training	131
7.6	INTEGRATION OF DISPARATE MULTIFAMILY PROGRAMS	131
	LIST OF APPENDICES IN VOLUME 2	133

Executive Summary

Introduction and Study Overview

This report presents the results of the 2014-2015 process evaluation of the multifamily energy efficiency programs of Southern California Edison (SCE), Southern California Gas Company (SoCalGas), and San Diego Gas & Electric (SDG&E). These utilities operate separate programs for:

- Whole-building upgrades (Energy Upgrade California Multifamily);
- Rebates for individual efficiency improvements in multifamily buildings (Multifamily Energy Efficiency Rebate program);
- Direct install measures in individual units of households with moderate incomes (Middle Income Direct Install program);
- Direct install measures in individual units of households with low incomes (Energy Savings Assistance program); and
- Direct install measures in the Comprehensive Manufactured Home Program (CMHP).

The overall study purpose was to inform the IOUs' multifamily program design and implementation. Study objectives focused largely on informing a shift by these three investor-owned utilities (hereafter, IOUs) to a revised program concept that was already underway. That concept included a more comprehensive approach that better links and sequences the various multifamily interventions, provides a single point of contact to customers, and addresses building benchmarking. As a result, the study is primarily forward looking and formative in nature with only selected inquiries into past program performance. Major elements of the study include:

- Reviews of the program concept to which the IOUs were shifting;
- Feedback from program implementation contractors;
- Research into program needs and experiences of multifamily property owners and managers;
- A study of opportunities and barriers to addressing energy efficiency of common area laundry equipment; and
- A study of training opportunities for multifamily building operators and their potential fit with the program.

This report presents results and implications of each component of the study, including:

- Program background and input from program managers;
- Program implementation contractor input;

- Market actor research (involving participants in the Multifamily Energy Efficiency Rebate (MFEER) program and large portfolio building decision-makers);
- A study of opportunities in common area laundry facilities within multifamily buildings; and
- Review and analysis of building operator training.

Each section serves as a stand-alone resource for IOU program teams, while conclusions and recommendations draw from the entirety of the study.

Overall Conclusions and Recommendations

The program concept presented by the Southern California IOUs is a logical overall framework for future multifamily energy efficiency programs that draws on best practices (both existing and conceptual) in the multifamily sector and builds on existing program offerings in California. As the overall program framework appears to be sound and comprehensive, we focused our discussion and recommendations on program-related topic areas for which this study provides new insights or confirms program assumptions.

As noted by program managers, the Southern California IOUs are transitioning their programs to the overall framework at different speeds with utility-specific customization. Consequently, the main take-aways may vary somewhat from IOU to IOU depending on the state of their transition to this program concept.

Geographic and Temporal Consistency

Research conducted as part of this study highlights the importance of consistency of offerings both across geographies and time, as well as the importance of utility-specific relationships. The IOUs are already aware of this need and have taken steps to accommodate customer decision-making timelines where feasible.

Nevertheless, feedback from contractors and large portfolio managers suggests that, periodically, program offerings change or expire on a faster timeline that multifamily building decision-making processes can accommodate. A transition to longer-term rolling portfolios should address some of these concerns.

Recommendation #1: We recommend that the Southern California IOU multifamily programs and the California Public Utilities Commission (CPUC) maintain consistency and predictability in program offerings. Specifically:

- **The IOU programs should provide long-term measure and program offerings that span two or more years and continue to allow multifamily customers to reserve funds for projects.**
- **The CPUC should consider the timespan of multifamily building renovations in the establishing future program cycles or otherwise ensure sufficient flexibility**

in allowing program spending and commitments of sufficient duration to accommodate market decision-making practices. Any changes in program cycles will require adjustments in impact evaluations and the program application timelines as well.

- **Programs should continue to coordinate on program eligibility parameters and other customer-facing program components so they are aligned as much as practical (within the constraints of unique program design needs).**

Single Point of Contact

The concept of a single point of contact – a key feature of the IOUs’ program concept – is conceptually good and viewed favorably by contractors and multifamily decision-makers. However, it is also clear that both the utility and contractor relationships with customers complement each other, and other details about the nature of the program interaction with customers seem to matter more than whether customers have a single person acting as their main contact.

For example, in-person outreach and consistent staffing of multifamily programs over time was highlighted as important by large portfolio decision-makers, who may also be more interested in blending discussions about energy efficiency opportunities and other aspects of their utility-customer relationship. Hence, single points of contact may function somewhat differently for program relationships with decision-makers for small and large portfolios of multifamily properties.

Recommendation #2: We recommend that continued transition to a single point of contact include joint customer outreach by both utility staff and implementation contractors acting as a unified team. To the extent practical, outreach to customers should be customized to the customer’s needs and circumstances, which may include being able to address details about a specific efficiency upgrade, efficiency opportunities across multiple buildings, and aspects of the customer-utility relationship beyond efficiency (such as rate options and billing). Approaching the single point of contact with this goal will maximize the value to the customer and should increase customer engagement and receptivity.

Program Participant Experiences

Overall, participants’ experiences with the IOUs’ multifamily programs appear to have been consistently positive over time.¹ Simplifying the program participation process

¹ Based on follow-up surveys of MFEER participants, who were predominately participants in SCE’s multifamily program and implemented largely no-cost direct-install measures. There were not enough survey completions from the limited number of SoCalGas or SDG&E participants to accurately gauge their level of satisfaction.

through reduced or consolidated paperwork (such as application forms and processes that simplify multi-unit and multi-building participations) and verification visits that are coordinated with any in-unit installations would reduce the “hassle factor” for program participants. Simplifying program participation in these ways competes with program needs for tracking and verification, but shifts toward electronic forms and signing up multiple properties on a single form could be expanded.

Expanding to More Comprehensive Measures and Participation

Program participants continue to make use of lighting upgrades above all other efficiency opportunities available through the Multifamily Energy Efficiency Rebate (MFEER) program. While some participants are returning customers (either for lighting upgrades in other facilities or non-lighting upgrades), there appears to be unrealized potential for more repeat participation. Furthermore, and more importantly, there is room for more engagement by past MFEER program participants in the implementation of additional measures through MFEER and other multifamily efficiency offerings, such as Energy Upgrade California Multifamily or ESA. Such cross-program engagement would need to be expanded for the IOUs’ program vision to function as intended.

Recommendation #3: We recommend that the IOUs expand customer involvement in the full range of multifamily programs and measures available by continuing and expanding the use of the MFEER program as an entry point to program participation. To facilitate the promotion of the full range of multifamily program offerings, IOUs should record and track:

- **Customer-specific energy-saving opportunities identified during IOU staff and program interactions with customers and subsequent follow-up efforts so program staff and representatives have an up-to-date record of suspected and known efficiency opportunities for properties and past interactions with decision-makers about those opportunities;**
- **Program participation by measure category; and**
- **Program participation status for each customer (such as first-time participants, repeat participants, repeat participants with enhanced levels of engagement, and dormant past participants with identified remaining opportunities).**

This information can facilitate strategic outreach campaigns as well as help program representatives conduct more customized and informed conversations with customer decision-makers.

Recommendation #4: Further, we recommend that the IOUs continue to seek out and offer new (and cost-effective²) measures.

Common Area Laundry

Laundry initiatives for common area appliances would need to involve laundry leasing companies that control a substantial share of the washers and dryers in these spaces. Given the range of replacement rates of washers and dryers currently under leasing arrangements and considering the frequently-updated regulatory standards for laundry equipment, it is not clear whether equipment rebates would be a cost-effective program approach. IOUs could follow a phased approach, however, that concentrates on an informational campaign in the near term and program opportunities thereafter.

Development of a laundry equipment replacement program would require more research to determine the cost-effectiveness at the program and property level. Such a program would be a good candidate for implementation as a third-party program, particularly if the third party provider has already vetted the program design and cost-effectiveness.

Recommendation #5: Unless or until a more comprehensive laundry rebate program proves to be cost-effective, we recommend that the IOU multifamily programs consider an informational campaign to encourage efficient laundry practices in common areas and transition to the most practical efficient laundry equipment when leased equipment is upgraded. This campaign could comprise two components:

- **Informational tools for multifamily owners and operators to encourage energy-efficient washing practices in common area laundry rooms; and**
- **An outreach effort directed at multifamily owners and operators when their laundry leases are due for renewal, to support their decision-making and potential negotiations for more efficient equipment at that time. (Program staff would need to identify multifamily properties with upgrade potential and laundry lease schedules as part of on-site visits to multifamily properties when they occur for other reasons.)**

Building Operator Training

Building operator training is available from a variety of sources, including the Building Operator Certification program. This type of training does not seem to be a high priority

² Programs will need to meet both regulatory and practical cost-effectiveness requirements for new measures. We note that, at a national level, some programs have found it useful to approach cost-effectiveness at a building level rather than for individual measures, so that measures can be bundled and increase the value and attractiveness of an efficiency upgrade to the building decision-maker.

for most building operators, however. Therefore, any training offerings would need to be well-tailored to specific customer needs and marketed well.

Integration of Disparate Multifamily Programs

Integration of separate programs into a unified program umbrella will require internal consistency (within IOUs) in participant tracking, marketing, and outreach. Ideally, program metrics should consistently track production in terms of units, buildings, or complexes served, and outreach to customers should be tracked across programs to ensure that customer contacts build on one another. Sharing of relevant information across program and utility boundaries – as well as between energy efficiency efforts and other utility customer contacts – improves the effectiveness of customer outreach and the customer experience.

Recommendation #6: We recommend the use of a shared customer relationship management (CRM) system to facilitate information sharing across program, functional, and utility lines.

I Introduction

This report presents the results of the 2014-2015 process evaluation of the multifamily energy efficiency programs of Southern California Edison (SCE), Southern California Gas Company (SoCalGas), and San Diego Gas & Electric (SDG&E). These utilities operate separate programs for:

- Whole-building upgrades (Energy Upgrade California Multifamily);
- Rebates for individual efficiency improvements in multifamily buildings (Multifamily Energy Efficiency Rebate program);
- Direct install measures in units of households with moderate incomes (Middle Income Direct Install program);
- Direct install measures in units of households with low incomes (Energy Savings Assistance program); and
- Direct install measures in manufactured housing (Comprehensive Manufactured Home Program), which was not included in this study.

Study objectives focused largely on informing a shift by these three investor-owned utilities (hereafter, IOUs) to a revised program concept that was already underway. That concept included a more comprehensive approach that better links and sequences the various multifamily interventions, provides a single point of contact to customers, and addresses building benchmarking. As a result, the study is primarily forward looking and formative in nature with only selected inquiries into past program performance. Major elements of the study include:

- Reviews of the program concept to which the IOUs were shifting;
- Feedback from program implementation contractors;
- Research into program needs and experiences of multifamily property owners and managers;
- A study of opportunities and barriers to addressing energy efficiency of common area laundry equipment; and
- A study of training opportunities for multifamily building operators and their potential fit with the program.

Due to the disparate nature of the study components, we present them as stand-alone sections with the relevant background, findings, and discussion of the research findings' implications for the IOUs' multifamily programs. An overall conclusion section summarizes the crosscutting themes in the research.

1.1 Study Background and History

The overall study purpose was to inform the IOUs' multifamily program design and implementation. Study goals evolved substantially during the planning stages of the process evaluation in response to developments in program design, external studies, and testimony to the California Public Utilities Commission (CPUC). We trace the evolution of the study goals below.

Initial study objectives comprised the following research questions and goals, with a study to be separated into two phases:

Phase One

- What is the optimal program design and implementation strategy for this program? How should the program evolve at the IOUs' portfolio level?
- Is the Single Point of Contact (SPOC) the optimal solution? Are there other program designs possible?
- Conduct review of multifamily marketing and outreach models; find potential data sources.
- What is the role of property rating and recognition?
- Create updated program theory and logic models.
- Conduct market segmentation by major income categories, as well as property and equipment vintage.

Phase Two

- Prioritize measures appropriate for early replacement in multifamily sector by major segments.
- Review Title 20/24 implementation requirements and identify implications.
- Map contractor qualifications and property owners/managers' wants/needs by property and tenant segments.
- What is the role and effectiveness of the ENERGY STAR® Portfolio Manager? What is the best way to enroll properties?

In early 2015, a meeting among all four California IOUs resulted in the development of a program concept that the three Southern California IOUs chose to follow. Study goals shifted primarily to helping to provide empirically based feedback on this program concept and to inform the resulting transition of program designs and implementation. Pacific Gas and Electric Company (PG&E) was proceeding at a different pace for program design adjustments and chose not to participate in the remainder of this study. We describe the IOUs' program concept in more detail in Section 3.

At about the same time, in January 2015, the Natural Resources Defense Council (NRDC) issued a program design guide that outlined 12 best practices for energy efficiency programs for the affordable housing sub segment of the multifamily sector.³ Testimony based on this study was submitted to the CPUC in the spring of 2015. Several of the best practices outlined by the NRDC (but not all) had been separately identified by the IOUs and incorporated into their program concept.

With these developments, the study goals shifted to a primarily forward-looking study to inform the IOUs' program design. The one retrospective study component was a survey of past participants in the Multifamily Energy Efficiency Rebate (MFEER) program. Table 1 lists the research questions by topic area.

³ NRDC. *Program Design Guide: Energy Efficiency Programs in Multifamily Affordable Housing*. Prepared for the Energy Efficiency For All Project, a joint effort of the Natural Resources Defense Council, the National Housing Trust, the Energy Foundation, and Elevate Energy, 2015.

Table 1: Research Questions by Topic Area

Topic Areas	Study Objectives
<p>Multifamily Owner / Operator Research</p> <ul style="list-style-type: none"> • Large Portfolio Manager Interviews • MFEER Participant Survey 	<p>Awareness and practices concerning energy efficiency and programs</p> <ul style="list-style-type: none"> • For all: What are decision-makers' perceptions of energy efficiency? How does it factor into their building upgrade and maintenance practices? • For participants: Were participants aware of their program participation? Of the full range of program options? • For non-participants (or unaware participants): Do decision-makers know about the utility programs? What/how much do they know? <p>Information sources for energy efficiency options, services, and programs</p> <ul style="list-style-type: none"> • For all: Where do decision-makers find out about energy efficiency options when making equipment or facility changes? About services available to them? About program offerings (utility or otherwise) available to them? • For all: What information sources about multifamily building maintenance, operation, and equipment do they trust the most? <p>Perceptions, experience, and satisfaction with measures installed, program services, and processes</p> <ul style="list-style-type: none"> • For participants: What were participants' experiences with the programs? Were they satisfied with the measures installed? With the interaction with the contractors? With the utility program processes? • For non-participants (or unaware participants): What are decision-maker's expectations and perceptions of utility programs? What is most important for a successful program experience? • For non-participants: What are barriers to program participation? <p>Decision-making factors, drivers, and intention to act</p> <ul style="list-style-type: none"> • For all: What factors do decision-makers consider when considering efficiency improvements? What are the key drivers? Under what circumstances would they participate in utility programs in the next three years? • For participants: Are participants planning additional energy efficiency investments at the participating (or

Topic Areas	Study Objectives
Laundry Study	<p>other) buildings in the upcoming three to five years? What kinds?</p> <ul style="list-style-type: none"> • Does a program intervention to address third-party owned laundry facilities in multifamily buildings seem feasible and potentially cost-effective? How might it be designed? <ul style="list-style-type: none"> ○ What is the penetration of leased-laundry operations in the multifamily sector? ○ What are the current baseline efficiency levels of these leased laundry appliances? ○ What are the potential projected energy (and water) savings in this appliance area? ○ What program design (i.e., appliance recycling model, upstream intervention, etc.) can cost-effectively induce early replacement of these water and energy inefficient appliances in this market? ○ What does it take to improve the efficiency level of laundry room appliances for the leasing operators? What incentive is necessary?
Building Operator Training	<ul style="list-style-type: none"> • Is there a program need for BOC training for multifamily owners and operators? <ul style="list-style-type: none"> ○ What value would this training provide to owners and operators of multifamily buildings in California? ○ Does (could) it provide content that is sufficiently applicable to multifamily buildings and energy-saving opportunities in California? ○ Does its value include measurable and creditable energy savings? ○ For whom would this training be useful? ○ What changes would be needed to make this course useful for California multifamily programs? • What would be the cost to utility programs and attendees?

1.2 Study Methodology

Research methodology included primary research involving interviews and surveys of a variety of market actors, two workshops involving program staff and contractors, and secondary research. Methods varied by study component. Table 2 summarizes our study methods by topic area.

Table 2: Research Methodology by Topic Area

Topic Areas	Study Method	Time Range of Data Collection
Background – Program Managers	In-person workshop with multifamily program managers, evaluators, and other relevant staff in Downey.	July 7, 2015
Background – Program Implementation Contractors	In-person focus group with program contractors nominated by IOU program managers in Irvine.	September 16, 2015
Multifamily Owner / Operator Research – Large Portfolio Managers	In-depth interviews with facility decision-makers for 10 companies, agencies, and organizations that own or manage large portfolios of multifamily properties in southern California.	May – July 2016
Multifamily Owner / Operator Research – Past MFEER Participants	Telephone survey of building owners and on-site managers of multifamily properties that participated in the MFEER programs of SCE, SoCalGas, or SDG&E between January 2013 and June 2015.	June 21-July 28, 2016
Laundry Study	Telephone interviews of third party route operators and building managers (5 total), literature review, and secondary research on laundry equipment standards. Also drew on laundry related questions in interviews of large portfolio managers and survey of MFEER participants.	December 2015 – September 2016
Building Operator Training	Review of Building Operator Certification Training offerings and materials, and interviews with representatives of the Northwest Energy Efficiency Council and the Midwest Energy Efficiency Alliance.	January – March 2016, September 2016

We provide more details on study methods, as well as data collection instruments, in Appendix C.

1.3 Study Limitations

While expansive in its exploration of multiple aspects of the Southern California IOUs' multifamily programs, this study has several limitations we took into account in drawing conclusions and making recommendations. We highlight study limitations and constraints here to assist readers as they interpret study results. Limitations or constraints include:

- **Due to its forward-looking focus, the study did not examine in detail individual program details and operations.** The study was designed to help inform a transition to a program concept by the three Southern California IOUs rather than assess how existing and prior program efforts are performing. Hence, although some aspects of the study contain elements of a traditional process evaluation, key parts of the research were designed to be formative and forward-looking in nature.
- **Market actor input is primarily from (partial) participants.** Direct input from multifamily building decision-makers was limited to survey responses and interviews of owners and operators who have participated in the programs in some fashion, although generally not as fully as may be desirable from the perspective of the IOU programs. We did not interview or survey pure non-participants. Further, survey responses from the MFEER participant survey were primarily from multifamily owners or operators who received no-cost measures from SCE with limited responses from participants in other aspects of MFEER or from the other utilities.
- **Input from large portfolio owner is based on a limited number of qualitative interviews.** Input from large portfolio multifamily owners and operators came from a limited number of qualitative, yet highly in-depth interviews. Due to the limited number of these interviews, it is possible that interviewees' perspectives are not generalizable to the full population.
- **Laundry study focused on market actor research and used only secondary information about technical energy-savings potential.** The laundry study relied on secondary reports of the technical specifications and efficiency levels in place in common area laundry rooms and received limited cooperation from third-party laundry leasing agents. The information presented in this report is sufficient to understand the issues, opportunities, and barriers, but a cost-effectiveness calculation and business decision would probably require either a technical inventory of equipment or data from a pilot.

1.4 Report Overview

The remainder of this report presents results and implications of each component of the study in the following order:

- Multifamily program manager workshop
- Program implementer focus group

- Multifamily owner/operator research
- Laundry study
- Building operator training

The section on multifamily owner/operator research includes both our in-depth interviews with large portfolio managers and our survey of MFEER participants.

Finally, a conclusions section presents crosscutting themes and recommendations.

2 Multifamily Program Approach

In this section, the Evergreen Economics team⁴ documents the current and envisioned future energy efficiency program approaches by the California investor-owned utilities (IOUs) to serve multifamily customers. A description of program approaches in place in 2015 draws on secondary research conducted by the Evergreen team and presentations by the IOU multifamily program managers at a workshop in July of 2015. The description of the future program vision to which the programs are shifting is also based on presentations by the program managers at this same workshop.

The program manager workshop was held in Downey, California, on July 7, 2015, at the Southern California Gas Energy Resource Center. All three Southern California IOUs were represented by the multifamily program manager and staff from their evaluation, regulatory, low income, and solar groups. Representatives from Pacific Gas and Electric Company (PG&E) and the California Public Utilities Commission (CPUC) were also present. The workshop consisted of:

- A presentation of the IOUs' vision for multifamily programs;
- Utility-specific presentations of their program approaches and plans;
- A presentation by CPUC staff about regulatory issues; and
- Guided questions and answers (akin to a group interview).

2.1 Pre-Existing Program Structure and Details

Program documents from 2015 and earlier years provide details about the four different utility programs that serve California's multifamily buildings and units: the Multifamily Energy Efficiency Rebate (MFEER) program, the Middle Income Direct Install (MIDI) program, the Energy Savings Assistance (ESA) program, and the Energy Upgrade California (EUC) program. These programs differ in the types of efficiency projects they support and in the populations targeted by the programs. We describe each program and summarize their targeted populations and offerings in Table 3. We also note that some of these programs are going through transitions. The Energy Upgrade California Multifamily program, in particular, continues to serve as the whole building approach for some IOUs, while SCE is moving away from the program and exploring other delivery options for whole-building services.

⁴ The Evergreen Economics team included Dr. Philippus Willems of PWP, who assisted with the design of the MFEER survey, and CIC Research, which fielded the survey; henceforth, we refer to the Evergreen Economics team as Evergreen.

Table 3: Multifamily Programs and Components

Program	Participant Population	SCE	SoCalGas	SDG&E
MFEER	<p>All multifamily buildings with 2+ units are eligible (no income requirement);</p> <p>Treats individual units and building common areas and central equipment;</p> <p>IOU customers only.</p>	<p><u>Incentive Offerings</u></p> <ul style="list-style-type: none"> • Lighting • Building Envelope • Water Heating • HVAC • Appliances • Pumps <p>Rebate with building owner / manager.</p> <p><u>Non-Incentive Offerings*</u></p> <ul style="list-style-type: none"> • Customer Service and Contractor Training • Energy Education 	<p><u>Incentive Offerings</u></p> <ul style="list-style-type: none"> • Building Envelope • Water Heating • HVAC • Appliances <p>Rebate with building owner / manager.</p> <p><u>Non-Incentive Offerings</u></p> <ul style="list-style-type: none"> • Customer Service and Contractor Training • Energy Education 	<p><u>Incentive Offerings</u></p> <ul style="list-style-type: none"> • Lighting • Building Envelope • Water Heating • HVAC • Appliances • Pumps <p>Rebate with building owner / manager.</p> <p><u>Non-Incentive Offerings</u></p> <ul style="list-style-type: none"> • Customer Service and Contractor Training • Energy Education
MIDI	<p>Multifamily and single-family homes that meet income eligibility requirement⁵;</p> <p>Treats individual units only (in multifamily buildings);</p> <p>Some weather related measures are targeted at homes in specific climate zones e.g. air conditioners.</p>	<p><u>Incentive Offerings</u></p> <ul style="list-style-type: none"> • Smart Power Strips • Lighting • Evaporative Cooler • Room Air Conditioner <p>Direct Install; No/Low cost installation</p>	<p><u>Incentive Offerings</u></p> <ul style="list-style-type: none"> • Attic insulation • Low-flow shower heads • Duct sealing and testing • Faucet aerators • Thermostatic shower valve <p>Direct Install; No cost measures; No/Low cost installation</p>	<p><u>Incentive Offerings</u></p> <ul style="list-style-type: none"> • Clothes Washer • Refrigeration • Lighting/Sensors • Water Heaters • Furnace • Whole House Fan • Dish Washer <p>Direct Install; No cost measures; No/Low cost installation</p>

⁵ In the list of measures, we excluded those that clearly do not apply to low-income multifamily units, such as pool pump replacements.

Program	Participant Population	SCE	SoCalGas	SDG&E
	IOU customers only.			
ESA	<p>Multifamily (defined as sites with 5+ units), single-family homes (and mobile homes) that meet income eligibility requirement or participate in eligible public assistance program;</p> <p>Treats individual units;</p> <p>Treats multifamily building envelope if 80% of residents meet income requirement;</p> <p>Some weather related measures are targeted at specific climate zones e.g. air conditioners.</p> <p>IOU customers only.</p>	<p><u>Incentive Offerings</u></p> <ul style="list-style-type: none"> Smart Power Strips Lighting Weatherization Evaporative Cooler Room Air Conditioner Central AC Replacement Pool Pump Replacement Refrigerator Replacement Minor home repairs <p>Direct Install; No cost measures; No/Low cost installation</p> <p><u>Non-Incentive Offerings</u></p> <ul style="list-style-type: none"> Energy Education 	<p><u>Incentive Offerings</u></p> <ul style="list-style-type: none"> Infiltration Weatherization Space Conditioning Heating Systems Water Heating Measures Minor home repairs <p>Direct Install; No cost measures; No/Low cost installation</p> <p><u>Non-Incentive Offerings</u></p> <ul style="list-style-type: none"> Energy Education 	<p><u>Incentive Offerings</u></p> <ul style="list-style-type: none"> Infiltration & Space Conditioning Lighting Measures Refrigerators Cooling Measures* Heating Systems Water Heating Measures Water Conservation Measures High Efficiency Clothes Washers Pool Pumps Microwaves Minor home repairs <p>Direct Install; No cost measures; No/Low cost installation</p> <p><u>Non-Incentive Offerings</u></p> <ul style="list-style-type: none"> Energy Education
EUC MF	<p>Multifamily buildings are eligible (no income requirement);</p> <p>Treats individual units, building common areas and central equipment;</p> <p>IOU customers</p>	<p><u>Incentive Offerings</u></p> <ul style="list-style-type: none"> Building Shell Upgrades High-Efficiency HVAC Units Central Heating Central Cooling Systems Central Hot Water Heating 	<p><u>Incentive Offerings</u></p> <ul style="list-style-type: none"> Building Shell Upgrades High-Efficiency HVAC Units Central Heating Central Cooling Systems Central Hot Water Heating 	<p><u>Incentive Offerings</u></p> <ul style="list-style-type: none"> Building Shell Upgrades High-Efficiency HVAC Units Central Heating Central Cooling Systems Central Hot Water Heating

Program	Participant Population	SCE	SoCalGas	SDG&E
	only.	Rebates; Tiered Incentive Structure; Performance Based Incentives	Rebates Tiered Incentive Structure; Performance Based Incentives	Rebates; Tiered Incentive Structure; Performance Based Incentives

* MFEER program teams do not have direct control of the non-incentive offering, they collaborate with the Workforce Education and Training to deliver these offerings.

2.1.1 MFEER

General

The MFEER Program is offered as part of the California Statewide Program for Residential Energy Efficiency (CalSPREE). MFEER aims to advance comprehensive energy efficiency measures including whole house solutions, plug load efficiency, performance standards, and demand side management (DSM) integration for multifamily buildings. Table 4 presents the actual program costs and ex ante gross savings estimates for the 2013-2014 program year by IOU as reported in the 2013-2014 MFEER Impact Evaluation.

Table 4: MFEER 2013-2014 Cost and Savings⁶

	Total*	SCE	SDG&E	SoCalGas
Program Cost	\$21,527,188	\$13,656,154	\$2,302,767	\$1,720,688
kWh Savings	32,720,116	28,510,373	2,145,987	8,740
kW Savings	3,447	2,083	142	6
Therm Reduction	1,389,604	n/a	16,112	710,589

*NOTE: This is a statewide total including PG&E values, which we did not list separately.

MFEER offers a range of incentives and services to multifamily property owners and managers to install energy efficient measures in multifamily common areas and individual dwelling areas in multifamily complexes, condominiums, and mobile home parks. In addition to installation of energy efficient measures, MFEER provides training to contractors and educates property managers, owners, and tenants about energy efficiency.

⁶ Apex Analytics and DNV GL. *2013-2014 Residential Roadmap Multifamily Focused Impact Evaluation – Final*. Prepared for the California Public Utilities Commission, Energy Division, 2016.

The program also directs eligible customers to other programs including the ESA Program, MIDI and Energy Upgrade California Multifamily program (EUC MF). MFEER promotes the ESA program within the customer application and through other outreach efforts.

The program utilizes three incentive streams: prescribed rebates, mid-stream incentives through retailers, distributors, and contractors, and direct installation of energy efficiency measures.

The program is not income qualified and is available to all owners, managers, or authorized agents of existing residential multifamily complexes with two or more dwellings that receive IOU gas and/or electric service. To apply for the program, customers complete a rebate reservation form, which reserves rebate funds for 45 days during which the customer needs to arrange purchase and installation of the energy efficiency measures. After installation, the customer receives the rebate funds.

This statewide program is uniform in program offerings and eligibility requirements across the IOUs. The program offers the following broad measure categories:

- Lighting
- Building Envelope
- Water Heating
- HVAC
- Appliances
- Pumps

2.1.2 Middle Income Direct Install Program

The Middle Income Direct Install Program (MIDI) delivers direct install energy efficiency services at no cost to middle income customers living in single or multifamily properties (including mobile homes) in the IOU service areas. Multifamily common areas are not eligible for the program. The program serves customers that are unable to participate in EUC and are not income qualified for the ESA Program (according to the program implementation plan). Like MFEER, MIDI is offered as part of CalSPREE.

To be eligible for MIDI, customers must receive gas and/or electric service from their IOU, may require the homeowner's approval for the project if the customer is a renter, be available for an inspection verification, and meet income qualification requirements (which vary by IOU). The program is operated as a third-party program and where possible is coordinated with the ESA Program infrastructure and contractor network for program delivery.

Table 5 presents the measure offerings by IOU. Weather-related measures are targeted to specific climate zones where energy savings can be maximized. Some HVAC and weatherization measures are not available in certain moderate climate zones.

Table 5: MIDI Measure Offerings

SCE	SoCalGas	SDG&E
<ul style="list-style-type: none"> • Smart Power Strips • Lighting • Evaporative Cooler • Room Air Conditioner • Pool Pump Replacement 	<ul style="list-style-type: none"> • Attic insulation • Low-flow shower heads • Duct sealing and testing • Faucet aerators • Thermostatic shower valve 	<ul style="list-style-type: none"> • Clothes Washer • Refrigeration • Lighting/Sensors • Water Heaters • Furnace • Whole House Fan • Dish Washer • Pool Pump

The income requirement for program eligibility differs between San Diego Gas & Electric (SDG&E) and Southern California Edison/Southern California Gas Company (SCE/SoCalGas).

- **SDG&E** customers must be single-family or multifamily homes whose household incomes fall between 201 percent and 300 percent of Federal Poverty Guidelines.
- **SCE/SoCalGas** customers must be single-family or multifamily homes (or mobile homes) whose household incomes fall between 201 percent and 300 percent of Federal Poverty Guidelines. The unit must not have received ESA services after 2001.⁷

2.1.3 Energy Savings Assistance Program

The ESA Program, offered by all four IOUs, provides no-cost services to low-income households that meet income and program guidelines. The program’s objective is to help income-qualified customers reduce their energy consumption and costs while increasing their health, comfort and safety in the home. Services provided may include attic insulation, energy efficient refrigerators, high efficiency clothes washers, evaporative coolers, air conditioners, weather stripping, caulking, low-flow showerheads, water heater blankets, door and building envelope repairs, and more. The program also provides energy education and referrals to other programs.

⁷ SCE/SoCalGas increased the upper threshold to 300% in Q1-2014. Program staff indicated that SCE removed the upper threshold altogether in Q3-2016.

The ESA program serves homeowners and renters living in single-family dwellings, multifamily dwellings, and mobile homes. For multifamily specifically, the ESA Program serves income qualified residents in individual multifamily units. The program does not address multifamily building common areas or central systems. Multifamily structure building shells are eligible for weatherization measures if at least 80 percent of the tenants in the building are income-qualified for the ESA Program. Unlike energy efficiency programs, the ESA Program has a CPUC-mandated goal that all eligible low-income electricity and gas customers are to be given the opportunity to participate in low-income energy efficiency programs, including customers occupying apartments or similar multiunit residential structures, by December 31, 2020.

The program budget for the 2013-2014 program cycle is provided in Table 6.

Table 6: ESA 2013-2014 Projected Budget

	Total*	SCE	SDG&E	SoCalGas
Budget (2013)	\$368,703,763	\$72,640,016	\$22,140,542	\$117,559,854
Budget (2014)	\$377,620,525	\$72,736,631	\$22,515,618	\$120,506,165
Budget (Total)	\$746,324,288	\$145,376,647	\$44,656,160	\$117,559,854

*NOTE: This is a statewide total including PG&E values, which we did not list separately.

IOU customers must be single-family, multifamily, or mobile homes whose household incomes fall below 200 percent of Federal Poverty Guidelines, or a member of the household must qualify for an eligible public assistance program such as Medicaid, CalFresh, and WIC (the California Women, Infants and Children Program). In addition, the home (or building) owner may need to give permission for the project if the customer is a renter.

While each IOU determines the specific offerings of its ESA program (with approval from the CPUC), all include weather-sensitive and non-weather-sensitive measures and energy education. In some cases, the IOUs have coordinated to offer many of the same measures and to align their efforts in areas where gas and electric services are provided by separate utilities. The ESA Program guidelines call for the installation of all eligible measures that are feasible; no household or measure-level cost-effectiveness criteria are applied on a per-participant basis. When necessary to complete the installation of eligible measures, contractors are also allowed to provide minor home repairs. To ensure that equipment is installed properly, the applicable IOU (or designated agent) provides inspection services. Table 7 provides a summary of measures offered by each utility.

Table 7: ESA Measure Offerings

SCE*	SoCalGas	SDG&E
<ul style="list-style-type: none"> • Infiltration & Space Conditioning • Lighting Measures • Refrigerators • Cooling Measures** • Water Heating Measures • Water Conservation Measures • Pool Pumps 	<ul style="list-style-type: none"> • Infiltration & Space Conditioning • Heating Systems • Water Heating Measures • High Efficiency Clothes Washers • Water Conservation Measures 	<ul style="list-style-type: none"> • Infiltration & Space Conditioning • Lighting Measures • Refrigerators • Cooling Measures* • Heating Systems • Water Heating Measures • Water Conservation Measures • High Efficiency Clothes Washers • Pool Pumps • Microwaves

* Some of measures are only available in all electric homes.

** Some cooling measures are only available in specific climate zones

2.1.4 Energy Upgrade California Multifamily (Whole Building Programs)

The Energy Upgrade California (EUC) program is offered statewide through CalSPREE by all four IOUs. The EUC began in the 2010-2012 program cycle. The EUC program is a market transformation program aimed at shifting market adoption of energy efficiency from single-measure based approaches toward a whole-building approach. To meet this goal, the program provides two pathways. The first, the basic path, provides incentives for a prescriptive path of pre-defined measures. The second, the advanced path, is a custom path that delivers comprehensive energy efficiency improvements through delivery of measure packages tailored to specific homes. In the 2013-2014 program cycle, the IOUs added a multifamily pathway to the EUC program.

The budget for the 2013-2014 project cycle is provided in Table 8.

Table 8: EUC 2013-2014 Projected Budget and Savings*

	Total	SCE	SDG&E	SoCalGas
Budget	\$71,380,023	\$7,010,781	\$11,324,594	\$13,344,626
kWh Savings	21,076,716	7,183,730	2,372,625	n/a
kW Reduction	21,157	4,881	1,898	n/a
Therm Reduction	2,110,342	n/a	542,857	386,144

*Source: CPUC 2013-14 Statewide Residential Programs Fact Sheet. Includes all EUC activity, not just multifamily. Total column includes PG&E values, which we did not list separately.

The EUC MF program specifically targets the multifamily housing retrofit market, promoting comprehensive energy efficiency retrofits – including building shell upgrades, high-efficiency HVAC units, central domestic hot water heating and other deep energy reduction opportunities. The program targets property owners and managers with scheduled building rehabilitation who are willing to invest in a performance-based whole-building approach. This performance based approach aims to assist property owners and managers with making informed decisions, identify measures for energy savings, and to maximize energy reductions for each property owner, manager, and tenant, as applicable. The incentives are designed to influence the implementation of comprehensive measures and therefore are based off of modeled energy reduction achieved. These energy efficiency measures would be identified by the property owner and SPOC, and verified by the IOU's consultant.

Property owners are required to provide basic information to determine the scope of the project, existing conditions, and available funds. The information provided on the pre-qualification form helps determine if the project can reach the preset minimum energy savings achieved percentage.

Project eligibility varied slightly between IOUs (and, as noted above, SCE is moving to other ways of addressing whole building efficiency upgrades):

SCE/SoCalGas

- Property is served by both SCE and SoCalGas.
- Property must have three or more dwelling units.
- Must use licensed contractor where applicable to install program measures.
- Project must achieve a minimum 10 percent energy improvement.

SDG&E

- Property is served by SDG&E.

- Multifamily building contains a minimum of two units.
- Project must work with an approved rater or contractor.

Incentives partially offset costs of retrofits needed to achieve targeted energy-use reductions. Incentives are offered on a tiered structure, paid on a “per dwelling unit” basis according to the total building energy savings percentage. The tiered approach rewards participants for realizing deeper savings, while a “per unit” approach enables participants to experience economies of scale with larger multifamily buildings. The incentive structure differs by IOU as shown in Table 9.

Table 9: EUC MF Incentives Per Dwelling Unit by Energy Savings Achieved

Simulated Energy Savings	SCE/ SoCalGas	SDG&E
10%	\$ 700	\$ 550
15%	\$ 800	\$ 625
20%	\$ 1,000	\$ 800
25%	\$ 1,200	\$ 1,000
30%	\$ 1,400	\$ 1,200
> 35%	\$ 1,600	\$ 1,350
> 40%	N/A	\$ 1,500

2.1.5 Additional Background from Program Manager Workshop

Presentations by program teams at the program manager workshop also touched on some of these program details. The presentations went further, as well, in summarizing program approaches to outreach and marketing and by describing how the program appears from the perspective of participating customers. Evergreen summarizes program team presentations here to provide additional context, although information presented differed somewhat between programs and IOUs. Full slides are included in Appendix A.

Readers should note that the information in this section was self-reported by the program teams in presentations they were asked to give. It is provided here as additional context. The contents and emphasis varied from IOU to IOU, although the overall topics were uniform.

Budgets, Projects, and Units Served

Table 10 summarizes program budgets and production by program and by utility. We asked the IOUs to report on the program as it was at the time of the workshop, and what they predicted it would be in 2016 where known.

Overall, the presentations on budget and production highlighted that spending for multifamily efficiency within the low-income programs greatly exceeds spending within the programs designed to address the multifamily sector without regard to tenant income and need. Furthermore, the manner in which production is tracked varies by program, but tends to concentrate on units, transactions, or buildings.

Table 10: Program Types, Budgets, and Participants (as presented by program managers in 2015 and subsequently updated)

Utility/Program		Number and Types of Participants	Program Budgets
SCE	ESA	<ul style="list-style-type: none"> Tracks housing units only, not buildings or property owners. 	<ul style="list-style-type: none"> \$72 million in 2015 unclear for 2016 due to bridge funding
	MIDI / MFEER / EUC	<ul style="list-style-type: none"> MIDI: Do not track at the property owner level. MFEER: 704 projects in 2013, 1,147 projects in 2014, 492 projects in first six months of 2015. EUC Multifamily Pilot: 10 participants at 21 properties 	<ul style="list-style-type: none"> MIDI: \$1.6 million (2015) MFEER: \$11.1 million (2015) EUC Multifamily: \$2 million (2015) All 2016 budgets TBD
SoCalGas	ESA	<ul style="list-style-type: none"> 24,523 homes treated 	<ul style="list-style-type: none"> \$132 million
	MIDI / MFEER / EUC	<p>January to May 2015:</p> <ul style="list-style-type: none"> Home Upgrade (multifamily): about 3,000 units & 40 buildings Home Upgrade (MIDI): 260 units & 25 multifamily units completed MFEER: 131 applications paid Energy Smart: 11,923 units at 532 properties Multifamily Home Tune Up: 5,852 units at 62 properties On-Demand Efficiency: 3,224 units 	<ul style="list-style-type: none"> Home Upgrade (multifamily): \$1 million Home Upgrade (MIDI): \$2 MFEER: \$1.3 million Energy Smart: \$1.5 million Multifamily Home Tune Up: \$1.1 million On-Demand Efficiency: \$1.7 million All 2016 budgets are TBD
SDG&E	ESA	<ul style="list-style-type: none"> 10,000-12,000 units of low-income customers; do not track as buildings (111,974 homes treated since 2002, 48.5%) 	<ul style="list-style-type: none"> 2016 proposed: \$30.6 million
	MIDI / MFEER / EUC	<ul style="list-style-type: none"> 100 buildings annually 	<ul style="list-style-type: none"> MFEER: \$2.5 million/yr (2016) MIDI: \$2.4 million/yr Considering unspecified fund shift

Implementation

We asked program managers to present information on who is served by their programs, who implements the programs, who the customers are, and how coordination is done. The intent was to fully understand the current program offerings and structures in order to better comprehend what changes are proposed and how those changes are a departure from the current strategy.

SCE

SCE's multifamily strategy integrates ESA, MIDI, and MFEER efforts to better serve this market segment and provide a wider range of energy efficiency products and services. SCE caters to the size and type of property/ portfolio owner. More detailed operational information is summarized in Table 11.

Table 11: SCE Multifamily Program Operational Information

Groups/areas served	<ul style="list-style-type: none"> Low-income customers are targeted at the unit level where tenants are served. Moderate and market rate customers are served through in-unit and common area measures. SCE expected to serve low-income buildings more holistically in 2016 and beyond and subsequently indicated that it filed a low-income program application that would follow a more holistic approach.
Implementation	<ul style="list-style-type: none"> The ESA and MIDI programs involve direct install measures that are installed using 23 authorized community based organizations (CBOs), faith based organizations (FBOs), and private contractors. MFEER offers rebates with some no cost measures installed through six qualified contractors. EUC Multifamily offers tiered incentives for comprehensive retrofits, and provides technical support and energy assessments through three energy rater firms. In the future, SCE plans to use a single set of authorized multifamily contractors to implement no-cost direct install measures for ESA, MIDI, and MFEER programs.
Decision makers	<ul style="list-style-type: none"> The majority of decision makers for SCE's multifamily programs consist of property owners, authorized management firms, Real Estate Investment Trusts, and Housing Authorities.
Coordination between programs	<ul style="list-style-type: none"> MFEER and ESA program management and staff coordinate through regular and ad-hoc meetings. Multifamily property owner leads typically come in through SPOC, based on customer's needs and site opportunities, and subsequent analysis determines which program will lead the process. ESA program leads typically come through SCE's call center and via the program's web presence. SCE plans on jointly administering the energy efficiency and ESA programs in the future.

SoCalGas

SoCalGas has an internal staff member who serves as the main single point of contact. This approach is unique to SoCalGas. Operational information for SoCalGas multifamily program offerings is summarized in Table 12.

Table 12: SoCalGas Multifamily Program Operational Information

Groups/areas served	<ul style="list-style-type: none"> Programs are available to all types of property owners who fit program requirements: Market Rate, low-income, non-profit, city and county housing authorities
Implementation	<ul style="list-style-type: none"> MFEER is a stand-alone program with measures installed by various trades. The ESA program has approximately 40 contractors, of which 18 are shared with MIDI. EUC Multifamily is implemented by SCE and SoCalGas as a joint program. Three consultants also support the program.
Decision makers	<ul style="list-style-type: none"> Major decision makers include property managers, owners and retailers, portfolio managers, asset managers, maintenance directors/managers, housing managers, and sustainability managers. Future efforts will target installers, retailers, and trades servicing multifamily properties.
Coordination between programs	<ul style="list-style-type: none"> ESA and MFEER have a shared multifamily brochure that encompasses all SoCalGas multifamily program offerings. ESA and MIDI share contractors and use the same database to track leads. MIDI vendors are required to provide multifamily property owners with all multifamily program offering information. The SoCalGas SPOC provides multifamily program information for SCE/SoCalGas and assist applicants with forms. The SPOC and program managers call and/or meet in person as needed, usually daily or multiple times a week. In addition, collateral is jointly created, workshops are attended, joint presentations are made, and contacts are referred to each other.

SDG&E

SDG&E is the first of the three Southern California IOUs to test the single point of contact and single contractor model. It has one contractor who implements all multifamily programs across income levels in addition to contractors who focus solely on ESA. In the future, SDG&E aims to perform work on larger buildings in addition to the buildings it already serves, and to have more of the low-income implementers (i.e., contractors) serve as a SPOC across the low-income, moderate income, and market rate customers. Operational information is summarized in Table 13.

Table 13: SDG&E Multifamily Program Operational Information

Groups/areas served	<ul style="list-style-type: none"> • Low-income customers are targeted at the unit level. Moderate and market rate customers are served at the in-unit level as well as in common areas. For these customers, implementers often approach building managers. • In the future, SDG&E aims to serve more large buildings.
Implementation	<ul style="list-style-type: none"> • Thirteen implementation firms serve low-income customers. These firms are tasked with outreach, weatherization, and HVAC activities. One of these contractors also covers the MIDI/MFEER/EUC Multifamily programs; however, the number of implementers is set to gradually increase over time in 2016 and beyond.
Decision makers	<ul style="list-style-type: none"> • The majority across the two sets of programs are property management firms, corporate and individual investors, property managers, and property owners.
Coordination between programs	<ul style="list-style-type: none"> • Referral processes are in place between the mainstream energy efficiency programs and the ESA Program. Additionally, the two sets of programs utilize a common contractor to serve as the SPOC for all multifamily energy efficiency program offerings.
Program change timeline	<ul style="list-style-type: none"> • Proposed changes to the low-income programs are currently pending upcoming CPUC decisions. A possible shift in the moderate and market rate programs' internal funds and continued expansion of shared SPOC is subject to management approval.

Marketing

Program marketing differs between low-income programs and those targeting moderate and market rate buildings for all three Southern California IOUs. Low-income programs tend to be marketed through canvassing and outreach through local community organizations and events. Moderate and market rate programs rely more on direct outreach to property owners by contractors and utility staff. Program marketing is summarized in Table 14.

Table 14: Program Marketing

Utility	ESA	MIDI / MFEER / EUC
SCE	<ul style="list-style-type: none"> SCE promotes the program to residential customers through marketing campaigns (e.g., direct mailers, bill inserts, e-mails, and outbound calls), as well as indirectly through a network of community-based organizations. Contractors engage owners and tenants directly. SCE utilizes an existing network of community and faith based organizations with ties to low income communities that have experience with similar programs (e.g. LIHEAP). 	<ul style="list-style-type: none"> MFEER and EUC only Contractors contact property owners. Utility program presence at trade shows and SCE's website. Advertising through trade organization websites (ad banners) and printed publications. Targeted outreach to property owners by single point of contact.
SoCalGas	<ul style="list-style-type: none"> SPOC and program consultant work directly with property owner and their contractors to assist with program participation. 	<ul style="list-style-type: none"> Contractors contact property owners. Utility program presence at industry conferences and workshops. Targeted outreach to property owners by single point of contact.
SDG&E	<ul style="list-style-type: none"> Canvassing efforts Outreach to associations 	<ul style="list-style-type: none"> Contractor outreach to building owners and operators through a property liaison (a certain role at the company that serves as the SPOC)

Participant Perspective

We asked the IOUs to share what the program looks like from the program participant's perspective. This effort was meant to allow us to have an appropriate understanding of how to describe the program when talking to customers in future research.

SCE

Low-income tenants are informed of applicable programs through contractor outreach efforts and other marketing materials (e.g. bill inserts and mailers). Authorized program contractors and program administrators reach out to multifamily building owners and operators. Potential participants can schedule a visit with the SPOC or schedule a no-cost energy assessment, and ultimately are provided with an overview of potential upgrades.

SoCalGas

Though the exact method of contact varies by program, the SPOC or a contractor generally informs participants of the multifamily program offerings through marketing materials or

direct contact. Upon contact with SoCalGas, the applicant works with the SPOC, program managers, and contractors to coordinate between and leverage the best possible mix of SoCalGas program and measure offerings. The SoCalGas SPOC also assists applicants with all forms and fulfills information requests.

SDG&E

The low-income programs deal primarily with individual customers who are motivated to participate in order to improve the health, safety, and comfort of their homes. Moderate and market rate program participants largely consist of building owners and managers. These individuals are approached by a variety of salespeople who want them to install a specific product(s). SDG&E cited a 2010-2012 Evergreen study⁸ that found this to be bothersome for the building managers.

2.2 Future Multifamily Programs

A key part of the program manager workshop – and preparatory team conversations leading up to it – was the description of the IOUs' vision for future multifamily programs. SCE's program manager presented this vision, which stems from meetings among the IOUs in the spring of 2015 and prior research by SCE. We describe the IOUs' vision, along with selected market context that helped inform it.

2.2.1 Market Context

The IOUs' program vision is based on California policy, research into best practices, and an understanding of current market characteristics.

Past market characterization studies and process evaluations for multifamily and low-income programs have identified several key characteristics of the multifamily programs that further help to inform program design. Key characteristics summarized during the workshop include:

- Multifamily buildings account for 11 percent of overall energy use in buildings (not including industrial) in the state and 24 percent of residential energy use.
- Over 70 percent of California's existing multifamily buildings were constructed before energy efficiency standards were established in 1978.
- Approximately 32 percent of California's ESA eligible customers live in multifamily (5+) dwellings,⁹ per the 2013 Low Income Needs Assessment; most of them in market rate buildings.

⁸ Evergreen Economics. *SDG&E 2010-2011 Residential Program Process Evaluation*, 2012.

⁹ The definition of multifamily is different depending on the program; MFEER, the largest market rate multifamily program uses 2+ units to define a multifamily building.

- A small number of property operators control a large percentage of multifamily units. In SCE's service area, 14 percent of buildings comprise 10 or more units, but these buildings account for 54 percent of multifamily units.

Market actors of note include not just property owners and managers, but also design professionals (architects and engineers), builders (general contractors), real estate brokers, and financial professionals who are involved in project financing, vendors and tradesmen.

Multiple barriers make the multifamily sector difficult to serve. These barriers include:

- Split incentives;
- Lack of knowledge and low priority of energy efficiency among decision makers;
- Low energy costs (compared to other operational and infrastructure costs);
- Challenge of observing energy savings (invisibility factor);
- Limited access to capital and low return of investment for energy efficiency;
- Time and hassle factors for owners and tenants (including the challenge of dealing with multiple contractors and site visits);
- Potential impact on rental income;
- Strategic investment versus replacement at burn-out;
- Variety of building stock and ownership types, each of which requires its own strategy for outreach and engagement; and
- Confusing array of energy efficiency programs that can be difficult or time consuming to understand.

2.2.2 General Program Vision Description

The multifamily program vision as presented by SCE on behalf of the IOUs at the program manager workshop is defined by a "bubble chart" that illustrates a comprehensive set of offerings for multifamily owners, operators, and tenants in which disparate programs are offered in a more holistic fashion. The chart is included as Figure 1, which illustrates the use of a single point of contact for a program approach that begins with a portfolio-level assessment of energy-saving opportunities that could be achieved through a variety of interventions. The range of program interventions available and to be used by the utility programs include:

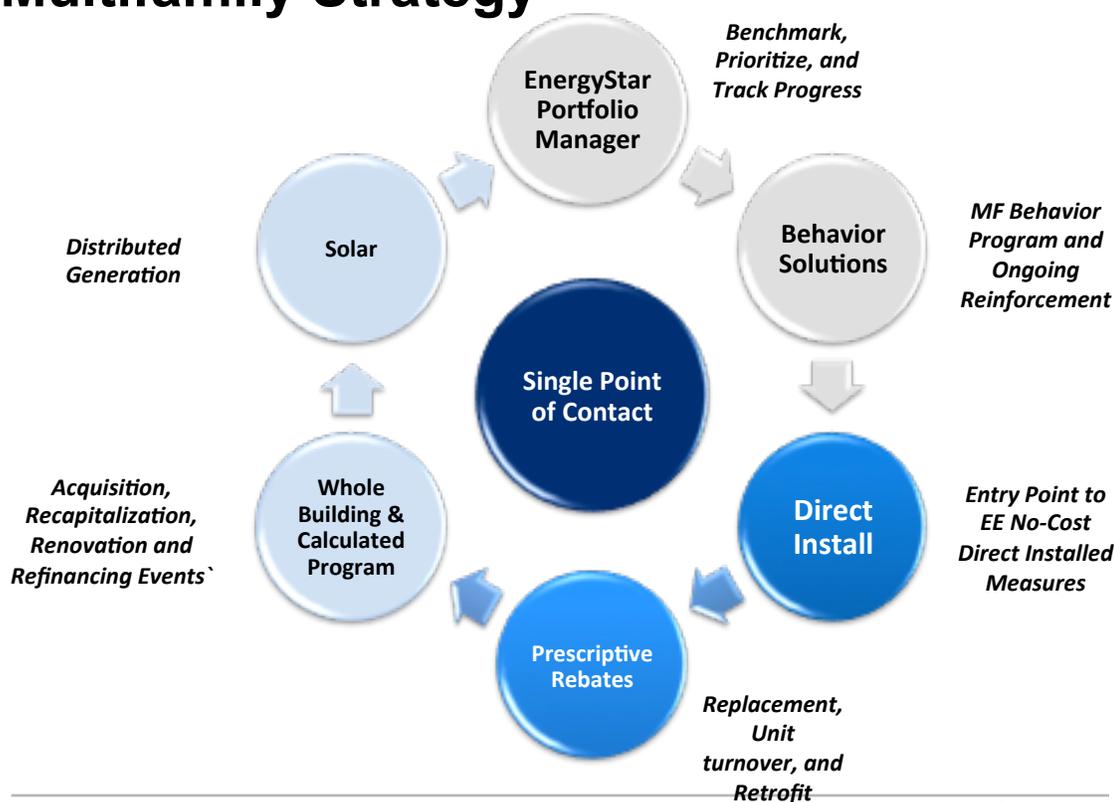
- Behavioral measures, which tend to be the lowest cost interventions, are the most widely applicable, and can serve as an entry point for programs to engage customers;
- A variety of program-supported measure installations that range from direct installations to rebated measures and whole-building retrofits; and

- The installation of solar (or other distributed generation), which tends to be costly and would ideally be sequenced after energy efficiency opportunities.

Customers could engage with any of these offerings, but the interventions would normally be considered in a sequence that begins with benchmarking or behavioral solutions and continues in the direction of the arrows as programs work with customers to identify interventions of interest.

Figure 1: Visual Representation of the Program Vision (Bubble Chart)

Multifamily Strategy



The program vision also acknowledges disconnects between utility program cycles and multifamily timelines, suggesting that programs need to provide continuity across current program cycles. The sales, decision-making, and project timelines for larger interventions at multifamily facilities, including whole-building renovations and larger equipment replacements, tend to be sufficiently long so that they extend from one program cycle to the next. Changes in program offerings during that time complicate the ability of programs to accommodate the needs of multifamily decision-makers and creates

uncertainty that makes program participation less attractive. This will in part be addressed in the future by the CPUC's adoption of a rolling portfolio cycle.

Each aspect of the bubble items is described below:

ENERGY STAR Portfolio Manager

ENERGY STAR Portfolio Manager appears in the center of the bubble chart to recognize its potential role in helping multifamily property owners and managers identify efficiency opportunities. The program vision calls for the use of the Property Portfolio Manager as a benchmarking tool for property owners to determine the overall efficiency levels of their portfolios and of specific properties. Such information can lead to the identification of buildings that can most benefit from further assessments or efficiency upgrades.

The incorporation of the ENERGY STAR Portfolio Manager is on a slow track, however, because of logistical challenges in aggregating all of the energy accounts connected with individual buildings and complexes and because of privacy concerns that prevent the provision of tenant energy data to landlords.

SCE and SoCalGas submitted an advice letter to conduct a "10-10-10+ Pilot Program" which the IOUs hope will provide insights for overcoming these challenges and will facilitate the use of ENERGY STAR's Portfolio Manager as part of the multifamily programs' strategy in the future.

Investigating solutions to the challenges in applying the ENERGY STAR Portfolio Manager in multifamily programs was not part of the scope of this study. However, we do note that, coincidentally, we identified one Midwestern utility that has overcome similar challenges and is facilitating the use of ENERGY STAR Portfolio Manager by its multi-tenant customers in Chicago, where benchmarking is required under a city ordinance. We provide some basic information about this utility's tool in Appendix F.

Behavior Solutions

Adopting energy-efficient practices is a low-cost approach to energy efficiency that can often be incorporated faster and more easily than technical upgrades. As such, utilities look to energy education for tenants and building operators as a first step in the program cycle. The ESA program includes behavior-based efforts such as customer education at the point of enrollment.

Direct Install

No-cost installation of direct install measures, such as efficient light bulbs or showerheads, serves as an entry point to program participation. Both ESA and MIDI currently provide free efficiency upgrades, serving units and buildings with tenants whose incomes are at or below 200 and 300 percent of the federal poverty level, respectively, while MFEER offers no-cost measures among its portfolio, such as some lighting upgrades.

Prescriptive Rebates

Rebates for comparatively routine replacements and retrofits in units, common areas, and building shells offer an inducement for building owners and managers to enhance the efficiency of their buildings. These rebates currently offer an entry point for participation in multifamily programs by market rate properties. MFEER currently provides such rebates for upgrades of lighting, appliances, other energy-using equipment, and some shell measures. Lighting upgrades have been the most commonly installed efficiency measures in the past.

Whole Building Approaches

Whole building efficiency programs offer opportunities for deeper savings from more comprehensive retrofits than single measures. They entail a bigger investment by the building owner, may be done in conjunction with other (non-energy) building renovations, and can involve greater disruption to building occupants (and thus may need to be timed to occur between leases). These programs focus on acquisition, recapitalization, renovation, and refinancing. Currently, Energy Upgrade California Multifamily offers these program services with incentives that are tied to the level of energy savings anticipated from the upgrades. [We note that subsequent to the workshop, SCE decided to stop offering Energy Upgrade California Multifamily and is exploring other delivery approaches for whole building services.]

Solar

Typically, installation of distributed generation follows efficiency upgrades that are more cost effective than new generation. The program vision follows this concept by placing solar power at the end of the program cycle. Currently, the Multifamily Affordable Solar Housing (MASH) program supports solar PV installation in multifamily properties, although the program has been fully subscribed (waitlist applications are still being accepted).

In presenting this program vision, SCE's program manager highlighted the inclusion of the following best practices for the IOUs' multifamily programs:

- Providing a one-stop shop for program services
- Incorporating on-bill repayment or low-cost financing
- Integrating direct installation and rebate programs
- Streamlining rebate and incentivize in-unit measures to overcome split incentives
- Coordinating programs across electric, gas, and water utilities
- Providing escalating incentives for achieving greater savings levels
- Serving households in both affordable housing and market-rate properties
- Aligning utility and housing finance programs

- Partnering with local multifamily housing industry
- Offering multiple pathways for participation to reach more buildings

2.2.3 Current Transitions to the Program Concept

As part of their presentations, individual program managers also discussed transitions they have already made toward this new program model. Pre-existing program approaches, current transitions, and future plans were not always easy to distinguish, but a few themes emerged from these presentations:

- SDG&E has already shifted to a single point of contact model in which a single contractor runs the MFEER program and offers cross-promotion to the IOU's other multifamily offerings.
- SCE uses multiple program contractors, but plans to consolidate current roles among a smaller number of contractors. SCE's program manager, SPOC and outreach team is very active in building and maintaining relationships with building owners and operators and thus serve as a de facto single point of contact already.
- SoCalGas still follows a more traditional model that relies on installation contractors to identify efficiency opportunities and promote utility rebates to their eligible clients.
- SCE and SoCalGas work together to serve their joint customers.

For current details on individual program plans, we refer the reader to the IOU business plans for their energy efficiency programs. The California Energy Efficiency Coordinating Committee posts business plans on its website at www.caeec.org.

2.2.4 Regulatory Issues

A CPUC representative discussed regulatory issues related to the coordination of all programs that deal with the multifamily sector (ESA, MIDI, and MFEER) at the workshop.

Specific rules that have bearing on efforts to address the multifamily sector through the ESA program and proceeding include:

- **Goal to reach all willing participant ESA households by 2020:** This goal is balanced by a need to control costs.
- **“Go back rule”:** The go back rule currently does not allow programs to re-treat homes that were treated anytime after 2002. [Note: This rule was subsequently eliminated in the CPUC Decision D. 16-11-022 for the 2017-2020 ESA program.]
- **Three-measure minimum:** This rule puts a cap on the number of measures needed to serve a household. Households must either need three measures or a set of

measures with a cumulative deemed savings of 125 kWh or 25 therms. Program staff at SoCalGas suggested during our discussion that the three-measure minimum should be eliminated for multifamily properties since there is the ability to treat multiple units in a small area at the same time. [Note: This rule was subsequently eliminated in the CPUC Decision D. 16-11-022 for the 2017-2020 ESA program.]

- **New measures:** These are approved via program applications rather than the program implementation plans (PIPs) or the addendums to the PIPs.
- **Per unit caps:** IOUs have per-unit caps placed on measures; these caps may differ by measure and by IOU.

Additional items that are not rules per se, but that the speaker suggested may be engrained in or influence the ESA program include:

- Avoidance of using the Database for Energy Efficiency Resources (DEER) for the low-income sector.
- Property owner may have contractors who they prefer to work with (in place of the ESA contractor).
- Resistance to using funds to replace costly central systems in multifamily buildings.

Issues concerning silos (or hierarchical or structural organizational barriers to collaboration) were also raised in the discussion of regulatory issues. These silos were seen as particularly prevalent between multifamily programs and low-income program efforts, but the workshop was seen as a good start at bridging the gap in the multifamily sector.

In part, these silos are related to the different regulatory paradigms for low-income and energy efficiency programs. One such difference is the treatment of program cost effectiveness. Some stakeholders would like to see a unique cost effectiveness test for the multifamily sector, but ESA does not deal with net-to-gross and code issues in the same way that a non low-income program would. Further, the discussion raised the suggestion that the multifamily sector overall should be assumed to be hard to reach.

The regulatory discussion wrapped up with a series of rhetorical questions regarding the multifamily sector as food for thought:

- Who is monitoring multifamily-centric Emerging Technologies Program and the Electric Program Investment Charge projects/efforts?
- Where is the single point of contact funded? What is the position on whole-building data access and the ENERGY STAR Portfolio Manager?
- How does the three measure rule work if a building receives measures from two different programs (e.g., ESA and MFEER)? [As noted above, this issue has been resolved.]

- Stakeholders have proposed for ESA to pay a copay for costly central systems. Is it a bad idea to consider this a low-income-specific MFEER rebate? Can MFEER have an ESA funded “adder” to increase the incentive but maintain (or increase) cost effectiveness?
- ESA has been coordinating with the California Department of Community Services and Development’s (CSD’s) Low Income Home Energy Assistance Program (LIHEAP)/Weatherization Assistance Program (WAP) for years, and CSD has \$75 million for 20+ unit buildings. Do the IOU programs have plans to leverage that?
- Why are there no new measures suggested in the 2014 ESA applications (for the 2015-17 program years) and no new copay ideas? Did ESA consult with MFEER or multifamily HUP staff when creating this application?

The regulatory discussion emphasized that barriers need to be identified by process evaluations so that action can be taken on the policy side to combat barriers where possible.

2.3 Implications / Conclusions

Program background materials and the presentations at the workshop suggest that:

- The program concept presented by SCE is a seemingly logical overall framework for future multifamily energy efficiency programs that draws on best practices (both existing and conceptual) in the multifamily sector and builds on existing program offerings in California.
- The IOUs are all approaching their transition to this program concept somewhat differently and on different timelines. This divergence is consistent with utility customization of their offering within an overall statewide framework. It does mean that building owners and managers with portfolios across IOU service territories will face variation in program offerings, as they already currently do. These differences could include different measures and different incentive levels.
- Coordination between utilities with overlapping service territories (such as between SCE and SoCalGas) is beneficial for program participants and should be continued. Similar coordination with large energy and relevant non-energy utilities that overlap with service territories that did not participate in this study will serve potential program participants well. Such coordination with other large utilities serving the same customer base – such as PG&E and the Los Angeles Department of Water and Power – is particularly important.
- Integration of separate programs into a unified program umbrella will require coordination of participant tracking, marketing, and outreach. For example, the differences we encountered regarding the manner in which existing programs track participation – which varies by program and can focus on units or buildings – will need to be standardized both for operational and reporting purposes. The ability to

track participation at the building and building decision-maker (or portfolio) level can enhance outreach and marketing efforts, leaving single points of contact more informed about each customer's past level of participation and potential future needs during individualized outreach and conversations.

- Integration of low-income and standard energy efficiency programs face substantial challenges due to their varying missions, objectives, and policy goals. While cross-promotion and coordination is comparatively easier – and already underway – low-income and market rate programs may need to remain distinct as long as fundamental program characteristics differ as much as they currently do.

The remaining sections of the report will focus primarily on market rate program offerings by the three IOUs included in the scope of this study (SCE, SoCalGas, and SDG&E).

3 Implementation Contractor Workshop and Input

Evergreen Economics held a workshop involving active program implementation contractors to gather input and reactions to the utilities’ program intentions. The workshop, which was held on September 16, 2015, in Irvine, California, specifically sought feedback and insights on outreach to multifamily owners and operators, contractors’ capabilities and potential to provide a broader set of offerings, and issues of program structure and processes.

Each of the three Southern California investor-owned utilities (IOUs) that participated in this study – Southern California Edison (SCE), San Diego Gas & Electric (SDG&E), and Southern California Gas Company (SoCalGas) – invited three contractors who are active in MFEER, MIDI, and/or ESA to participate. A total of 13 individuals representing 9 firms attended the workshop. Table 15 lists the programs in which the firms are currently involved by utility. (Some firms work for more than one utility, but we listed only the programs for the nominating utility.)

Table 15: Utility Programs Represented by Workshop Participants

Program	SCE	SoCalGas	SDG&E
MFEER	3	1	1
MIDI	1	2	2
ESA	1	2	3

The workshop was divided into two parts. The first 90 minutes were set up as a focus group moderated by Evergreen staff with utility representatives observing in a separate room. The moderator’s guide is attached in Appendix C. The final 60 minutes were structured as a small group discussion in which each IOU program manager met with the contractors invited by that utility. Those discussions were guided by questions that arose during the focus group and topics that the IOU program manager chose to address.

Prior to the workshop, Evergreen and the three Southern California IOUs held a preparatory call with confirmed participants to describe the programs’ goals to move toward a more integrated approach. The slides presented on that call are attached in Appendix B. We also held one-on-one discussions with each utility’s multifamily program manager in advance of the workshop.

The remainder of this section summarizes the main themes and input from the workshop.

3.1 Customer Outreach and Relationships

3.1.1 Single Point of Contact

The single point of contact (SPOC) concept generated both questions by and insights from the participating contractors.

Contractors were confused by initial descriptions of the SPOC concept. It was not clear to them whether the concept applied to the overall customer relationship and related outreach efforts or to the management of actual projects. These details—as well as how the properties would be divided into relationships managed by a utility SPOC and contractor SPOCs—need further clarification.

Utility and contractor relationships with customers are both important and complementary because they accomplish different aims. The SPOC needs to blend the roles both utilities and contractors play. Utility brand names are generally strong and provide access to decision makers (which opens doors), while contractors are “beating the bushes” and generating the leads. Furthermore, customers want to interact with the person who will be doing the work so want to meet the contractor. This dynamic prompted participating contractors to suggest that the SPOC needs to be a team that involves both the utility and the contractor.

Discussions about the SPOC at the workshop (and in advance conversations leading up to it) also suggested that the three IOUs would implement the concept differently. For example, SDG&E indicated that its lead contractor would serve as a unified SPOC, while SCE was more likely to implement a dual SPOC process whereby large portfolios would be served by a utility account executive and all other customers (in this case, multifamily owners and operators) would be served by a contractor acting as the SPOC. SoCalGas works with SCE for joint customers, but also relies on upstream contractors to serve customers in a more ad hoc fashion. These differences need to be noted and plans for cross-IOU program interaction need to take the differing relationship models into account.

3.1.2 Contractor Cross-Program Referrals

Cross-referrals to other programs are an important aspect of the SPOC concept. Contractors may face both competitive advantages and disincentives to cross-refer in an environment in which contractors overlap in the clients they serve. Understanding contractor disincentives is important for developing a workable program structure. Disincentives come into play if a contractor may lose potential business to another contractor or perceive the loss of primacy in a relationship with a customer.

At the same time, cross-referrals can also be beneficial for contractors, especially when their services are complementary rather than in competition. Ideally, contractors would perceive joint and coordinated service to customers as being in everyone’s best interest

and focus on what is best for the customer. This result is most likely if contractors' inherent incentives are aligned with a customer-focused outcome.

During the workshop, contractors identified the opportunity to meet each other and get to know each others' services and capabilities as a good way to build on incentives to collaborate and cross-refer when doing so benefits the customer or the contractors. More opportunities for contractors to meet and interact would be of value.

Similarly, contractors indicated that they would benefit from knowing a customer's history with utility programs more fully. Knowledge of historic customer participation information would facilitate confirmation of program eligibility and could enhance lead generation. Furthermore, knowing past program communications and history with a customer facilitates more seamless communication with that customer.

3.2 Contractor Capabilities and Spheres of Work

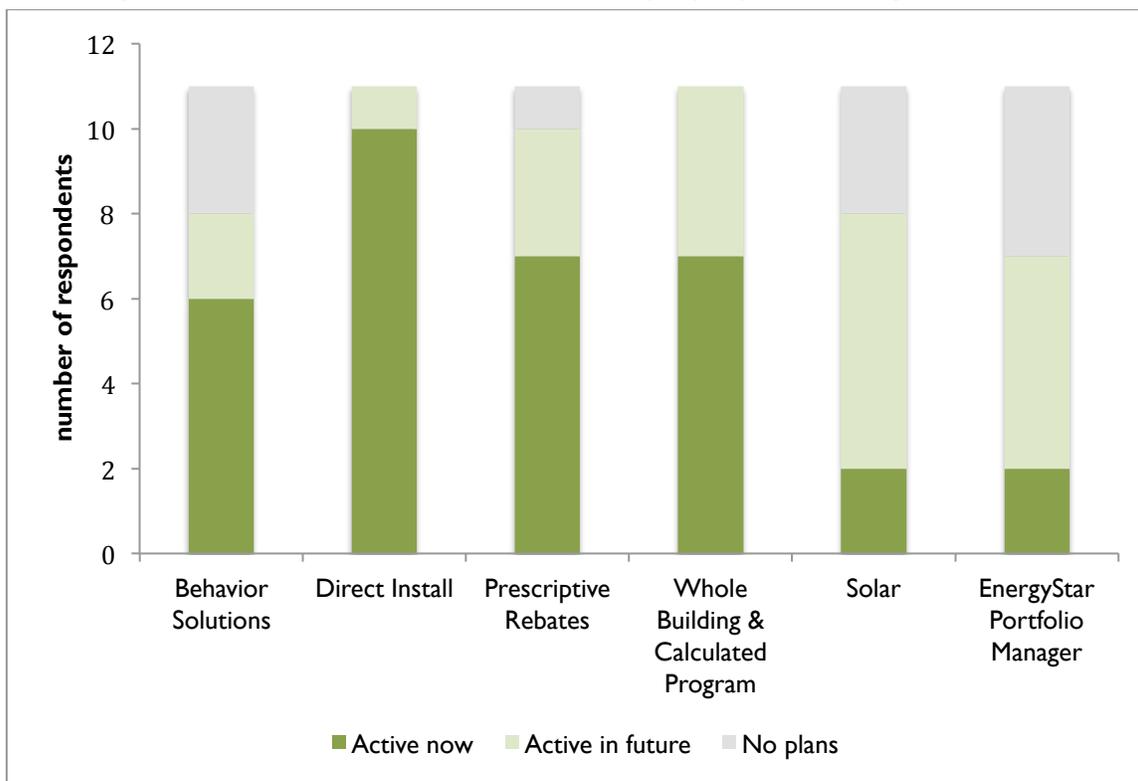
The degree to which IOUs expect a contractor to have the capacity to work on all aspects of the IOU multifamily programs varies. For the holistic vision presented by the IOUs to function, participating contractors would need to have capabilities across all of those services – either directly or through partnerships. The partnerships could be ones the contractors develop themselves or ones that emerge through the program structure.

We asked participating contractors to indicate which of these services (represented by the bubble chart, Figure 1) they currently engage in and which they would be interested in adding to their business in the next three to five years. Contractors were engaged in more of the services than we expected based on pre-workshop conversations with utilities, but interest in fully engaging in all services is not universal.

Figure 2 shows the degree to which participants reported that their firms are currently involved in the various program services shown on the bubble chart or their plans to become active in the next three to five years.¹⁰ The program service categories had been defined for the participants previously in the pre-workshop call. The threshold that constitutes active engagement in any of these areas was left up to the respondents.

¹⁰ The figure is based on written responses from 11 of the 13 workshop participants. We excluded two respondents from companies that were represented by multiple people to reduce duplication. We were not able to eliminate all duplication, however, because we allowed participants to remain anonymous.

Figure 2: Self-reported Level of Activity by Type of Program Service



At the same time, the utility-specific expectations about the services contractors will need to be able to deliver in the future may not be consistently clear to contractors. The program vision has been communicated as uniform, but it appears to differ across the utilities in the number of contractors who will deliver the holistic program vision in each service territory and how extensively contractors will need to be engaged in each of the services. Contractors will need more utility-specific information about expectations and prep time to understand the capacity they need to build and to develop it.

Furthermore, if multiple contractors may serve the same customer, there needs to be coordination among them. Utilities may need to promote teamwork for the sake of the end-customer and ensure timely and sufficient information sharing about work with that customer.

3.3 Program Structure and Processes

Contractors offered feedback on two aspects of the program structure and processes that they feel need improvement – either generally or under the new program vision.

3.3.1 Measures and Offerings

Bundling of measures can make program participation easier and more appealing to decision makers where split incentives are an issue (e.g., owners benefit even as tenants

are served and vice versa). Providing measures that are of sufficient and clear value to both owners and tenants can overcome the resistance or lack of enthusiasm of either party. Similarly, adding energy measures to buildings that are currently served with water measures only by contractors who work with water-saving programs can provide an entry point to program participation.

At the same time, contractors acknowledged a tension between going broader in the work being done on any building and meeting cost-effectiveness requirements. On the one hand, adding measures that appeal to the decision makers can increase the likelihood that a multi-measure project will proceed. On the other hand, the added measures may not be cost-effective in themselves and may decrease the overall cost-effectiveness of the project. It is interesting that contractors are aware and contemplate these issues, which are inherently policy and program strategy topics.

3.3.2 Program Process

Contractors commented that the sales process to multifamily decision makers is long. Program structures need to accommodate long sales periods and provide continuity both in the relationship building and the offerings available to multifamily buildings. Changes in contractors, staffing of points of contact, and the availability of measures and incentives interfere with the sales process. Uncertainty about just how long existing measures and incentives will continue to be offered can have a similar effect.

Contractors commented that program administrative procedures get in the way. In particular, some contractors noted that paperwork requirements across properties for individual decision makers can be a barrier. Being able to use electronic signatures and allowing single forms to cover multiple properties would reduce paperwork barriers.

3.3.3 Anonymous Contractor Feedback

Evergreen requested two forms of anonymous feedback from participating contractors so they could offer candid opinions even if they felt constrained by being watched by the IOUs for which they work.

In the first request for anonymous feedback, we asked contractors to provide a general reaction to the IOUs' overall program vision as they understood it. Response options enabled them to express skepticism, uncertainty about what to think, a qualified positive reaction, or an unqualified positive reaction. All 12 individuals who responded provided a positive reaction; three said they thought the proposed direction will improve the multifamily offerings, while nine indicated that they thought the proposed direction is a good one, but think the success depends on the details.

We also asked participating contractors to complete a feedback form that asked for utility-specific thoughts on five topics:

- The main opportunities for serving more customers or engaging them beyond easy measures;
- What the contractor needs the utility to do differently;
- In what ways the model works in conjunction with the contractor’s business model;
- In what ways the model does not work with the contractor’s business model; and
- Other feedback or suggestions.

Table 16 summarizes the feedback the participating contractors provided. We present them here in summarized form for the IOUs’ benefit.

Table 16: Anonymous Feedback to Utilities (Summarized /Paraphrased) ¹¹

Topic	SCE	SoCalGas	SDG&E
Main opportunities for serving more multifamily customers and engaging them beyond easy measures	<ul style="list-style-type: none"> - Having contractors that are familiar with different programs (n=3) - Maximizing participation/broaden customer base (n=3) - Data visibility (n=1) - Extending the program cycle (n=1) - Furthering education/understanding of program (n=1) - Achieving deeper savings (n=1) 	<ul style="list-style-type: none"> - Maximizing participation/broaden customer base (n=4) - Building better relationships/partnerships with contractors and utilities (n=3) - Having contractors that are familiar with different programs (n=1) - Easing the process of enrollment (n=1) 	<ul style="list-style-type: none"> - Creating increased connections / cohesion between utilities, property owners/tenants, and programs (n=2) - Having contractors that are familiar with different programs (n=2) - Sharing of historical data (n=1) - Standardizing measures (n=1)
What contractor needs utility to do differently	<ul style="list-style-type: none"> - Train contractors to work on all programs (n=2) - Program consistency; education about program changes (n=2) - Longer program cycles (n=1) - Increased branding/marketing (n=1) - Changes to P&P (n=1) 	<ul style="list-style-type: none"> - Increased branding/marketing (n=2) - Make the participation process simpler/faster (less paperwork, online signature, etc.) (n=2) - Train contractors to work on all programs (n=1) - Develop partnerships between contractors and utilities (n=1) 	<ul style="list-style-type: none"> - Develop partnerships between contractors and utilities (n=2) - Be open to feedback and address the unique needs of customers (n=1) - Train contractors to work on all programs (n=1) - Help build relationships with

¹¹ Note: We provide the feedback shown here without interpretation. Acronyms are not defined or clarified unless entirely obvious within their context. Because these comments were provided anonymously, we did not have any means to clarify with workshop participants.

Topic	SCE	SoCalGas	SDG&E
	<ul style="list-style-type: none"> - Work more with property owners (n=1) - Develop partnerships between contractors and utilities (n=1) - Help build relationships with property owners (n=1) 	<ul style="list-style-type: none"> - Help build relationships with property owners (n=1) - Increase the number of measures/incentives (n=1) - Increase utility involvement (n=1) 	<ul style="list-style-type: none"> property owners (n=1)
How model works with contractor business model	<ul style="list-style-type: none"> - Allows for one point of contact (n=2) - Creates a comprehensive program (n=2) - Provides high satisfaction and participation with customers (n=1) - Provides cohesiveness (n=1) - Increases measure implementation through existing relationships (n=1) 	<ul style="list-style-type: none"> - Allows for one point of contact (n=3) - Provides high satisfaction and participation with customers (n=1) - Makes the contractors more versatile (n=1) - Helps build relationships between customers, contractors, and utilities (n=1) 	<ul style="list-style-type: none"> - Provides cohesiveness (n=2) - Provides high satisfaction and participation with customers (n=1) - Allows for one point of contact (n=1)
How model does not work with contractor business model	<ul style="list-style-type: none"> - Could slow down the process; create longer sales cycles / excessive amount of data collected (n=1) - Frequent internal changes at company (contractor) (n=1) - Requires contractor to bring in a different contractor (n=1) - Possible disconnect as CSR at utilities may not know who/what programs are available (n=1) - Model can be overwhelming (n=1) 	<ul style="list-style-type: none"> - Model can be overwhelming (n=1) - Possible disconnect as CSR at utilities may not know who/what programs are available (n=1) 	<ul style="list-style-type: none"> - Keeping permissions (n=2) - Model can be overwhelming (n=1) -
Other feedback or suggestions	<ul style="list-style-type: none"> - It will take time for approach to overcome program challenges (n=2) 	<ul style="list-style-type: none"> - Increase marketing efforts (n=2) - Consider integrating ADR with EE, DR, and 	<ul style="list-style-type: none"> - Increase utility presence and focus on the contractor/IOU relationships (n=1)

Topic	SCE	SoCalGas	SDG&E
	<ul style="list-style-type: none"> - Consider integrating ADR with EE, DR, and ESA (n=1) - Programs are great (n=1) - Continue engagement with contractors (n=1) - Help with identifying new home owners (n=1) 	<ul style="list-style-type: none"> ESA (n=1) - Programs are great (n=1) - Help speed up rebate process with online signatures (n=1) - Continue engagement with contractors (n=1) - Become more involved (work with SCE rep) (n=1) 	<ul style="list-style-type: none"> - Consider integrating ADR with EE, DR, and ESA - Programs are great (n=1)

3.4 Implications/Conclusions

The contractor workshop has the following potential implications for California’s multifamily programs. We present recommendations in the overall conclusion and recommendations section of this report.

Single Point of Contact is a good concept, but needs some clarification and refinement.

The Single Point of Contact (SPOC) concept offers improved outreach and better program experiences for participants. At the same time, contractor input suggests that:

- 1) There is ambiguity about how the SPOC concept will be implemented by the IOUs and how plans vary among them. Anticipated roles, responsibilities, and processes need to be clarified, including whether the SPOC concept refers to the primary relationship with the customer (i.e., multifamily owner or operator for most multifamily programs), coordination with the customer during the implementation of efficiency projects, or both.
- 2) Even when a customer has an assigned SPOC from either the contractor or the utility, marketing and outreach will still need to occur jointly by utilities and contractors as they play complementary roles. Plans for single points of contact may still need to include parallel contact if the advantages of both utilities and contractors are to be realized in marketing the program to customers.

Long-term utility customer relationship management can support outreach and the sales approach. Utility program managers should consider continuity in the program team’s contact with multifamily owners and operators over time. Historic information about past program participation and insights about decision-making criteria and future project intentions should be maintained by the utilities in a customer relationship management system or a similar tool, and shared with contractors serving as the SPOC. This way, the

customer relationship maintains continuity over time even if single points of contact change.

Utilities can facilitate collaboration among contractors. The potential exists for both competition between and collaboration among contractors when serving the same markets or customers as the programs are currently implemented. Utility program managers need to be aware of potential disincentives by their teams of contractors to collaborate, as well as opportunities for contractors to serve customers better through collaborative teamwork. Utility program managers can facilitate collaboration by introducing contractors with complementary or overlapping roles to one another in contractor meetings or similar venues. They can also be mindful of occasional limitations of collaboration due to contractors wanting to maintain a competitive advantage.

Similarly, single points of contact will need to be aware of the full range of program offerings. Contractor meetings can serve as a training tool to ensure contractors are up-to-speed on all relevant program offerings.

Lead time will likely be required for contractor teaming and capacity development. Contractors who participated in the workshop already have a wide range of program experience and capabilities, but rounding out their capabilities will require time. When requesting bids for program services, IOU program managers will need to clearly spell out the program services they want individual contractors to be able to fulfill and may need to allow time for the contractors to develop those capabilities in-house or through teaming. Through their efforts in promoting contractor collaboration, the IOUs can also proactively identify gaps in capacity and skills during contractor meetings in advance of bid requests.

Stable and simple-to-use program offerings promote participation. Efforts being considered by the IOU multifamily programs to align program offerings with the long sales cycles for multifamily efficiency projects are well-advised. Stability in program offerings, measures, funding availability, and key contacts across program years promotes program participation. At the same time, the IOUs should strive to simplify administrative processes for program participation by reducing or streamlining paperwork. For example, requiring application forms for each unit or rebated installation across multiple units, buildings, and complexes is a burden and barrier for those who complete the forms, whether contractors or program participants. These burdens need to be weighed against utility needs for accountability, customer authorization, and recordkeeping.¹²

¹² CPUC staff pointed out that data collection challenges identified in recent impact evaluations need to be considered as well when weighing trade-offs between ease of program participation and the need for accountability and measurement. These include the 2013-2014 MFEER impact evaluation and possibly more recent multifamily impact studies as well.

4 Market Input

The single biggest focus of Evergreen's research was on multifamily owners and operators of program-eligible buildings in the three Southern California IOUs' service areas. This research included both "forward-looking" questions intended to provide insights on the program vision and "backward-looking" questions that provide feedback on past program engagements while also providing information that is useful for informing future program design. Specifically, we interviewed high-level decision makers for large portfolios of multifamily properties and conducted a telephone survey of past participants in the Multifamily Energy Efficiency Rebate (MFEER) program.

We present results and implications of each of these research tasks below.

4.1 Large Portfolio Owners and Managers

Evergreen's research into the energy efficiency practices and perceptions of owners and operators of large multifamily building portfolios comprised 10 high-level decision makers at a range of firms and organizations that own or manage class A, B, and C properties¹³ and represent a diverse set of tenant mixes, including low-income, market rate, upper income, and seniors. We conducted eight in-depth telephone interviews and obtained written input from two others in response to our interview questions between May and July of 2016. Interviews lasted between 60 and 80 minutes each. The interview guide and a description of the ten respondents are included in Appendix C. Eight of the respondents represented for-profit property ownership or management firms that may operate properties of any type, while two represented public housing authorities.

We selected and recruited interviewees from a pool of managers who control large portfolios of multifamily properties in Southern California. The IOU multifamily program managers were invited to provide nominations to this list. In all cases we requested to speak with staff most knowledgeable about energy efficiency practices and priorities; these turned out to be a senior director of maintenance operations and energy management, a buildings supervisor, a purchasing director, an asset management director, an energy manager/property supervisor, and a vice president in charge of sustainability and

¹³ Class A properties are newer properties with the most amenities, highest income earning tenants, and lowest vacancies, and will typically demand the highest rents with no deferred maintenance. Class B properties consist of properties built in the last 15-30 years with some amenities; rents will be a bit lower than the A Class buildings with low deferred maintenance. These buildings demand rents slightly lower than Class A properties. Class C properties are typically older properties, built 30+ years ago with much fewer amenities, if any; rents are lower than B Class buildings and usually have more deferred maintenance and a lower occupancy rate. <http://apartmentvestors.com/blog/abcs-determining-multifamily-investment-property-class>

property services.¹⁴ Some of these respondents were the sustainability lead at their organization. While we hoped to speak with large portfolio owners or managers with a mix of program participation levels, including non-participants, in the end all of the decision maker respondents had participated in at least one existing program for some of their properties but not others.¹⁵

The interviews with the decision makers employed a semi-structured approach using consistent questions to start a topic and allowed for relevant probing by the interviewer based on initial responses. Key interview topics for this market actor group included:

- Company/organizational value on energy efficiency;
- Types of energy efficient retrofit projects completed and satisfaction with the completed projects;
- Decision criteria for energy efficient retrofits;
- Barriers to energy efficient upgrades;
- Energy management/tracking practices;
- Staff training on energy efficiency;
- Information sources about utility programs;
- Experiences with participating in utility programs (satisfaction, challenges); and
- Recommendations for program changes.

Although some of the responding organizations also develop new properties, the interviews were focused on retrofit experiences and planning. The complete interview guide for the portfolio owners and managers is included in Appendix C. Findings pertaining to laundry equipment efficiency levels and selection practices are presented in Appendix D of this report.

The following report subsections present key themes and findings from the interviews.

4.1.1 Importance of Energy Efficiency

Energy efficiency in building common areas (internal and external) is a high priority for property owners and managers, but competes with a variety of other activities that keep them very busy. These competing priorities include water management, daily tenant issues, equipment maintenance, and risk management.

¹⁴ To obtain decision maker cooperation, we stressed the role the interviews will play in future utility programs available to the decision makers and offered an incentive of \$150 payable to the interviewee or to a charity in his or her name.

¹⁵ The sample that was provided did not distinguish participants from non-participants.

Conversely, energy efficiency does not appear to the interviewees as a primary concern for current and potential tenants even though tenants almost always pay the in-unit energy costs; other aspects of their units and buildings, including water consumption, take on higher priorities. That said, some property owners/managers regularly install energy efficient equipment in tenant units, because it aligns with their company philosophy, while other property owners/managers are less focused on energy efficient improvements. Following are additional details regarding these key findings.

All of the interviewees except one reported that their multifamily tenants pay for in-unit energy utilities, while the property owners pay for common area expenses.¹⁶ The county public housing authority we spoke with has historically paid tenants' in-unit costs but is now moving towards the standard industry practice of having the multifamily tenants pay for in-unit energy utilities to encourage residents to be more energy efficient.¹⁷ One private sector building owner/manager, however, is currently acquiring low-income properties and paying the in-unit utility cost for these tenants (at this owner/manager's market rate properties, the tenants pay the in-unit costs).

While the tenants usually pay the in-unit energy costs, only two of the interviewees indicated that they do not actively try to reduce in-unit energy consumption. One company, a large property developer/owner/manager, focuses its energy efficiency efforts on its common areas and generally provides low risk, "middle of the road (energy) products" for individual units. The city housing authority has not been able to upgrade tenants' units as aggressively as they would like, primarily due to competing budget needs (e.g., standard maintenance) and financial accountability to city residents and taxpayers (who may not value energy efficiency).

The other interviewees reported that they do try to make tenants' units more energy efficient, even while they often focus their efforts on common areas. In particular, building owners and managers have installed many LED lamps and fixtures, occupancy sensors and ENERGY STAR appliances in tenant units, in addition to water conservation measures. The degree to which property owners/managers upgrade tenant units is often a function of available budget and the mission or philosophy of the company owners. For instance, some companies feel obligated to provide tenants with a (basic) energy efficient unit, while other companies are driven to more aggressively pursue efficient and "green" retrofit opportunities.

¹⁶ Common area improvements are typically funded from individual property-level operating budgets, where monthly utility costs are tracked as line items.

¹⁷ That said, this interviewee also perceived that tenants' ability to reduce energy costs is somewhat limited, since all large appliances except refrigerators are supplied by the housing authority.

Interestingly, the interviewees generally perceived that energy efficiency is not a high priority or concern for prospective tenants, and does not materially affect building vacancies (which tend to be very low throughout California). Overall, the respondents reported that they get few tenant complaints about their energy bills, and surmise that tenants do not think about energy consumption very much. Two interviewees offered some caveats to this general observation:

- “Millennials may be focused on energy somewhat and many demand ‘sustainable’ things, but this is not affecting vacancies. We do ask tenants to conserve on utilities, and tell them about our LED upgrades, but this probably has marginal impact.”
- “Efficiency is a piece that our managers explain to tenants - they get LED light fixtures, 111 units just got these, we tell them we are trying to do our part. We also tell them to ‘please turn off the lights.’ This probably does affect the tenants. (Local city) has high environmental awareness and the tenants will report on common area lighting issues, like when the lights are on too long.”

Almost all of the interviewees reported that water consumption is currently a higher priority than energy consumption for their properties, due to the ongoing drought and high usage fees and penalties being levied by many water districts. Thus, many properties are installing water-saving technology, including low flow faucet aerators and showerheads, automated/low flow irrigation systems using satellite weather data, drought tolerant plantings, impervious paving, rain (filtration) gardens and/or artificial turf. One property owner was transitioning its master metered water bills to individual tenants, which is an industry trend according to them.

Building owners and managers also spend significant time on other issues besides energy management, such as securing building access (i.e., new control systems), litigation avoidance and insurance assessments, financial reviews, permitting activities, procuring property supplies and addressing daily tenant (non-energy) issues.

Despite the current focus on water consumption, most of the interviewees confirmed that energy management for building common areas is important or very important to them, offering the following comments:

- “Efficiency is important, energy is a large expense and the company president wants to find efficiency at a low cost where we can.”
- “Energy consumption is important to us.”
- “Utilities are our most variable cost so we do monitor this. We are in DOE’s Better Buildings Challenge and reduced our energy by 4 percent in the last 1.5 years.”
- “Energy is hugely important and we can control this to some degree. We have been able to keep our energy costs flat despite increasing rates.”
- “Energy management is a key part of our comprehensive management services.”

Lastly, the county housing authority noted that the United States Department of Housing and Urban Development (HUD) allows them to retain and direct building operations savings to a wide range of capital and staff expenditures, so they have strong incentives to reduce energy consumption. In particular, HUD allows the authority to amortize capital projects over many years and retain the energy bill savings. This has been very useful to help the authority to fund several solar photovoltaic installations.¹⁸

By far, the most common efficiency projects being completed have been large-scale, high efficiency lighting retrofits through Southern California Edison (SCE). In particular, many properties have installed new interior and exterior LED lamps and fixtures in meeting rooms, corridors, parking lots, swimming pools, and landscaped areas (and tenant units). In particular, many properties have increased their exterior lighting levels with LEDs to enhance on-site visibility and security. Other types of projects mentioned by the interviewees included efficient rooftop units for clubhouses and public housing buildings, efficient building water heaters and boilers, efficient pool and spa pumps, solar photovoltaic systems and water heating, and cool roofing.

4.1.2 Energy Efficiency Decision Making

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

- One large property developer/owner/manager consciously avoids “experimenting” with new or different technologies, such as ductless heat pumps, to avoid city inspections (i.e., additional costs, delays).

¹⁸ As noted by report reviewers, a strong structural incentive to save energy could be seen as an indication that the customer might optimize its efficiency even in the absence of IOU energy efficiency programs. However, incentives also can shift the optimal efficiency level regardless of predisposition to save energy. We note that our interview was not intended to assess net-to-gross ratios and did not explore the marginal influence (or absence thereof) of IOU programs on interviewees’ efficiency-related building upgrades and decisions. Doing so would have required additional probes, additional follow-up questions, and a larger sample.

- One property management firm has its own “mini warehouse” to store only ENERGY STAR rated lighting and appliances for future installations. The staff we spoke with have carte blanche from the company owner to pick and buy energy efficient measures generally.
- Another company requires ENERGY STAR appliances, boilers, and water heaters, while two other companies prioritize ENERGY STAR appliances.
- The county public housing authority hires consultants to conduct studies to identify energy saving opportunities. The consultants determine the specifications and performance criteria for new equipment – which may include specific brands or efficiency levels – and then the authority solicits bids and selects the lowest cost bidders.

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

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

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

- Interior and exterior LEDs
- Gas boiler controls and recirculation pumps

- Occupancy sensors in tenant units, pool areas, rec rooms, common area bathrooms
- Pool pumps
- Solar pool heating to reduce gas use
- HVAC for common areas (to replace older swamp coolers)

In considering potential early replacement projects, again, the respondents generally did not describe any hard and fast criteria they must meet. Three respondents offered the following caveats:

- For the city housing authority, which has persistent budget constraints, new efficient equipment must generally offer energy savings of 25 to 40 percent to be considered.
- One property owner/manager often looks for a payback period of two years or less for early replacements.
- One property manager reported that it is easy to get owner approvals for LED retrofits, but much more difficult to get approvals for large capital outlays for early replacements of HVAC, appliances, and water heating.

4.1.3 Energy Consumption Tracking

Most of the property owners and managers use a similar process to track energy consumption. Typically, building-level monthly utility data is loaded or transcribed into a simple proprietary tracking tool and presented at monthly meetings among property supervisors, asset managers, green teams, or executive staff (along with other expenses and revenue data). Current monthly data are benchmarked against previous months and years, and large consumption spikes will prompt site managers to inspect specific properties for problems. According to the interviewees, utility bill reviews rarely identify large energy consumption anomalies; water leaks or over usage are identified more often when reviewing monthly utility bills.

One of the private owners/managers does not track monthly consumption and instead focuses on regular property inspections to identify failing equipment. In fact, several respondents indicated that regular building inspections and inspections of deteriorating equipment yield the most project opportunities.¹⁹ The city public housing authority also does not track monthly energy consumption due to limited staff. Only one organization—

¹⁹ Although not part of the discussion with the interviewees, we note here that the IOUs do offer comprehensive energy audits through the whole building programs. Furthermore, there are simpler, do-it-yourself audit tools available for multifamily building owners through such organizations as the Stewards of Affordable Housing for the Future.

the nonprofit affordable housing corporation – tracks tenant electric energy bills, although the tenant pays these.

One property/owner manager uses Energy Cap software to track energy use (no details were provided), while another relies on a vendor (Conservice) to analyze their monthly consumption.

The nonprofit housing corporation utilizes the Environmental Protection Agency's (EPA's) Portfolio Manager software to participate in the Better Buildings Challenge, but also uses WegoWise software, which purportedly provides more detailed and analytical building level reporting. A private property owner/manager also expressed interest in utilizing WegoWise (they do not currently), noting that they would need initial assistance to integrate the detailed data the software utilizes. The county housing agency had tried to use Portfolio Manager a few years ago but utility IT issues hindered the required data downloads. The agency is still interested in using Portfolio Manager, but is currently downloading utility data manually to conduct annual reviews.

4.1.4 Energy Management Challenges

The primary barriers to energy efficiency upgrades mentioned by the respondents follow:²⁰

- Property owners have annual budget constraints, and also have difficulty forecasting future utility rebate availability when developing budgets.
- Project bid and retrofit processes consume lots of staff resources and are disruptive to tenants. Residents do not want property staff or installation crews in their units or buildings multiple times a year, and getting access to units can be challenging. Retrofits take time to establish logistics, and do paperwork and inspections, so that “even easy direct installs take a lot of time.”
- Some building regulations are unclear, and it can be hard to get quick answers from city building officials. Some types of projects (e.g., boilers) “trigger all kinds of code reviews.”

4.1.5 Staff Energy Training

None of the interviewees we spoke with had obtained any formal energy management credentials or certifications, and expected the same was true for on-site property

²⁰ In addition, one large property developer/owner/manager stated that new construction always takes priority over retrofits at their company, and that constant changing regulations and technologies in California make it difficult to act on efficiency opportunities.

management staff working for them.²¹ Instead, management and their on-site staff tend to learn about energy efficient measures and opportunities from product vendors, visiting utility staff, local building associations (peers), new technology webinars and conferences, and by completing actual projects (that is, learning by doing). Some respondents also noted that internal information sharing sometimes occurs at monthly staff meetings or via other communications regarding new technologies to consider or successful efficiency upgrades at specific properties. While none of the respondents felt especially uninformed about energy efficiency, some expressed interest in obtaining formal education/credentialing on energy management in the future.

One private sector owner of low-income properties noted that there has been a big push towards “sustainability” utilizing federal funding. In particular, a Los Angeles-based industry group has been conducting webinars and seminars and distributing informative quarterly information to asset managers on improving energy efficiency in the low-income sector.

4.1.6 Knowledge of IOU Programs

Almost all of the large portfolio owners and managers that Evergreen interviewed claimed to know the IOU programs quite well. Overall, the interviewees had the most experience participating in SCE programs, in large part because our sample drew largely on nominations of known large portfolio managers provided by SCE’s program manager.

The interviewees (and their colleagues) are using a wide range of information sources to learn about the IOU programs, including IOU websites, newsletters, and emails; IOU-funded site audits (generally on-site walk-through audits, which identify project opportunities and relevant programs); and private companies that specialize in securing utility rebates. Their most valued information sources, however, are the IOU trade allies that visit them, and direct interactions with IOU program staff.

Most of the interviewees described how IOU trade allies and product vendors come to visit them regularly (e.g., quarterly) to discuss the latest program offerings, demonstrate their products, identify optimal equipment applications, and provide energy savings estimates. As described by one interviewee, these vendors are often considered to be trusted advisors and have helped to plan and complete many projects.

The respondents also highly valued their personal visits from IOU staff to review program options and discuss potential projects.²² Interviewees were particularly appreciative of

²¹ That said, some property staff were described as being very knowledgeable about energy efficiency from deep experience and personal interest.

²² No interactions with SDG&E staff were described, due to the limited number of properties held in the San Diego area.

proactive SCE staff members who have visited them regularly over multiple years to cultivate strong relationships, even when no short-term projects were on the horizon.²³ Interviewees were also appreciative of Southern California Gas Company (SoCalGas) staff visits, but noted that these staff members have had higher turnover, and that there was less consistent follow-up by SoCalGas staff if actual projects (or project opportunities) were not evident in initial visits.

4.1.7 Participation Satisfaction

All of the respondents said they had participated in at least one IOU energy efficiency program for one of their multifamily properties, and they have had high levels of satisfaction overall (the respondents did not identify the programs by name; see sections 5.1.1 and 5.1.2 for the types of measures they have installed). Areas where the respondents noted high satisfaction were:

- Clarity of program participation expectations
- Ease of participation
- Variety and quality of eligible measures
- The program rebates, which were critical to completing several projects²⁴
- Rebates processing
- Contractor installation quality (usually)
- Utility customer service

4.1.8 Participation Challenges

The respondents also described some specific and general participation challenges, although these were mentioned less universally:

- The programs change often, requiring that owners/managers invest time to stay informed about changing measures, rebates and eligibility. In particular, the rebates are sometimes changed mid-year and consequently, budgets are difficult to plan.
- The programs have fixed budgets and sometimes limited durations. Sometimes owners/managers miss out on available rebates, or have to hurry their projects along to qualify.²⁵

²³ One interviewee noted that their SCE contact is very good about calling him regarding "hot tickets" – that is, a new rebate just got released.

²⁴ Sometimes the utilities have doubled their standard rebate levels to increase program participation, which has allowed building/owners to complete additional projects that were not initially cost effective.

²⁵ One respondent said that this is most problematic for SDG&E, where projects must be pre-approved for funding. In their view it is easier to accelerate and complete projects via SCE and SoCalGas vendors.

- For affordable housing properties with stringent income limits, it can be difficult to obtain income verification for each individual household after the leases are signed, and property owners/managers would prefer to provide more general building-level documentation to qualify for comprehensive retrofits.²⁶
- There are problems with specific installation contractors (sometimes).²⁷

4.1.9 Suggested Program Changes - Unprompted

Evergreen asked the interviewees to identify program changes that would increase their ability to control their energy use and participate in utility programs. Their suggestions follow:

- Add billing/usage dashboards to the IOUs' websites to allow public housing agencies to easily download their own building and portfolio level energy data.
- Leverage metered demand data, which are currently used to inform property owners of potential brownouts, to proactively analyze consumption for specific properties and provide tips on when and when not to use power.
- Reduce or eliminate post-installation verification site visits to minimize tenant disruptions. As it is, property owners/managers are reluctant to complete multiple in-unit projects in any given year.
- Consider additional measure rebates, such as exterior LED upgrades (the SCE program expired), "plug and play" T8 LED fluorescents, a higher rebate on LED pool lights, ENERGY STAR air conditioning wall units, and ductless mini-split heat pumps.
- Consider rebates for electric car charging stations.²⁸
- Streamline SoCalGas's rebate forms. SCE's forms are reportedly easier to complete and also allow for more detail by building and meter.

²⁶ In Decision 16.11.022, the CPUC directed the IOUs to develop and implement an owner or authorized representative affidavit process for buildings registered as low-income affordable housing with ESA Program under the 80 percent ESA-eligible tenant multifamily household eligibility rule, with qualified income documentation less than 12 months old on file. These buildings will be eligible for whole building enrollment without the need for door-to-door tenant income documentation.

California Public Utilities Commission, Decision 16.11.12, *Decision on Large Investor-Owned Utilities' California Alternate Rates for Energy (CARE) and Energy Savings Assistance (ESA) Program Applications*, 2016. pp. 199-200.

²⁷ Problems noted included inaccurate information to tenants (e.g., instructing them to purchase non-required refrigerator warranties), loud music, poor clean up, inappropriate attire, and poor quality door weather stripping.

²⁸ Utility rebates for electric vehicle chargers are yet uncommon, but we note that at least one investor-owned utility – Alliant Energy, which is based in Wisconsin – has begun offering rebates for level 2 electric vehicle chargers for both residential and business customers in Iowa and Wisconsin. See <http://www.alliantenergy.com/AboutAlliantEnergy/EnvironmentalCommitment/Vehicles/200207>.

- Provide more frequent emails on SoCalGas program status and changes.
- Develop similar forms and branding for SoCalGas contractors.
- Ensure that trade ally contractors get paid promptly; failure to do so may lead to ramifications for future contractor performance.²⁹
- Simplify the rate structures for multifamily buildings to reduce confusion.

4.1.10 Suggested Program Changes - Prompted

Evergreen also asked the interviewees to give feedback on two specific approaches that the utilities are considering to improve their program offerings. We summarize the respondent feedback below.

Single Point of Contact

First, we asked the respondents if they would prefer to have a single point of contact (SPOC) – for each IOU – to help them navigate IOU program offerings; the SPOC could be IOU staff, a technical consultant, a program trade ally/vendor or some other party.

Only two respondents strongly advocated for a SPOC approach – mainly for SoCalGas and San Diego Gas & Electric (SDG&E) – because they currently deal with multiple program staff (SoCalGas) or meet with program staff infrequently only to discuss upcoming rate changes (SDG&E). Both of these respondents noted that they currently receive good program information from program trade allies, but felt that more frequent and consistent communications with IOU staff would enhance the credibility of the information they receive.

The respondents perceived less need for a SPOC in working with SCE, because they already have frequent contact with well-informed program staff, highly regarded trade ally vendors, or other firms hired specifically to obtain utility rebates. None of the respondents indicated that receiving potentially duplicative information was a burden or confusing, or was eager to change their current information sources.

If the IOUs do choose to implement a SPOC approach, the respondents generally advised utilizing utility staff, noting that consultants are often “too far removed” (i.e., located in other states) and do not know the IOUs’ cultures, and that there is high risk in selecting a single vendor that may lose interest or provide inferior services. Respondents also offered the following in selecting a SPOC:

- It is critical that the selected person be reliably responsive and focused on long-term relationships. They cannot be “a short-term salesman.”

²⁹ One respondent stated that some SDG&E contractors had been paid 90 days after providing services. This issue was not mentioned for any SCE or SoCalGas contractors.

- Carefully select the most appropriate utility staff to be the SPOC. For instance, public housing accounts may be better served by energy efficiency staff than by government accounts staff.

ENERGY STAR Portfolio Manager

Evergreen also asked if respondents were interested in utilizing ENERGY STAR Portfolio Manager to help them monitor building level energy consumption. Only a few respondents had experience using the feature, and familiarity with it was fairly low.

Several respondents were interested in learning more about the feature and were amenable to attending utility sponsored classes to learn more. That said, respondents were also wary of high set up costs, tedious data import processes, and high staff time requirements. One respondent (the city housing agency) perceived that significant staff time is required to maintain the data and was skeptical that they could dedicate the time needed. Multiple respondents indicated the automatic data downloads by the utilities would facilitate their usage.

Two respondents encouraged the utilities to promote WegoWise software instead of Portfolio Manager. In their experience, the WegoWise software is no more difficult to set up, but offers more informative and detailed analytics.

4.1.1 Implications/Conclusions

We summarize implications and conclusions based on these qualitative interviews here. We present recommendations based on the study in its entirety in the overall conclusion and recommendations section of this report.

All of the responding property owners/managers are actively trying to reduce their common area energy costs, and usually to a lesser extent, tenant unit energy costs. In selecting energy upgrades to complete, they are very rebate driven (i.e., cost conscious), and track the availability of IOU rebates closely. While property owners and managers will sometimes implement energy efficient upgrades without rebates, this is less common. Importantly, when property owners/managers have participated in the IOU programs, they have had mostly positive experiences and appear likely to continue their participation. None of the property owners or managers suggested major program offering or design changes.

Property owner/manager suggestions and feedback have the following implications for the IOUs' multifamily programs:

To help multifamily property staff plan and budget for more projects, the Southern California IOUs should look for ways keep their program offerings (e.g., rebate amounts, availability) as consistent and predictable as possible. While some respondents indicated that they can occasionally "fast track" project approvals or delay projects to

subsequent years, they generally have to work with a fixed budget that can be hard to match to utility offerings, particularly when these change. Along these lines, the more advance notice the utilities can provide about upcoming program changes, the better property owners and managers will be able to plan.

Personal meetings with both utility staff and vendors are highly valued by large portfolio managers and should remain a key component of the multifamily programs (SCE) or be enhanced (SoCalGas, SDG&E). The property owners and managers we spoke with do care about energy efficiency but also have many other daily demands requiring their attention. Thus, personal meetings with utility staff and their vendors are highly valued as a way to focus their attention on current program offerings and project opportunities. One key theme that emerged from the interviews was that long-term personal relationships (i.e., knowledge about the customer) and the frequency of check-ins are important to customers. That is, the consistency of contacts with utility and vendors is more important than having the contact be a single individual. For building utility-customer relationships, we note that optimal multifamily property staff may be those who have access to upper management decision makers and connections to on-site staff who regularly work with the buildings.

The IOUs can further enhance large portfolio managers' efforts to track energy consumption and identify efficiency opportunities through building benchmarking, but it is unclear what platform would be the best fit. Currently, most of the respondents track energy consumption (at the building level) in simple ways by reviewing monthly energy bills and comparing consumption to past months and years. Respondents were wary of implementing new tracking systems that require significant staff time for data input and maintenance, are cumbersome to use, or do not provide useful reporting. System setup and regular use must be relatively easy for customers, or they will become frustrated and stop using it. Interviewees indicated some awareness of ENERGY STAR Portfolio Manager (and were receptive to learning more), but seemed to be more aware of WegoWise, which some thought may be easier to use and might provide more informative reporting.

Multifamily programs should continue to evolve their list of eligible measures. Large portfolio managers offered several suggestions, including standard efficiency opportunities and even the inclusion of electric car charging stations.³⁰

³⁰ CPUC staff pointed out that electric car charging stations are not energy efficiency measures, but are being addressed by a different set of utility-specific regulatory proceedings (D.16-01-023 for SCE and D.016-01-045 for SDG&E).

Verification requirements are reportedly disruptive to tenants. Where possible, utilities may consider one-step processes for installation and verification for in-unit measures to minimize the number of times program representatives need access to tenant units.

4.2 MFEER Participants

Our research into practices, perceptions, and experiences of participants in the MFEER program comprised a telephone survey of participants who had completed a qualifying measure installation between January of 2013 and July of 2015 and received a program rebate or a no-cost direct install measure.³¹ As shown in Table 17, the overwhelming majority of participants during this timeframe participated through SCE, so these customers accounted for the bulk of respondents.

Table 17: Eligible Property Participants and Survey Completions by IOU

Utility	Eligible (pre/post sample adjustment*)	Survey Completions	Not reachable**	Refusals	Bad Contact	Out of Scope***
SCE	1,777 / 1,140	179	623	143	137	58
SoCalGas	46 / 37	13	17	4	2	1
SDG&E	67 / 47	3	32	4	7	1
Total	1,890 / 1,224	195	672	151	146	60

* Sample adjustment consisted of identifying unique building complexes and decision-makers, as well as sample prioritization.

**Includes abandoned sample points, sample points in progress when quota met, and respondents who did not speak English.

*** Includes duplicates not previously screened out and respondents who were unaware of any program participation.

Surveys were fielded by CIC Research between June 21 and July 28, 2016, using a mostly closed-ended survey instrument. The instrument, which is included in Appendix C, repeated selected questions from a similar survey completed for SCE and Pacific Gas and Electric Company (PG&E) as part of the 2010-2012 process evaluation of the utilities' multifamily programs.

The survey included questions about:

- Characteristics of property/respondent
- High level decision making

³¹ SCE participants that installed lighting or pool pumps received those at no cost as a direct install measure.

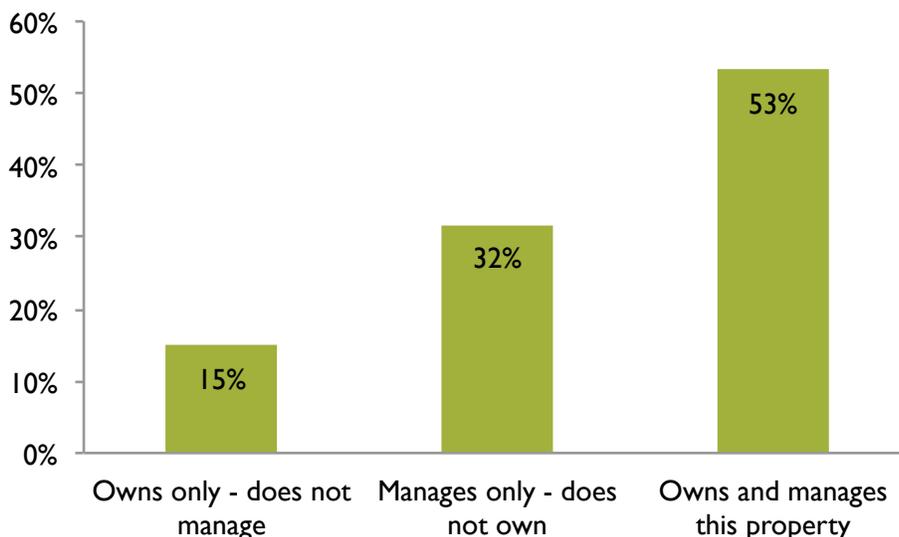
- Overall role of energy efficiency in purchase decisions
- Laundry equipment information
- Specific experience with program
- Plans for additional energy efficiency actions in next three to five years

The following report subsections present key results from the survey responses:

4.2.1 Respondent and Property Characteristics

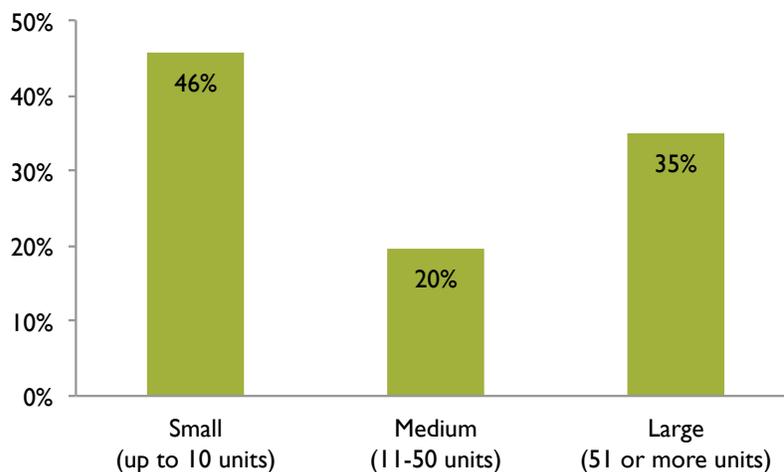
The MFEER participant survey respondents represented both owners and managers of the buildings that were served, but the majority of respondents both own and manage these buildings, as shown in Figure 3.

Figure 3: Survey Respondent Role in Property Served (n=195)



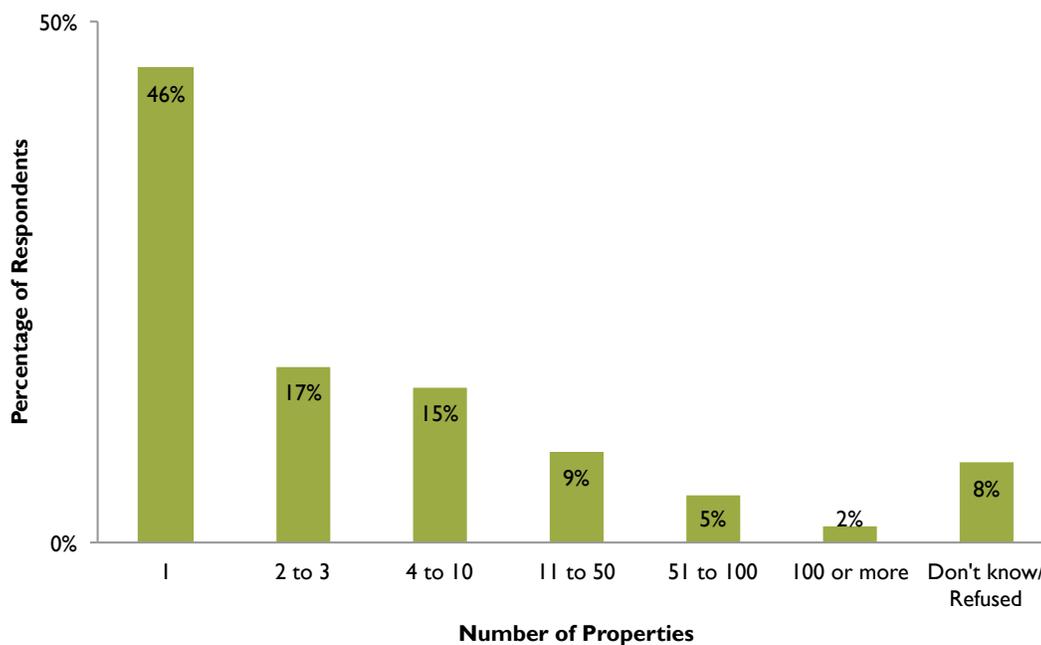
The properties themselves varied in size from 2 to 1,306 units. Most had 10 or fewer units, which we classified as “small.” Small properties accounted for 46 percent of survey respondents, while medium-sized properties (ranging from 11 to 50 units) accounted for 20 percent and large properties made up the remaining 35 percent, as shown in Figure 4.

Figure 4: Property Sizes of Buildings Served (Survey Respondents Only) (n=195)



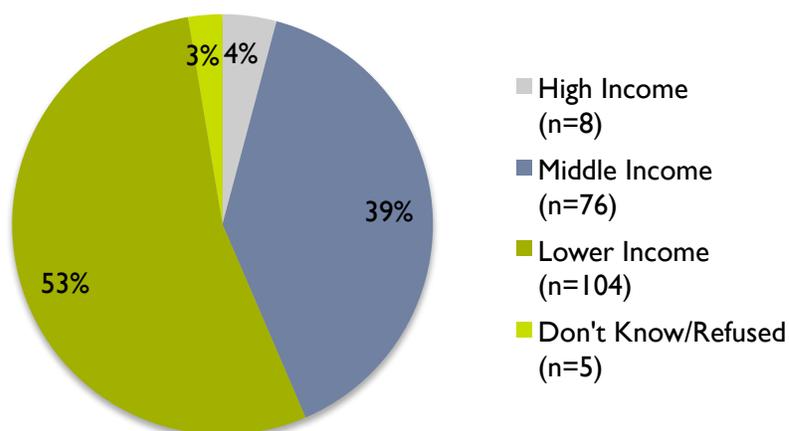
Approximately half of these respondents also own or manage other properties. As shown in Figure 5, 46 percent of respondents own/manage only the property that was served by the MFEER program, but 16 percent own or manage more than 10 properties, suggesting relatively large portfolios for potential program participation.

Figure 5: Number of Properties Owned or Managed (or Both) by Survey Respondents



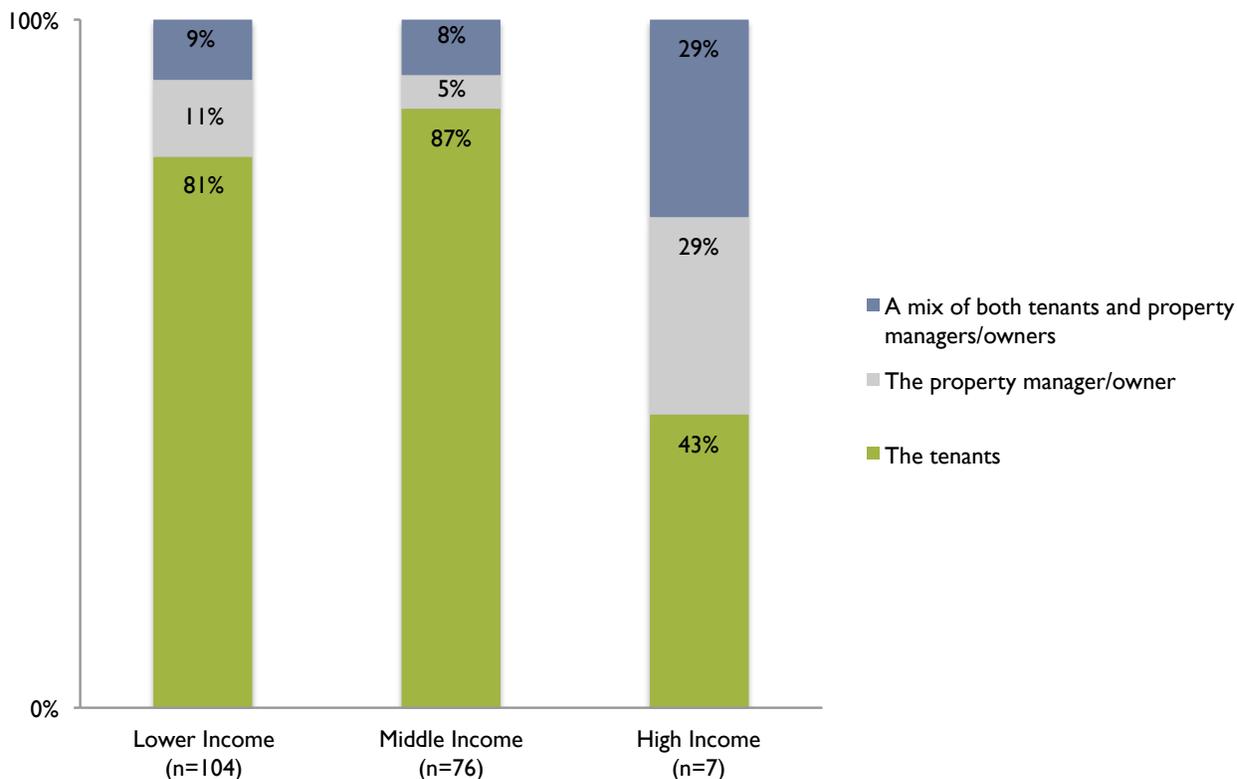
Generally, the respondents classified the tenants in the buildings that were served as low income. As shown in Figure 6, 53 percent stated the majority of their tenants are low income, 39 percent described them as middle income, and 4 percent stated their tenants are generally high income. (Definitions of these income categories were left to the respondents and are not necessarily reflective of income categories used for eligibility for needs-based programs.)

Figure 6: Income Level of Tenants



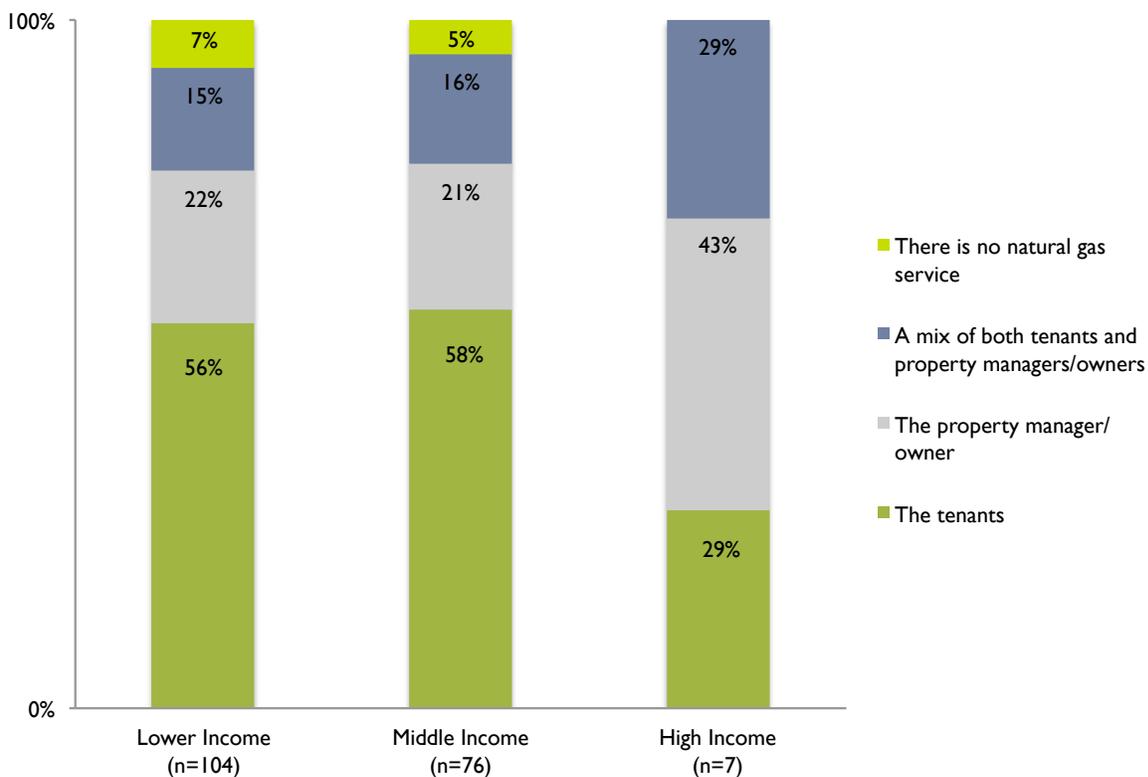
Responsibility for paying the electricity bill tended to vary by income level of the tenants. Figure 7 below shows that tenants pay their own electricity bill in the majority of cases at properties with lower income (81%) or middle income (87%) tenants. The responses for properties with high income tenants were mixed, with 43 percent of respondents stating that the tenants pay electricity bills. However, it is important to note that the sample size for high income is quite small (n=7) and should not be considered to be representative of properties with high income tenants.

Figure 7: Responsibility for Electricity Bill by Income Level of Tenants



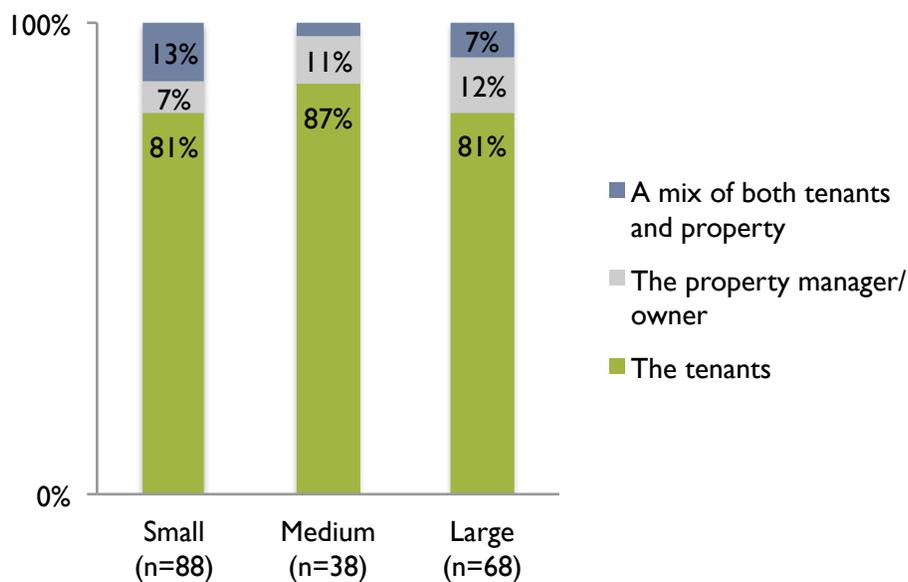
Similarly, responsibility for paying the natural gas bill is primarily borne by the tenant in properties with low and middle income tenants. Figure 8 shows that in 56 percent of properties with low income tenants and 58 percent of properties with middle income tenants, the tenants pay their own natural gas bill. Again, there is very small sample size for properties with high income tenants, but the figure shows that is it most common for the property manager or owner to pay the natural gas bill.

Figure 8: Responsibility for Natural Gas Bill by Income Level of Tenants



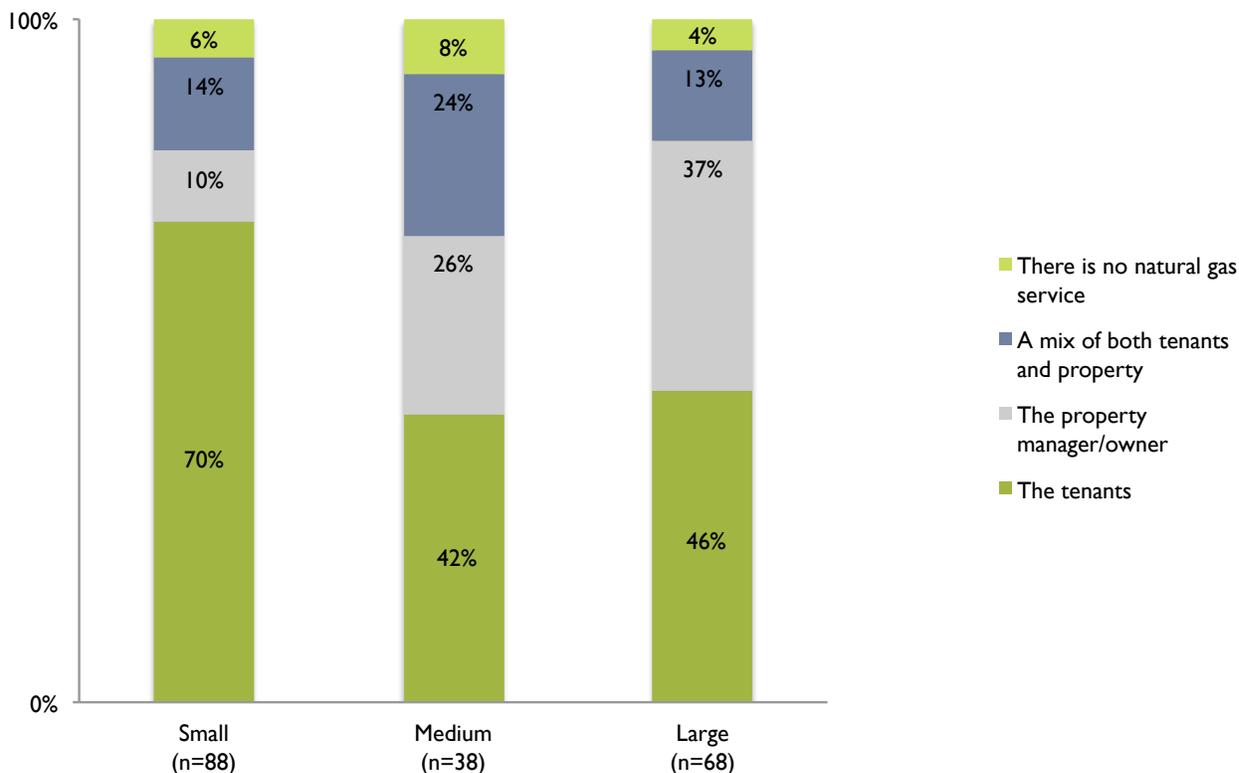
Overall, the majority of respondents stated that their tenants (whether in small, medium, and large multifamily buildings) pay their own electricity bills. As shown in Figure 9, 81 percent of tenants living in small buildings, 87 percent of those in medium sized buildings, and 81 percent of those in large buildings all pay their own electricity bills.

Figure 9: Responsibility for Electricity Bill by Building Size



In contrast, there is some difference in responsibility for payment of the natural gas bill by building size, with tenants of small multifamily buildings most likely to pay their own natural gas bill. As shown in Figure 10, 70 percent of tenants in small multifamily buildings, 42 percent of tenants in medium sized buildings, and 46 percent of tenants in large multifamily buildings are responsible for paying their own natural gas bills. (Master-metering of natural gas in medium-sized and large multifamily buildings may be responsible for these results.)

Figure 10: Responsibility for Natural Gas Bill by Building Size



The majority of MFEER participants that we surveyed installed lighting through the program. Table 18 shows that 83 percent of respondents installed lighting. The next most frequently installed measure was pool pumps, which made up only 9 percent of respondent installations. For SCE, both lighting and pool pumps are no-cost direct install measures, which make up the majority of cases in Table 18. Note that the total will sum to more than 100 percent, as some respondents installed more than one type of equipment.

Table 18: Measures Installed by Survey Respondents³²

Measure	Number of Installations	Percentage of Respondents
Lighting	161	83%
Pool pumps	17	9%
Water heaters	9	5%
Faucet aerators	8	4%
Showerheads	8	4%
Laundry equipment	4	2%
Insulation	3	2%
Pool heaters	3	2%
Windows	3	2%
Appliances	2	1%
Ceiling fans	1	1%
Vending machine controls	1	1%
Furnaces	1	1%

4.2.2 Program Awareness and Prior Participation

We asked survey respondents what other services or rebates they are aware of that their utility provides besides the MFEER rebate they received. Table 19 shows that respondents were most frequently aware of rebates for water saving measures (which includes low flow showerheads, faucet aerators, and toilets), appliances, HVAC, and windows. Lighting appears lower on the list, primarily because the majority of respondents had received rebates for lighting, and this question explored awareness of measures other than the rebated measure they had received.

³² Readers should note that the distribution of measures shown in this table is only for respondents to the MFEER participant survey. The table does not necessarily show the actual mix of measures installed by the full MFEER program or the family of multifamily programs.

Table 19: Awareness of Other Rebates and Services

Categories	Number of Respondents Aware of Measure	Percentage of Respondents
Water Conservation	23	18%
Appliances	17	14%
Windows	16	13%
HVAC	16	13%
Lighting	12	10%
Solar	11	9%
Weatherization	9	7%
Water Heaters	6	5%
Pool Equipment	4	3%
ESA Program	3	2%
Manufactured Homes Rebates	3	2%
Controls	2	2%
Other	3	2%
Total	125	100%

Awareness of the MFEER program among the participants we surveyed typically came from a contractor (32%) or their utility (26%). Figure 11 also shows that another 22 percent could not remember or did not know where they heard about the program. We also examined sources of awareness excluding SCE participants that received direct install measures, and found a similar result that contractors and the utility were the first and second most frequently cited sources of MFEER awareness.

We compared reported sources of awareness shown here with the previous MFEER evaluation by Cadmus in 2013,³³ and found that the utility and contractors were also the most common sources of program information at that time. In the Cadmus study, 31

³³ Cadmus. *2010-2012 PG&E and SCE Multifamily Energy Efficiency Rebate Program (MFEER) Process Evaluation and Market Characterization Study*. Prepared for Pacific Gas and Electric Company and Southern California Edison, 2013.

percent of SCE participants cited the IOU as their primary source of awareness, and 30 percent said they learned about the program from a contractor.

Figure 11: Source of Awareness of the MFEER Program

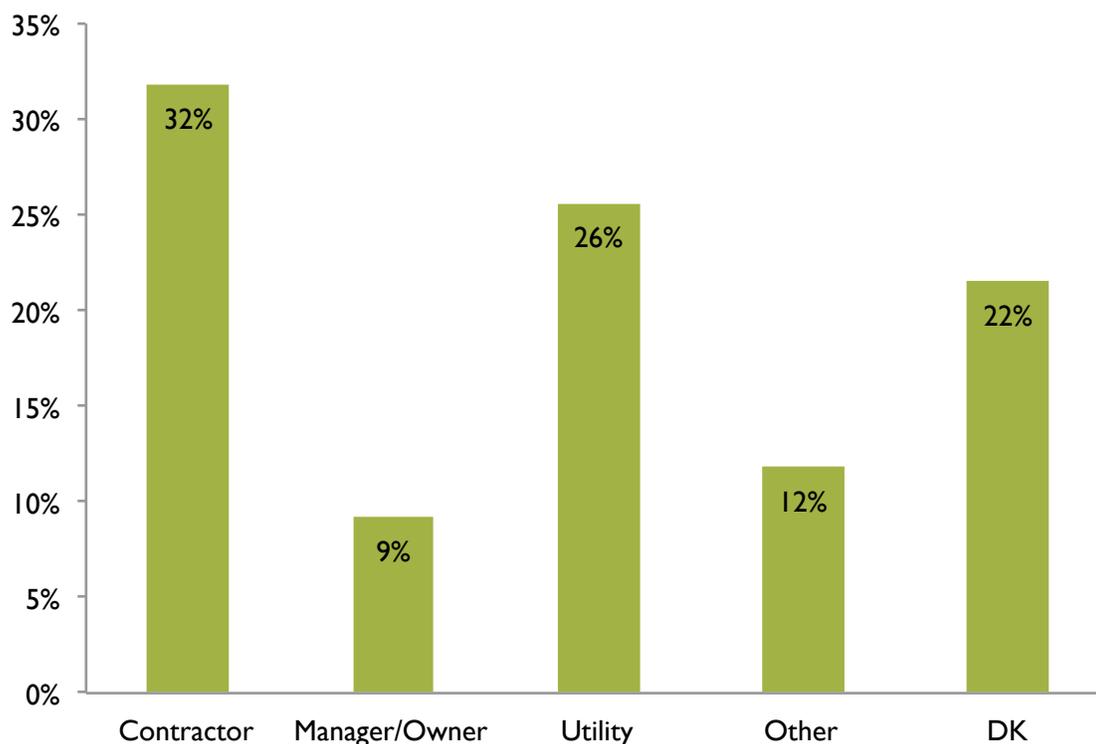
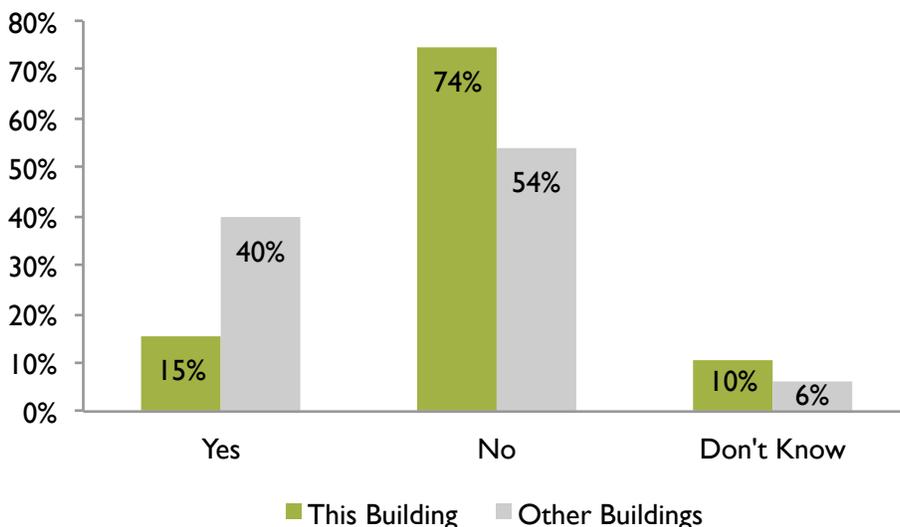


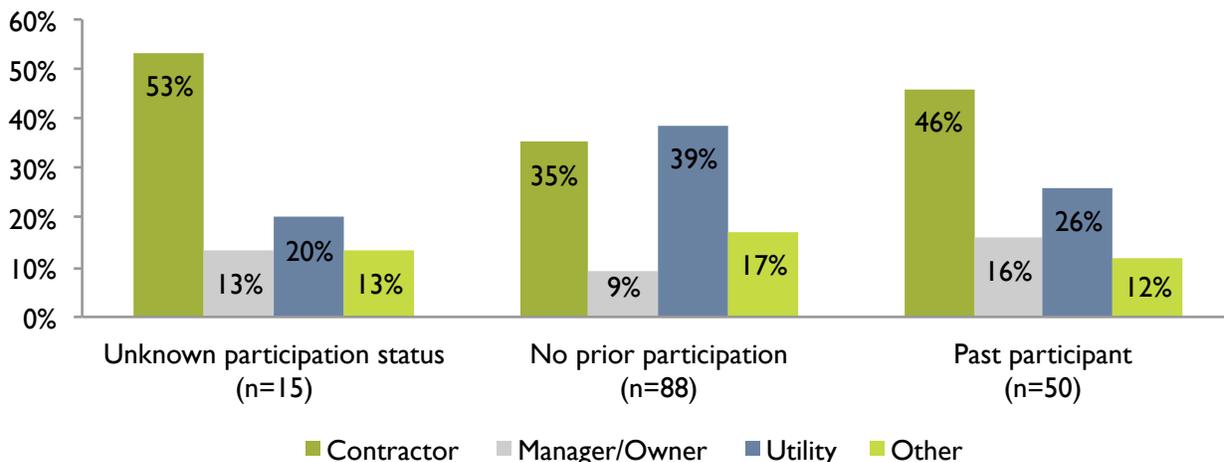
Figure 12 shows that the majority of surveyed participants had not previously participated in the MFEER program. A large majority (74%) had not previously participated with the same building or complex that prompted them to be sampled for the survey, and 54 percent had not participated with any other buildings that they own or manage. However, 40 percent of respondents that own or manage other buildings did state that they had participated in MFEER with at least one of those buildings. Overall, 56 percent of respondents were first time participants in the MFEER program.

Figure 12: Previous MFEER Participation



We further explored the sources of program awareness by the prior participation status of the respondent. Figure 13 shows that first time participants were most likely to have heard about the program from their utility (39 percent), while prior participants were most likely to have been made aware of the program through a contractor.

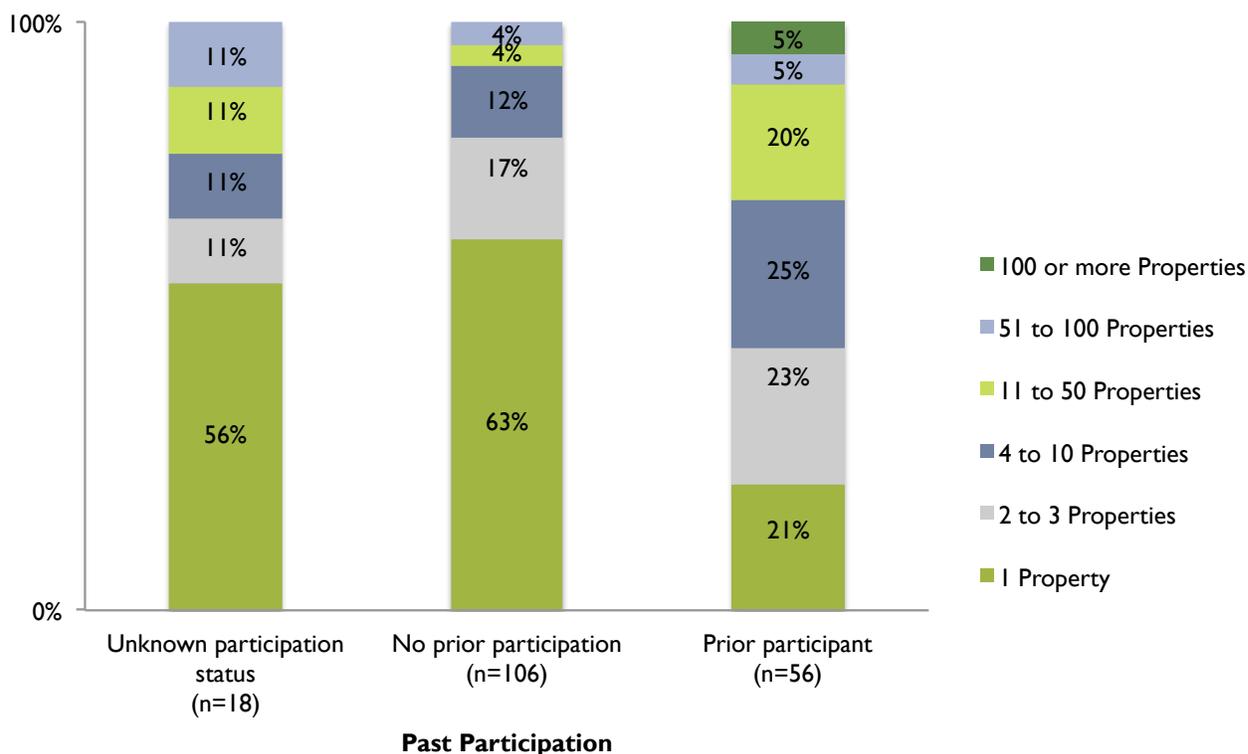
Figure 13: Source of Awareness by Prior Participation Status



We also used prior participation status to explore differences in the numbers of the properties the respondents own or manage. Figure 14 shows that first time participants and those with unknown participation status are most likely to only own or manage one property. Prior participants are fairly evenly distributed with varying numbers of

properties owned or managed, and all three respondents that own or manage 100 or more properties have previously participated in MFEER.

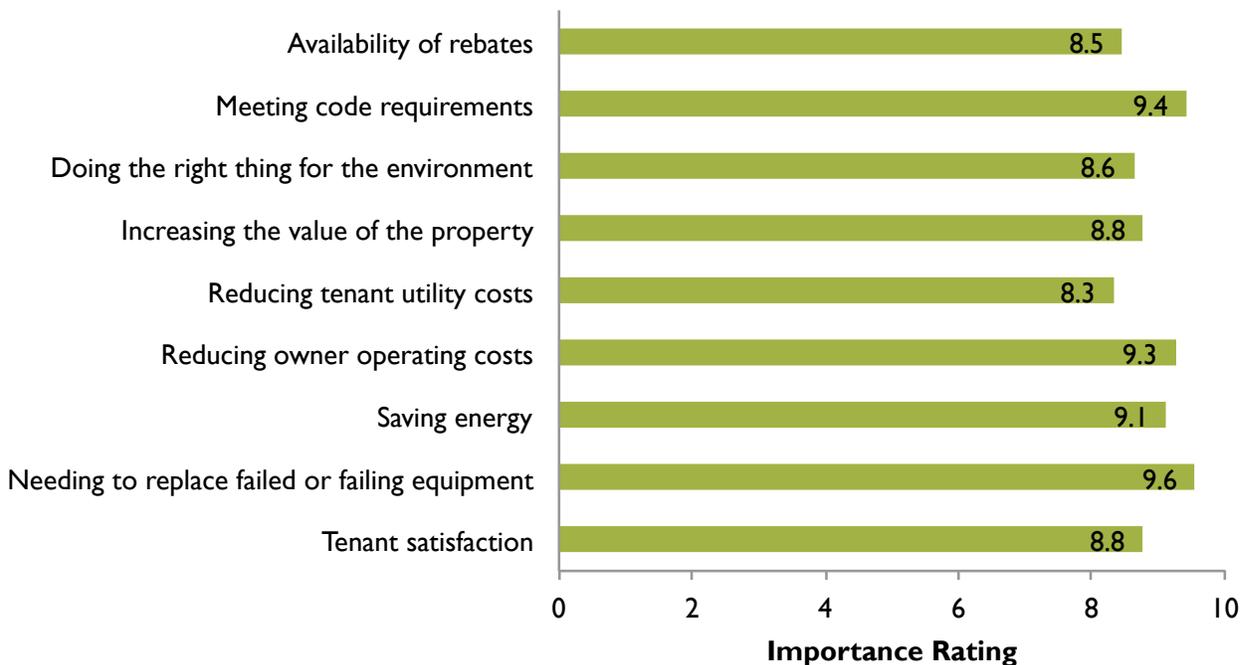
Figure 14: Number of Properties Served by Prior Participation Status



4.2.3 Practices Concerning Equipment Purchases and Importance of Energy Efficiency

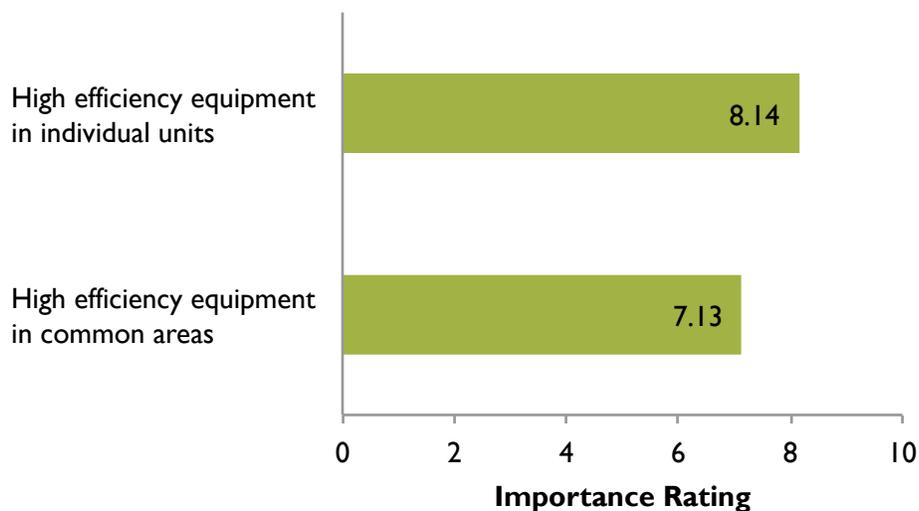
The factors that ranked highest in importance among MFEER participants' decision to pursue a project affecting energy use of the building were replacing failed or failing equipment, meeting code requirements, and reducing owner operating costs. These factors had average importance rankings of 9.6, 9.4, and 9.3, respectively, on a scale from 0 to 10 where 0 means "not at all important" and 10 means "very important." The next most important factor, with an average rating of 9.1, was saving energy. It seems that multifamily building owners and managers are thinking of necessary upgrades and efficiency when deciding to pursue program participation.

Figure 15: Average Importance of Factors in Project Decisions



MFEER participants generally believe that their tenants place more importance on having energy efficient equipment in individual units than in common areas. As Figure 16 shows, a higher importance rating was given to energy efficient equipment in individual units (8.14) over common areas (7.13). This is an intuitive result given that most tenants pay their own energy bills – particularly for electricity – and so are more likely to see the cost savings from measures installed in individual units.

Figure 16: Importance to Tenants of Energy Efficient Equipment by Location (as Perceived and Reported by Building Owners/Managers)

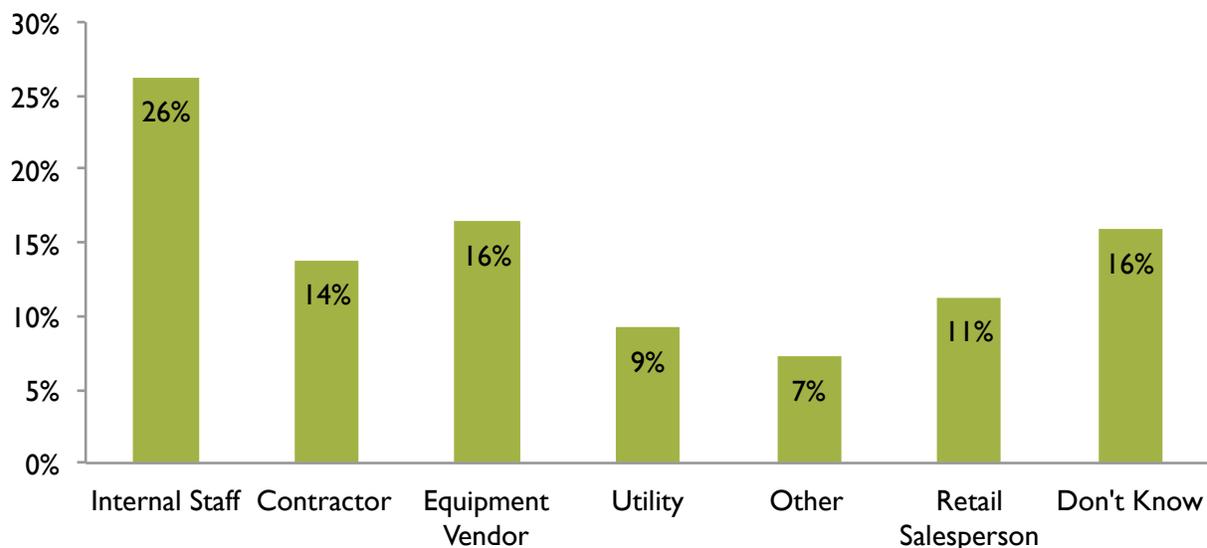


4.2.4 Information Sources for Energy Efficiency Options, Services, and Programs

We asked respondents what sources of information they consider to be the most reliable and trustworthy when they buy energy-using equipment. Of the 195 respondents, 26 percent stated that they find internal staff to be the most reliable, 16 percent said equipment vendors (which includes equipment retailers, distributors, and manufacturers), and 14 percent believe contractors are the most reliable source for this information. Combining the responses for contractors, equipment vendors, and retail salespeople shows that midstream market actors were cited most frequently as the most reliable and trustworthy source of information for energy-using equipment at 42 percent.

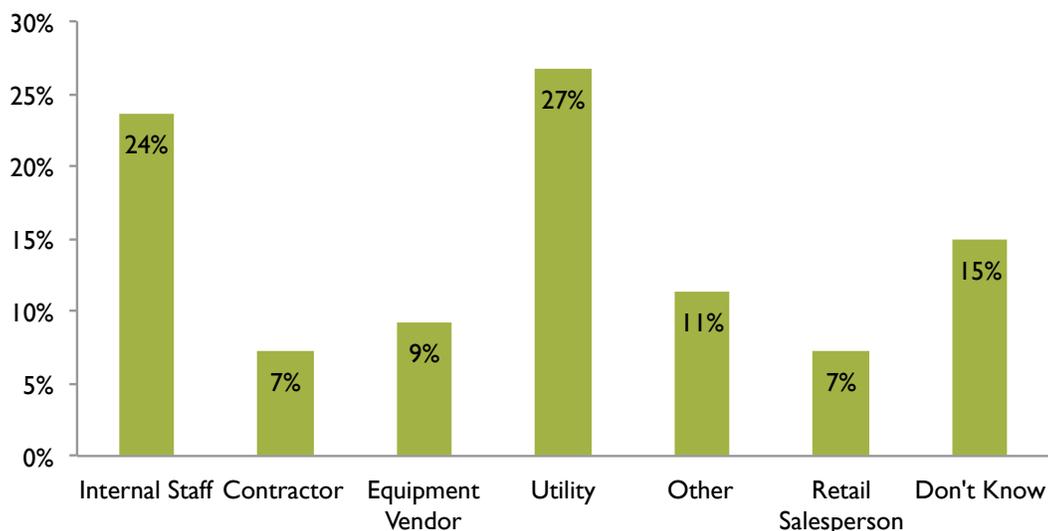
This result was fairly consistent across property size (small, medium, and large). The most notable difference by size was that large properties were more likely to find a contractor or equipment vendor to be a reliable source of information and less likely to cite a retail salesperson as a source of information than a small or medium size property.

Figure 17: Most Reliable Sources of Information for Energy-Using Equipment



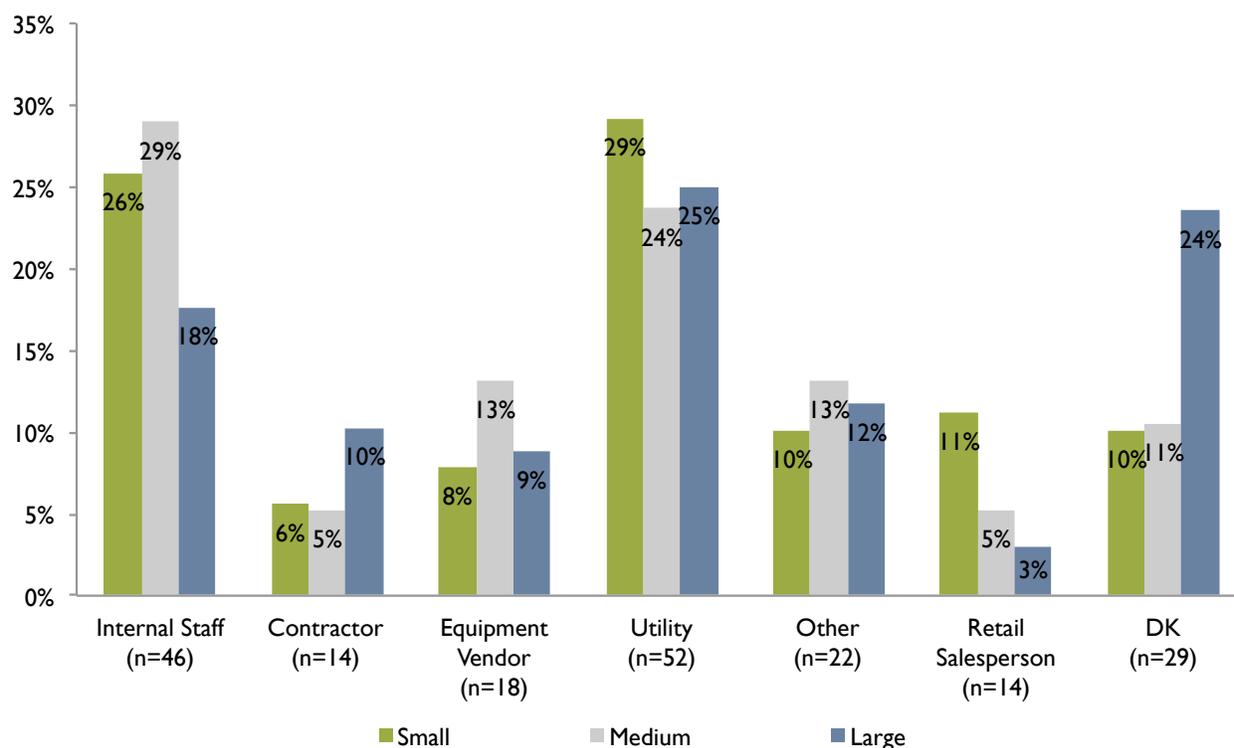
We then asked respondents what information source they would trust most for information specifically on energy efficiency. Of the 195 respondents, 27 percent stated that they find their utility to be the most reliable or trusted source of information, 24 percent said they rely on internal staff, and 9 percent said equipment vendors. Taking all midstream market actors together (contractors, equipment vendors, and retail salespeople), 24 percent of respondents cited one of these groups as being the most reliable source of information on energy efficiency.

Figure 18: Most Reliable Sources of Information for Energy Efficiency



Delving further into reliable sources of information on energy efficiency by size of multifamily property, Figure 19 shows that the respondents that own or manage small properties are slightly more likely to find their utility and retail salespeople to be reliable sources of information. Respondents that own or manage medium properties were slightly more likely to rely on internal staff or an equipment vendor, while larger property owners or managers were more likely to rely on contractors.

Figure 19: Most Reliable Sources of Information for Energy Efficiency by Size of Property



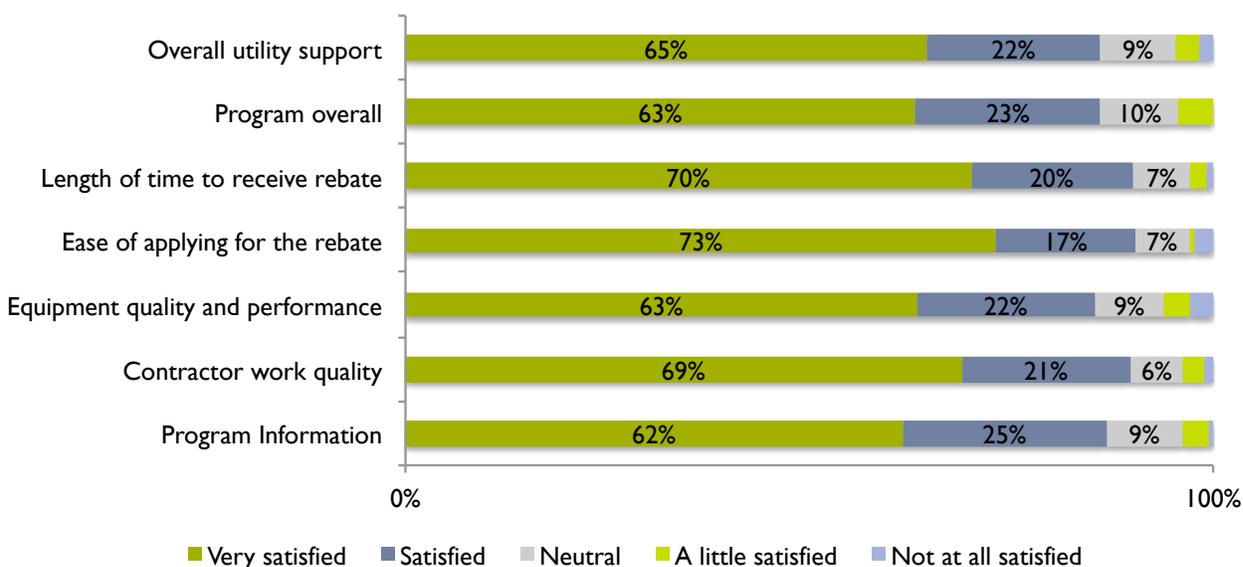
Perceptions, Experience, and Satisfaction with Measures Installed, Program Services, and Processes

Overall, we found respondents to be highly satisfied with the MFEER program and various aspects of their participation experience. We asked respondents, on a scale from 0 to 10 where 0 means “not at all satisfied” and 10 means “extremely satisfied,” what their satisfaction was with various aspects of the MFEER program listed in Figure 20. The highest satisfaction ratings were given to the ease of the application process (73% giving a rating of 8 or higher), the length of time to receive the rebate (70%), and the quality of contractor work (69%). All program aspects received an average rating above 8, indicating that MFEER participants as a whole are highly satisfied with their program experience.

We also examined satisfaction with these various program aspects after excluding any SCE direct install participants from the analysis and found that satisfaction with overall utility support and the program overall were lower among the remaining respondents. In contrast, satisfaction among this group was higher for equipment quality and performance as well as contractor work quality. However, it is important to note that the sample size is only 27 respondents when we exclude SCE direct install participants, which is much too small to make any broad conclusions from these findings.

We compared findings on overall program satisfaction with the previous MFEER evaluation by Cadmus in 2013, and found similarly high levels of satisfaction. The Cadmus report used a 5-point scale for satisfaction, which is easily scaled up to compare with our 0 to 10 scale. In 2013, the Cadmus study found that 82 percent of SCE participants were satisfied or extremely satisfied with the program, compared with 86 percent of respondents in our study that were satisfied or very satisfied with the program overall.

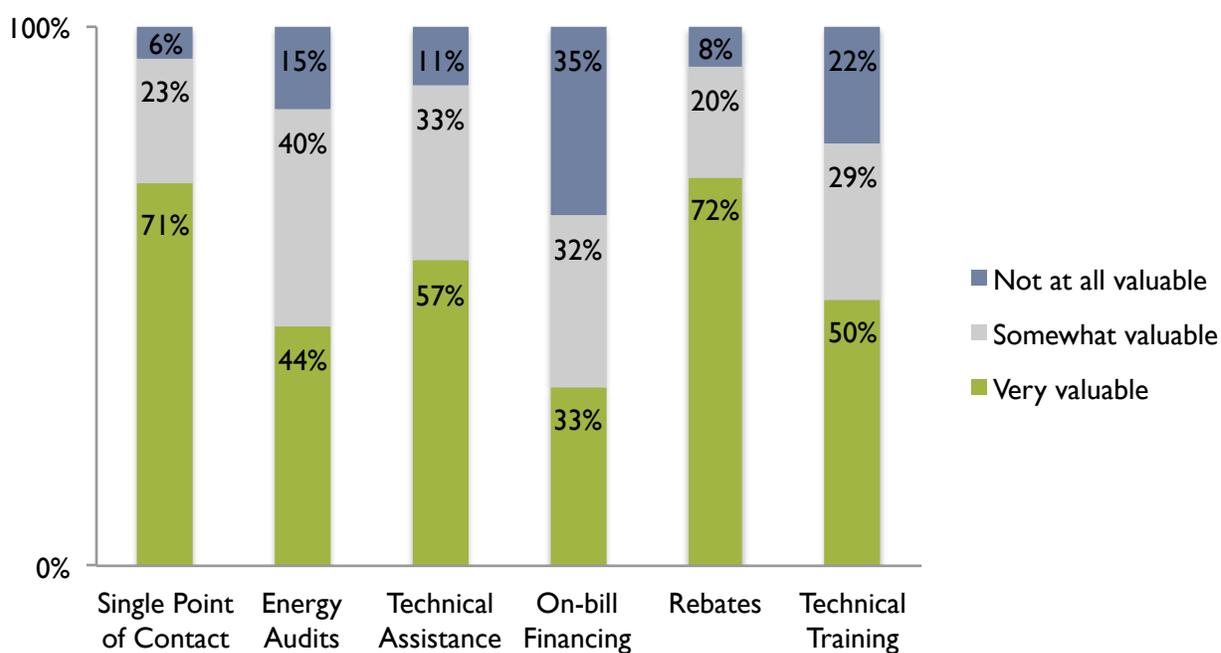
Figure 20: Satisfaction with Various Program Aspects



We further examined satisfaction ratings by IOU for the program overall and utility support specifically. Due to the low number of respondents from SoCalGas' and SDG&E's service areas, average satisfaction ratings for these IOUs may not be representative. The 173 respondents who participated in SCE's MFEER program, however, gave comparatively high scores both to their overall program satisfaction (8.7) and to the support they receive from their utility (8.6). Excluding SCE participants that received direct install measures, the remaining SCE participants gave satisfaction ratings for overall program satisfaction and support received from the utility of 9.1 and 8.4, respectively.

The majority of respondents stated that a single point of contact and equipment rebates would be very valuable means of assistance from their utility to help make their properties more energy efficient. Figure 21 shows the reported value of program assistance for these and a number of other program options. Seventy-two percent of respondents stated that rebates would be very valuable, and 71 percent said a single point of contact would be a very valuable form of assistance. Additionally, 57 percent rated technical assistance as very valuable and 50 percent also said that technical training would be very valuable to them.

Figure 21: Value of Program Assistance

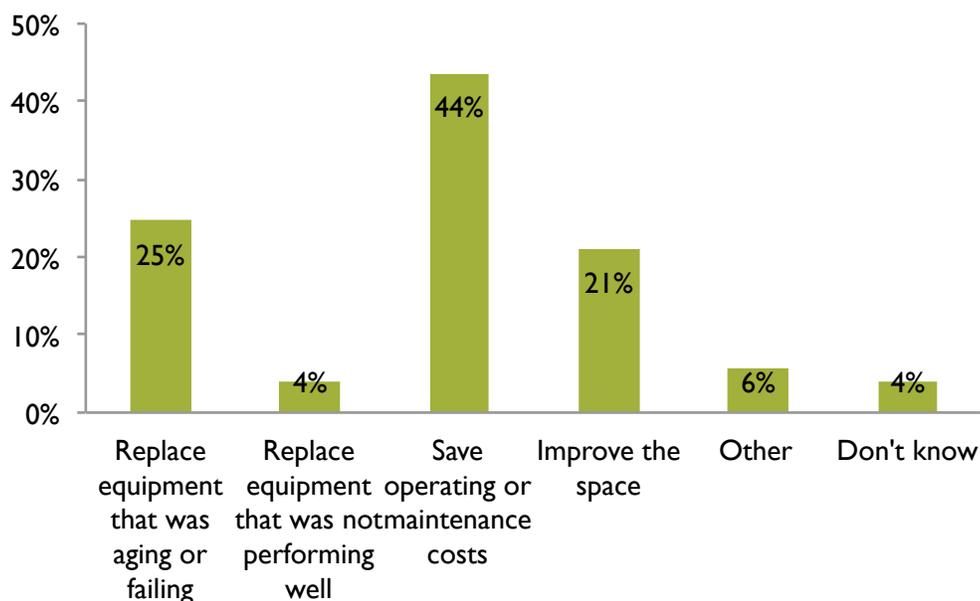


4.2.5 Decision-making Factors, Drivers, and Intention to Act

We asked respondents what was the main driver behind installing the rebated equipment. Figure 22 shows that the most commonly stated reason for installing the rebated equipment was to save on operating or maintenance costs (44%). Another 25 percent said the motivation was to replace equipment that was aging or failing, and 21 percent stated they purchased the equipment to improve the space. Among respondents who had not participated at this program before, we found a similar distribution of responses indicating that saving on operating or maintenance cost was the main driver for installation followed by replacing equipment that was aging or failing. When we excluded any SCE participants that had received direct install measures, the result changed only slightly. For the limited number of remaining respondents, the most frequently mentioned reason for installing equipment was replacing equipment that was aging or failing,

followed by a tie between saving on operating or maintenance costs and improving the space.

Figure 22: Reasons for Installing Efficient Equipment³⁴

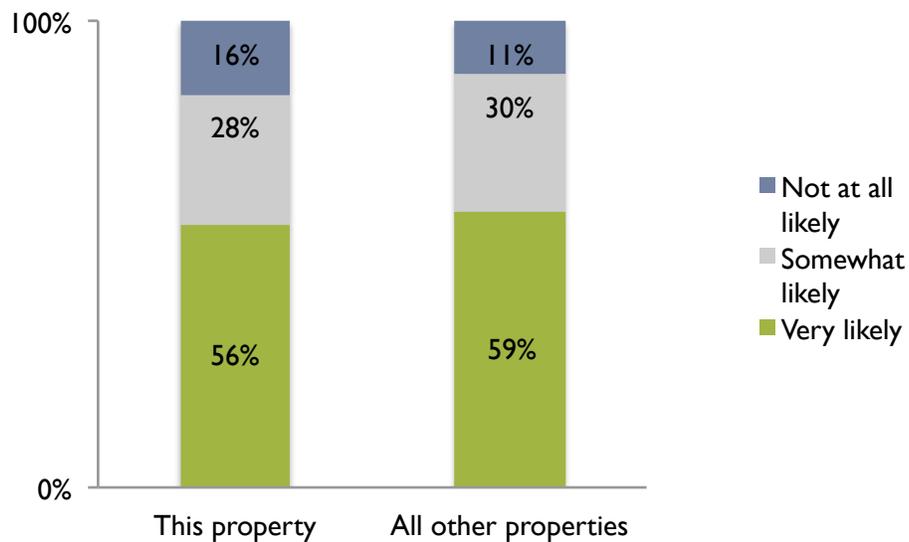


The majority of respondents stated that they are very likely to take additional energy saving actions in the next three to five years at the property where they have already participated or at their other properties. Figure 23 shows that 56 percent of respondents are very likely to make additional energy efficiency upgrades at this same property, and 59 percent of those with other properties are also very likely to make upgrades at those properties.

When SCE direct install participants are excluded from the analysis the result for likeliness to complete additional energy savings actions at the same property is very similar to what is shown in Figure 23. Interestingly, the likeliness for this group to complete additional energy savings actions at *other* properties is much higher, with 85 percent stating they are “very likely” to complete additional energy saving actions at their other properties. Again, it is important to keep in mind that the sample size is only 27 respondents when SCE direct install participants are removed, and only 15 of those have other properties.

³⁴ Percentages will sum to greater than 100 percent, as respondents were allowed to give more than one answer.

Figure 23: Likelihood to Complete Additional Energy Saving Actions



Respondents are likely to pursue a variety of additional energy savings at the same property where they already participated. Table 20 shows that of the 156 respondents asked this question, 15 percent stated they would replace doors and windows, 11 percent said they would add solar technology, and 10 percent said they would upgrade common area lighting and/or controls.

Table 20: Energy Savings Actions Most Likely to be Pursued at this Property

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

For respondents with other properties, we also asked what additional energy saving projects they are most likely to undertake at those other properties. Table 21 shows that of the 78 respondents that were asked this question, 17 percent stated they would upgrade common area lighting and/or controls, 17 percent stated they would replace doors and/or windows, and 20 percent said they did not know what they would replace.

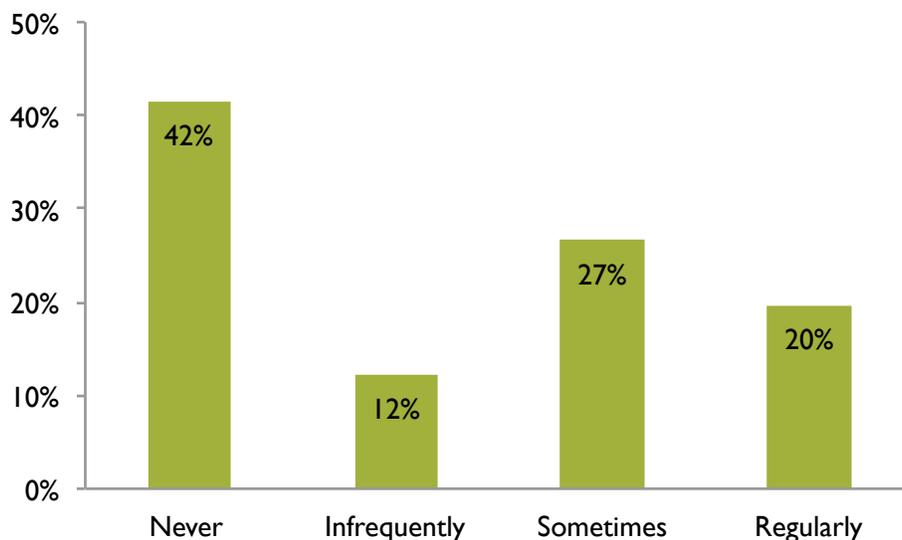
Table 21: Energy Savings Actions Most Likely to be Pursued at Other Properties

Energy Savings Actions	Frequency	Percentage of Respondents
Common area lighting or controls	13	17%
Doors or windows	13	17%
Tenant unit lighting or controls	7	9%
Insulation/cool roof	7	9%
Water saving measures (sprinklers, toilets, showerheads, etc.)	6	8%
Solar	5	6%
Tenant unit HVAC or controls	2	3%
Tenant unit appliances	2	3%
Tenant unit water heaters	2	3%
Pool/Jacuzzi pumps/heaters	2	3%
Building/common area HVAC or controls	1	1%
Common area laundry equipment	1	1%
Common area water heaters	1	1%
Anything the utility offers	1	1%
Don't know/Refused	15	19%
Total	78	100%

4.2.6 Building Operations Staff Training Practices

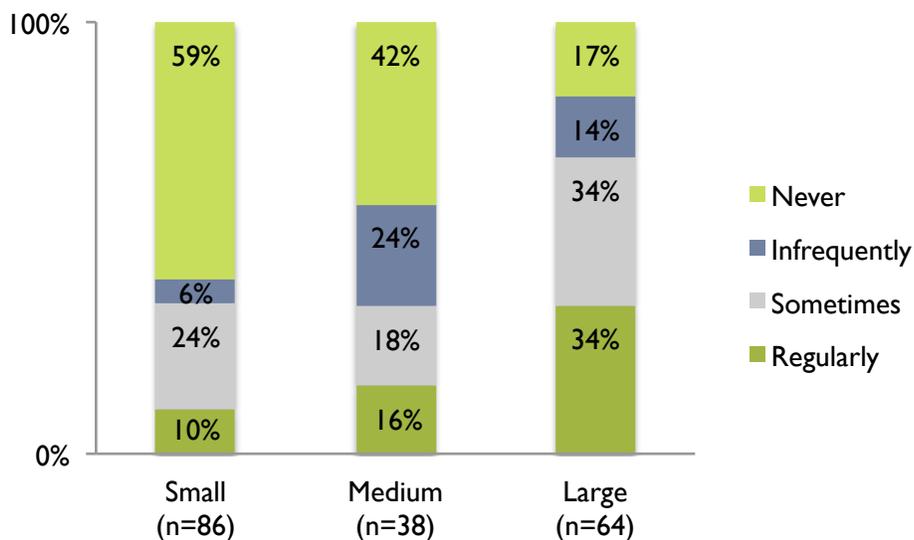
Many of the respondents reported that they never send their building operations staff to third-party training in building systems and operations. Figure 24 shows that 42 percent of respondents never send staff to trainings, while only 20 percent regularly send staff to trainings.

Figure 24: Frequency of Building Operations Staff Third-Party Training



As might be expected, we found that large properties were more likely to send staff to third-party training. Figure 25 shows that only 10 percent of small properties regularly send staff to training, while 34 percent of large properties do so. We found a similarly intuitive trend when looking at the frequency of training by whether the respondent owns or manages the property. In that case, we found that respondents who manage or both own and manage the property are more likely to send staff to third-party training and that the majority of respondents who only own the property (62 percent) never send their staff to training. As previously shown in Figure 21, we asked respondents about the value of technical training provided by their utility, and exactly half (50 percent) stated that this would be very valuable to them. Another 29 percent said that technical training would be somewhat valuable.

Figure 25: Frequency of Building Operations Staff Training by Size of Property



Of the 87 participants who stated they send building operations staff to trainings “sometimes” or “regularly,” we asked whether there were any particular training topics that would be useful to them or their staff. Forty-one of those respondents said there would be a particular topic they would like training on; those responses are shown in Table 22. The most common response was maintenance (27%) followed by HVAC (17%).

Table 22: Useful Training Topics for Building Staff

Training Topic	Frequency	Percentage of Respondents
Maintenance	11	27%
HVAC	7	17%
Other	7	17%
Safety	6	15%
Energy Efficiency	5	12%
Solar	3	7%
Water Efficiency	2	5%
Total	41	100%

4.2.7 Implications / Conclusions

We summarize implications and conclusions based on the MFEER participant survey here. We present recommendations based on the study in its entirety in the overall conclusion and recommendations section of this report.

The MFEER participant survey results suggest that program satisfaction – at least for SCE, which accounted for the overwhelming majority of respondents (who generally received free efficiency upgrades) – is positive and holding since the prior process evaluation. Other insights and implications include:

MFEER participation continues to be focused largely on lighting measures even though the program offers a broader range of measures. Other efficiency opportunities – if they exist in these buildings – seem to remain largely unaddressed.

The MFEER program can serve as a useful point of entry to broader program participation in other aspects of the IOUs' multifamily program offerings. MFEER program participants tend to comprise a full range of building and portfolio sizes, from small, individual buildings to buildings in large portfolios. Over half of the participants are first-time participants, and many have general plans for future upgrades at the same buildings or other facilities. (A share of these plans for upgrades are focused on windows, which could reflect cosmetic upgrades as well as energy-related improvements and may not be covered by efficiency programs, however.)

IOUs and contractors are both essential elements of MFEER program participants' sources of information about program offerings and efficiency opportunities. MFEER participants tend to hear about the program from contractors and the utilities. Self-reported information sources concerning energy-using equipment tend to feature internal (building) staff and equipment vendors, but utilities feature prominently as a source of trusted information about *energy efficiency* opportunities. Trusted information sources vary by size of building owner or manager. Larger companies that are more likely to have dedicated facility staff rely more on internal staff, while smaller owners and operators rely more on utilities. This suggests that utilities should target owners and managers of smaller portfolios, but seek out the trusted building staff among companies with larger portfolios.

5 Common Area Laundry

Evergreen Economics sought to characterize the market actors, decision-making, and equipment replacements for multifamily common area laundry equipment and to inform the Southern California investor-owned utilities (IOUs) on whether an intervention for third-party owned laundry systems may be warranted and, if so, how it might be designed.

In order to understand what benefits may exist from possible program intervention and what barriers and limitations stand in the way, we first needed to characterize common area laundry facilities and laundry equipment, and understand the market actors including how they interact with each other. In characterizing the market, this section explores:

- Laundry facilities and equipment
- Market actors
- Lease agreements, including prevalence and contract terms
- Equipment replacement practices

To complete this characterization, we combine findings from the following sources:

- **A literature review** guided planning for the other research activities and helped to lay out the landscape of the industry.
- **A survey of Multifamily Energy Efficiency Rebate (MFEER) program participant owners/operators** asked a few laundry related questions, which helped to characterize the types of buildings that are more likely to have common area laundry spaces.³⁵
- **Nine of the large portfolio decision maker in-depth interviews** offered perspective on laundry spaces in multifamily buildings.³⁶
- **Two interviews with property management firms** supplemented our understanding of the number (or share) of third-party-owned laundry rooms in multifamily buildings, the saturation of different equipment types, and purchasing choices.

³⁵ See Section 4.2 for a discussion of the MFEER participant survey beyond the laundry insights presented here.

³⁶ See Section 4.1 for a discussion of the large portfolio decision maker interviews beyond the laundry insights presented here.

- **Three interviews with representatives of laundry leasing companies** supplemented our literature review findings about the structure of lease agreements and explored their considerations when acquiring equipment, perceptions of efficient equipment choices, and comparative costs for standard and efficient equipment choices.

Table 23 maps these activities to the research questions.

After presenting a characterization of the market, we discuss our findings' implications for the opportunities for – and limitations in – an IOU initiative specifically focused on common area laundry equipment. We also provide a structure for considering such a program and offer alternative approaches to address multifamily laundry efficiency with a lighter touch within existing program efforts and relationships.

In exploring whether a laundry-focused program might be potentially cost effective, we reviewed existing equipment upgrade rates, self-reports on the relative degree of efficiency of existing multifamily laundry equipment, and the implications of code upgrades on equipment efficiency. We did not conduct any fieldwork to inventory or quantify the existing efficiency levels of common area washers or dryers.

Table 23: Research Questions Mapped to Research Activities

Research Question	Literature Review	MFEER Participant Owner/ Operator Surveys	IDIs with Large Portfolio Decision Makers	IDIs with Property Management Firms	IDIs with Laundry Leasing Companies
Does a program intervention to address third-party owned laundry facilities in multifamily buildings seem feasible and potentially cost-effective? How might it be designed?	X	X	X	X	X
What is the penetration of leased-laundry operations in the multifamily sector?	X		X	X	
What are the current baseline efficiency levels of these leased laundry appliances?	X		X	X	X
What are the potential projected energy (and water) savings in this appliance area?	X				
What program design (i.e., appliance recycling model, upstream intervention, etc.) can cost-effectively induce early replacement of these water and energy inefficient appliances in this market?	X			X	X
What does it take to improve the efficiency level of laundry room appliances for the leasing operators? What incentive is necessary?	X	X		X	X

5.1 Laundry Facility Characteristics and Equipment

A better understanding of the prevalence and structures of common area laundry facilities and of equipment can inform future program involvement by adding to the knowledge of where program efforts would have the greatest impact. This section begins with information regarding the prevalence of common area laundry facilities in multifamily buildings in California and reports on how these facilities vary in building size and tenant type. We then report on the characteristics of laundry equipment, including age and type of equipment and usage patterns. Tables with data used to create the figures in this section can be found in Appendix G.

5.1.1 Laundry Facility Characteristics

It is estimated that 40 to 60 percent of multifamily buildings have common area laundry facilities, suggesting that common area laundry facilities represent a large proportion of the washer and dryer market among multifamily properties. This share may decrease as newer construction, in which in-unit laundry is more common,³⁷ replaces existing buildings. Some of the buildings with common area laundry also have in-unit laundry for a portion of the building's units, although it is much more common to have common area laundry without in-unit laundry. The type of laundry facilities offered has implications for energy usage, as units with in-unit machines are more likely to run more loads of laundry on average than households that rely on common area laundry machines. In-unit machines are likely to be residential grade, whereas common area laundry machines are likely to be commercial grade.

The estimate of the proportion of buildings with common area laundry facilities comes from multiple sources:

- In our surveys of MFEER participant owner/operators, we found the share of multifamily buildings with common area laundry facilities to be close to 60 percent.
- The Northwest Energy Efficiency Alliance's 2013 Residential Building Stock Assessment concluded that approximately 43 percent of all multifamily buildings in NEEA's service territory had common area laundry facilities; however, the study did not specify whether these facilities had leased or owned laundry equipment.³⁸

³⁷ NEEA's 2013 Residential Building Stock Assessment study found that more than 50 percent of multifamily buildings built before 1980 include common area laundry facilities; however, only 10 percent of multifamily buildings in the region covered by NEEA that were built after 2000 had common area laundry facilities.

³⁸ Ecotope. *Residential Building Stock Assessment: Multifamily Characteristics and Energy Use*. Prepared for the Northwest Energy Efficiency Alliance (NEEA), 2013.

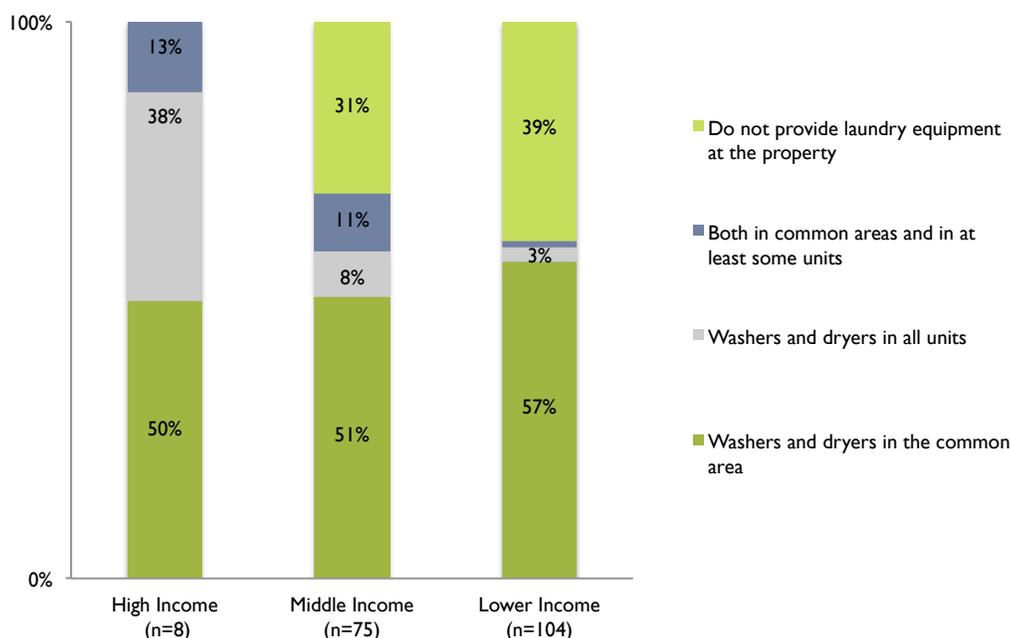
- One study³⁹ we reviewed estimated that in 2009 in California, 29 percent of multifamily *units* (not buildings) had in-unit laundry; the remaining 71 percent of units either had to rely on common area laundry facilities or did not have access to laundry facilities in the building.

Variation by Building Age and Tenant Income

There is a trend for newer buildings to include in-unit laundry. Two of the nine respondents in the in-depth interviews with large portfolio managers reported that they are moving towards including in-unit laundry because this allows them to set higher rents.

Higher rents likely draw tenants with higher incomes, so it is not surprising that our MFEER participant owner/operator survey results show that buildings with high-income tenants are more likely to have in-unit laundry as well (see Figure 26).

Figure 26: Location of Laundry Equipment by Tenant Type (from MFEER Participant Owner/Operator Survey)



*NOTE: Excludes those who do not know the income levels of their residents or the type of equipment setup they have.

³⁹ Bamezai, Anil. *Coin-Operated Clothes Washers in Laundromats and Multifamily Buildings: Assessment of Water Conservation Potential*. Santa Monica, CA: Western Policy Research, 2012.

Variation by Building Size

The 2012 study authored by Anil Bamezai⁴⁰ focusing on water savings found that most multifamily buildings with 12 or fewer units had only one washer in the building, as shown in Table 24. This suggests that a focus on buildings with more units would increase the impact per building for any type of program meant to encourage greater energy efficiency levels in these spaces.

Table 24: Estimate of Washers in Multifamily Buildings from Bamezai Study

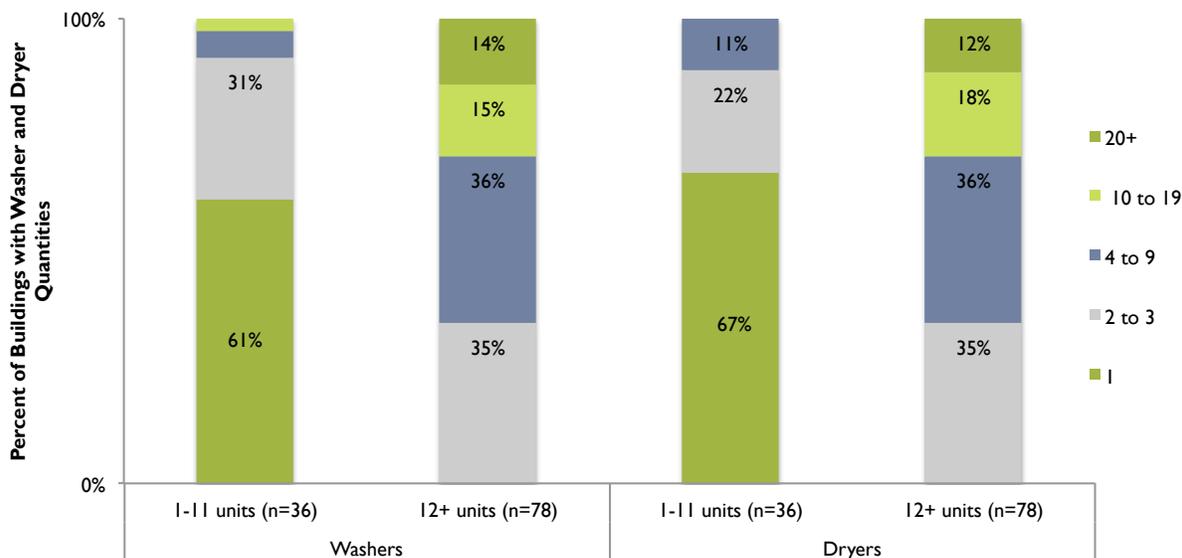
# of Units in Building	Total Units	# of Units with In- Unit Residential Washers	# of Buildings Without In-Unit Washers	% Buildings with Coin-op Washers, Route Operator	% Buildings with Coin-op Washers, Owner Operator	# of Washers per Building	Total Coin-op Washers, Route Operator	Total Coin-op Washers, Owner Operator
2 units	376,788	202,417	87,186	0%	0%	1	0	0
3 units	157,522	79,068	26,151	0%	0%	1	0	0
4 units	535,392	138,861	99,133	50%	50%	1	49,567	49,567
5 units	124,660	57,041	13,524	50%	50%	1	6,762	6,762
6 units	296,470	68,531	37,990	50%	50%	1	18,995	18,995
7 units	96,981	21,612	10,767	50%	50%	1	5,384	5,384
8 units	418,646	105,410	39,155	50%	50%	1	19,578	19,578
9 units	86,188	23,222	6,996	50%	50%	1	3,498	3,498
10 units	129,780	37,514	9,227	50%	50%	1	4,614	4,614
11 units	22,333	0	2,030	50%	50%	1	1,015	1,015
12 units	172,613	71,289	8,444	50%	50%	1	4,222	4,222
13-24 units	657,961	137,288	29,509	100%	0%	2	59,018	0
25-36 units	278,446	68,880	6,965	100%	0%	3	20,895	0
37-48 units	139,962	25,498	2,706	100%	0%	4	10,824	0
49-60 units	159,939	8,565	2,872	100%	0%	5	14,360	0
61-72 units	71,709	17,348	817	100%	0%	6	4,902	0
73-84 units	58,684	13,845	573	100%	0%	7	4,011	0
85-96 units	41,040	6,978	379	100%	0%	8	3,032	0
97 or more	387,649	130,985	1,732	100%	0%	>=9	22,200	0
Total	4,212,763	1,214,352	386,156				252,875	113,633

SOURCE: American Housing Survey, 2009 and California Department of Finance

In surveys of MFEER participant owner/operators, we confirmed that the number of washers and dryers increases with the number of units, but unlike the Bamezai study findings shown in Table 24, the survey results reported that only around 60 percent of buildings with fewer than 12 units have only one washer and dryer (Figure 27).

⁴⁰ Bamezai, Anil. *Coin-Operated Clothes Washers in Laundromats and Multifamily Buildings: Assessment of Water Conservation Potential*. Santa Monica, CA: Western Policy Research, 2012.

Figure 27: Number of Clothes Washers and Dryers by Building Unit Size in Common Areas - MFEER Participant Owner/Operator Survey Respondents*



5.1.2 Laundry Equipment

Evergreen sought to better assess the opportunities for program intervention in common area laundry rooms. In order to understand if there is value in replacing the existing stock of building machines, Evergreen gathered information on the following:

- **Age and Type of Machines:** The age of the existing stock and the type of machines available through leasing contracts;
- **Usage Patterns:** How usage may differ between common area laundry and in-unit laundry;
- **Efficiency Levels:** The efficiency levels of washers and dryers in common area laundry spaces and how efficiency decisions are made; and
- **Regulations:** The existing regulations that dictate what type of machines will be purchased for future laundry leasing contracts.

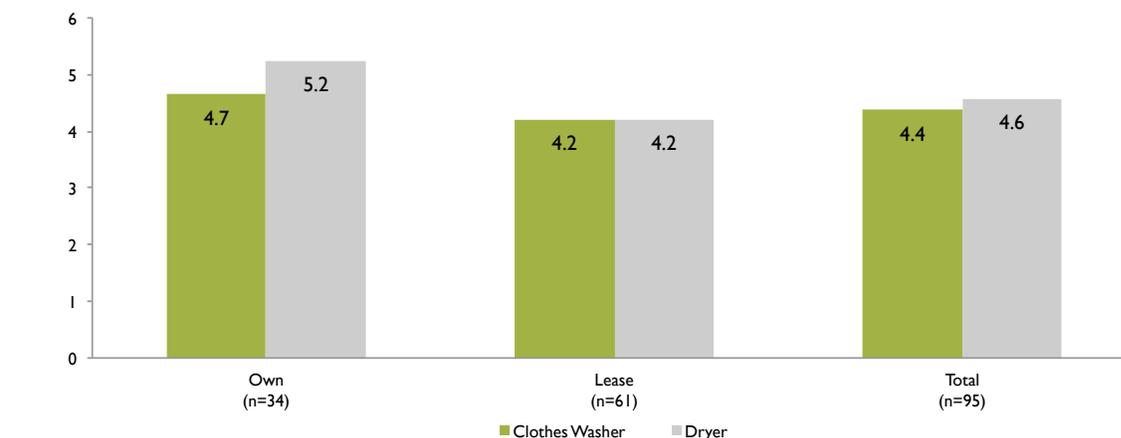
Age and Type of Machines

In order to assess the current landscape of washers and dryers in common areas, we start by working to understand the age of the current machines in use. The age of equipment has implications for the value of early replacement that we discuss further in Section 5.3.2. Most estimates hover around an average machine age of five years (Table 25).

Table 25: Estimate of Age of Equipment Currently in Leased Laundry Systems by Information Source

Source	Estimate
MFEER Participant Owner/Operator Surveys (n=95)	4.4 to 4.6 years old (no significant variation between owners/operators that had their own equipment and those that lease their equipment (Figure 28).
Large Property Decision Makers (n=9)	2.5 to 10 years (equipment replacement at the time of new contract signing).
Property Management Firm Representatives (n=2)	Less than 5 years old .
Laundry Leasing Companies (n=3)	5 to 7 years (with old equipment either being sold to residential properties or refurbished and put in other properties that have fewer units). ⁴¹
Literature Review	Per the 2012 Bamezai study: ⁴² More than 5 years old (as of 2012): 57% Less than 5 years old (as of 2012): 43%

Figure 28: Average Age of Clothes Washers and Dryers in Building Common Area by Own/Lease Type - MFEER Participant Owner/Operator Survey Respondents



⁴¹ We received a varying range of estimated lifetimes for washers and dryers from the three laundry leasing company representatives. Washer estimates were 10-20 years, 12 years, and more than 7 years with two of the respondents emphasizing that number of cycles is much more telling than number of years. Dryer life estimates were either similar, or expected to have a slightly longer lifetime.

⁴² Bamezai, Anil. *Coin-Operated Clothes Washers in Laundromats and Multifamily Buildings: Assessment of Water Conservation Potential*. Santa Monica, CA: Western Policy Research, 2012. Per the study, 57 percent of the stock of multifamily washers provided by leasing companies were manufactured before 2007 (more than five years old at the time) and the remaining 43 percent were manufactured in 2007 or after (less than five years old).

Usage Patterns

In this section, we utilize a study published by the National Research Center in 2002 of observations made in 2000, which looked at water usage as a proxy for the number of loads done in common area laundry spaces and with in-unit machines,⁴³ to better understand the pros and cons to having common area laundry from the building owner/operator perspective. The frequency of equipment use has cost implications for any building owner/operator that covers the energy and water costs of running the machines. Furthermore, efficiency improvements that save water tend to save energy as well. While machines in both types of spaces likely have been updated since 2000, we can use this data to understand the differences between in-unit and common area facility usage.

The National Research Center monitored and compared water and energy consumption by 191 in-unit washing machines and 50 common area washing machines in eight apartment buildings across the U.S. Overall, the study found that residents with in-unit laundry facilities used five times more energy than multifamily residents with common area laundry facilities.

Residents with in-unit laundry equipment used over three times as much water as residents with common area laundry equipment and on average completed about five loads of laundry per week compared to only three loads per week for those that utilize common area facilities. Household-specific usage may vary with the number of residents.

Equipment Efficiency and Regulations

It is useful to understand the various efficiency levels of commercial and residential washers and dryers that exist in multifamily buildings in order to pinpoint what opportunities exist for increasing efficiency. In order to do this, we examined:

1. Efficiency Estimates by Market Actors for Machines Currently in Use
2. Minimum Efficiency Levels over the Past 10 Years as Dictated by Code Requirements
3. Standards for High Efficiency Washers and Dryers over the Past 10 Years

We present this information in Appendix D.

⁴³ *A National Study of Water & Energy Consumption in Multifamily Housing: In-Apartment Washers vs. Common Area Laundry Rooms*. Boulder, Colorado: National Research Center, 2002.

5.2 Market Actors

Most often, laundry equipment decisions are made by laundry leasing companies as part of agreements with multifamily property managers/owners. The market actors we discuss fall into three distinct groups: laundry leasing companies, property level decision makers, and other market actors (such as manufacturers, distributors, contractors, and water agencies). Our research on these market actors allowed us to solidify our plans to approach specific laundry leasing companies and property management firm representatives for our in-depth interviews.

5.2.1 Laundry Leasing Companies

We reached out to laundry leasing companies to understand how lease agreements are structured in order to see if potential for program intervention exists.

Laundry leasing companies most often purchase laundry equipment and establish rental contracts with building owners/operators. The leasing companies own and maintain the equipment according to the contract terms. Traditionally, this means there are no upfront costs for the building owners, who only focus on the utility bills, cleanliness of the common area laundry facility, and notification to the third-party service company about equipment malfunctions.

The charge to use common area leased laundry equipment is passed down from multifamily property owners to their residents, and is comparable to laundromat prices (and may even be less in some instances). Revenue split between the third-party laundry leasing companies and the multifamily property owners varies between 50/50 and 75/25 depending on the individual terms of the lease and the size of the multifamily facility.⁴⁴ Multifamily property owners will get a smaller share of the revenue from tenants paying for laundry based on improvements in water/energy efficiency, product age, and lease terms (with longer leases getting a higher percentage of total revenues).

Across the U.S., and within the California market, WASH Multifamily Laundry Systems and Coinmach are the two largest third-party laundry leasing companies, accounting for over 35 percent of the market.⁴⁵ The remaining market share is comprised of smaller independently-owned leasing companies that vary by region. Growth within the third-party market is primarily achieved through WASH and Coinmach purchasing regional route operators; for example, Coinmach purchased the third largest third-party laundry service company (Mac-Grey) in 2013 to increase its national presence.

⁴⁴ Bob Nieman. "Taking a New 'Route'". Planet Laundry, May 28, 2014. <http://www.coinlaundry.org/blogs/bob-nieman/2015/01/26/taking-a-new-route>

⁴⁵ *Background: Multifamily Laundry Market, WASH Laundry Systems, 2015*

The 2012 Bamezai report focusing on water usage⁴⁶ noted that these laundry leasing companies do not appear to be a barrier to improving water use efficiency in the multifamily common area laundry sector; rather, they were described as important partners in transforming this market. With that said, the nature of the contracts held by these companies creates a narrow time frame for upgrades, and in our in-depth interviews, we learned that the leasing companies may create less favorable profit sharing terms in exchange for more efficient equipment. According to the two larger laundry leasing companies we spoke with, after new equipment serves its first lease period (5-7 years) it will then be refurbished and leased to buildings with fewer units that are more willing to lease old equipment. These two laundry leasing company representatives gave a range of years when asked about the life of a machine. One respondent said the useful life is 7 to 12 years for washers and dryers, and another said 10 to 20 years for washers and 15 to 25 years for dryers. One respondent emphasized that this varies based on the usage of a machine and that they think more in term of (laundry) cycles than years.

5.2.2 Property Level Decision Makers

In a study of decision makers for multifamily building equipment overall, ECONorthwest identified that property owners were the most likely to make equipment decisions.⁴⁷ As shown in Table 26, the decision makers were reported to be the property owner (43% of MFEER participants, 73% of non-participants), a supervisor at a property management company (18% of participants, 42% of non-participants), a property manager (18% of participants, 21% of non-participants), and board of directors/home owners' association (18% of participants, 3% of non-participants).⁴⁸

⁴⁶ Bamezai, Anil. *Coin-Operated Clothes Washers in Laundromats and Multifamily Buildings: Assessment of Water Conservation Potential*. Santa Monica, CA: Western Policy Research, 2012.

⁴⁷ ECONorthwest. *Process Evaluation of the Southern California Gas 2006-2008 Residential Customer Program*. Prepared for Southern California Gas Company, 2008.

⁴⁸ Percentages do not equal 100 percent because several property managers reported multiple decision makers (i.e. both the property owner and the supervisor at a property management company would help make decisions regarding a common area installation)

Table 26: Property Level Decision Makers

Decision Maker	MFEER Participants	Non-participants
Property owners	43%	73%
Supervisor at a property management company	18%	42%
Property manager	18%	21%
Board of directors/home owners' association	18%	3%

5.2.3 Other Market Actors

Other market actors include the following:

Manufacturers of commercial clothes washer equipment: Common area laundry equipment used by laundry leasing companies is generally commercial grade. Primarily, the manufacturers of commercial laundry equipment produce and sell the laundry equipment to distributors or laundry leasing companies. Within the multifamily housing market, the primary manufacturers of commercial grade equipment are similar to the manufacturers observed in all residential homes; specifically, these manufacturers include Whirlpool, Maytag, Kenmore, GE, and Speed Queen. For the commercial market, Speed Queen seemed to be a preferred brand among laundry leasing companies; all three laundry leasing companies we spoke with reported currently getting their new machines from Speed Queen.

Distributors: Several of the larger third-party laundry leasing companies serve as distributors to multifamily buildings and bypass a traditional distributor. Some distributors sell equipment directly to multifamily property owners without laundry leasing companies.

Contractors: Contractors may install equipment and perform subsequent preventative maintenance. A Cadmus study⁴⁹ reported that contractors find it difficult to determine the correct point of contact for the multifamily sector, and the point of contact may not always have authority or have enough knowledge to make installation and maintenance decisions.

Water agencies and municipalities: IOUs have a history of collaborating with water agencies and did so in a 2006-2008 program that targeted multifamily laundry. Water

⁴⁹ Cadmus. *Massachusetts Multifamily Market Characterization and Potential Study Volume 1*. Prepared for the Electric and Gas Program Administrators of Massachusetts, 2012.

agencies were able to help identify high users in both the multifamily and commercial sectors.^{50,51} Water agencies (Santa Clara Valley and Contra Costa Water Districts) have also run incentive programs in the past for commercial washers with incentives between \$220 and \$400 per washer.⁵² Santa Clara's rebate does not apply to leased units, but Contra Costa offers incentives for units that are leased for at least five years.⁵³

5.3 Lease Agreements and Equipment Replacement Practices

The majority of common area facilities utilize a laundry leasing company for equipment purchases and maintenance (though building owner-run machines are more common in buildings with fewer units).⁵⁴ Because of the widespread use of these leasing companies in multifamily buildings (especially in larger properties), a large focus of the remaining research focuses on laundry leasing structures.

5.3.1 Lease Agreements

The ways in which common area laundry lease agreements are structured have important implications for equipment replacement practices, which we discuss in Section 5.3.2. This section provides detail on both the prevalence of lease agreements in the multifamily sector and the terms of these agreements.

⁵⁰ 2006-2008 Energy Efficiency Program Coin Op Concept Paper, Cal UCONS, January 6

⁵¹ The 2006-2008 program targeting multifamily laundry in Southern California which did not meet its washer/dryer installation targets due to the prevalence of gas (rather than electric) water heaters.

⁵² Cluett, Rachel, J. Amman, B. Chou and E. Osann. "Saving Energy and Water through State Programs for Clothes Washer Replacement in the Great Lakes Region". Washington, D.C.: American Council for an Energy-Efficient Economy, 2013. <http://aceee.org/sites/default/files/pdf/white-paper/great-lakes-clothes-washers.pdf>

⁵³ Contra Costa Water District. Multi-family & Commercial Clothes Washer Rebate Program. <http://www.ccwater.com/398/Commercial-Clothes-Washer-Rebate>

⁵⁴ Bamezai, Anil. *Coin-Operated Clothes Washers in Laundromats and Multifamily Buildings: Assessment of Water Conservation Potential*. Santa Monica, CA: Western Policy Research, 2012.

Prevalence of Laundry Lease Agreements in the Multifamily Sector

The literature review we conducted revealed a range of estimates of the percentage of buildings that have laundry leasing agreements in place. These estimates generally were around 50 to 60 percent, suggesting that the majority of multifamily buildings with common area laundry choose to lease equipment rather than to either supply equipment in each unit, or not provide laundry equipment at all. Leasing is more common in larger buildings, so the share of machines that are leased is likely much higher than 50 to 60 percent when talking about the number of washers and dryers in the multifamily sector. Any attempt to address the efficiency levels of washers and dryers in multifamily building common areas would be missing a significant part of the market by ignoring these lease agreements.

Estimates regarding the prevalence of laundry leasing agreements were reported in two ways: as a percentage of all multifamily buildings and as a percentage of multifamily buildings with common area facilities. Either method leads to the conclusion that laundry leasing companies are responsible for the equipment in a significant number of multifamily buildings with common area laundry.

Our literature review included two studies (shown in Table 27) that report either 55 or 66 percent of all multifamily buildings having leased laundry equipment.

Table 27: Percentage of Multifamily Buildings with Leased Laundry Equipment

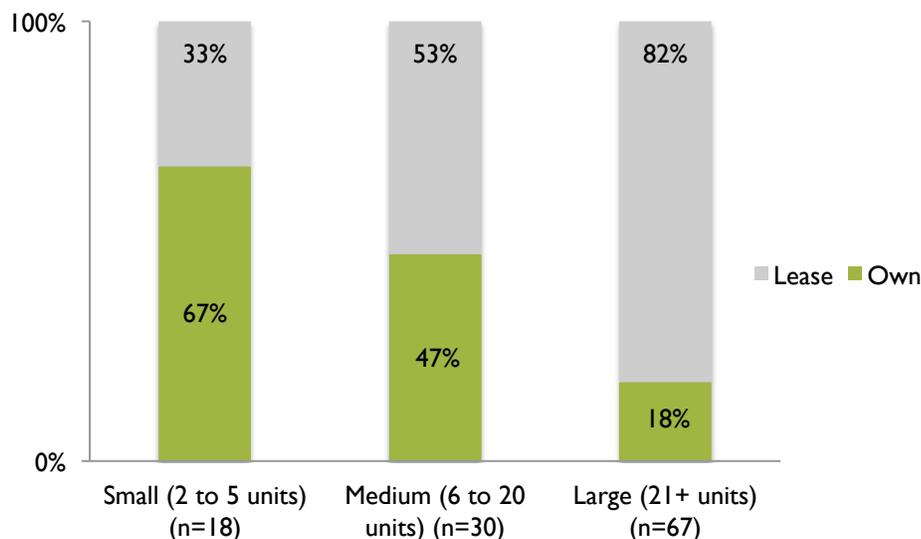
Report	% of MF Buildings with Leased Laundry Equipment	Location	Definition of Multifamily
WASH Multifamily Laundry Systems (one of the largest leased-laundry companies in California and the US. ⁵⁵)	66%	U.S.	Includes apartments, condos, college and university residence halls, and military bases
Massachusetts Multifamily Market Characterization and Potential Study Volume I, Cadmus, May 2012	55%	Massachusetts	Residential buildings with five or more tenant units

In our survey of MFEER program participant owner/operators, we found that 66 percent of buildings with common area laundry facilities reported having lease agreements for the equipment in those facilities (this percentage is higher among buildings with more units,

⁵⁵ *Background: Multifamily Laundry Market, WASH Laundry Systems, 2015*

and lower with buildings with fewer units). Buildings with more housing units are more likely to have lease agreements (Figure 29). Working with larger buildings allows for economies of scale by facilitating discussions of efficiency for a greater number of washers and dryers.

Figure 29: Own or Lease Equipment by Building Size - MFEER Participant Owner/Operator Survey Respondents*

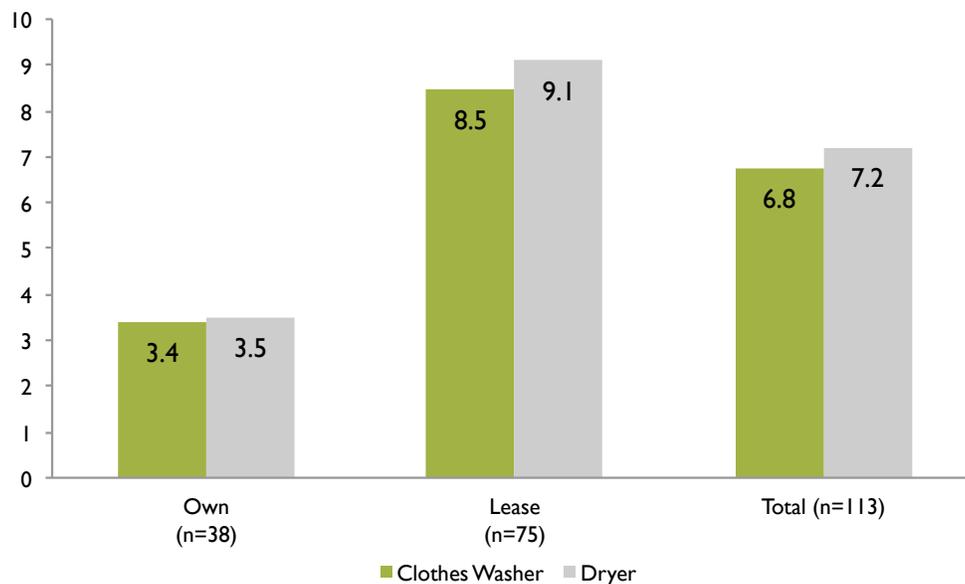


*Note: excludes those who do not know the type of equipment set up they have.

Our in-depth interviews with large portfolio decision makers also confirmed that large buildings are likely to have common area laundry machines that are leased. Of the nine large portfolio decision makers we interviewed, eight reported working with a leasing company. One of these respondents reported having both a leasing company contract and their own purchased machines in their buildings.

Along the same lines, the MFEER participants with common area laundry that lease equipment are more likely to have more machines, suggesting that owner/operators are more likely to look to leasing companies when they need to serve a larger number of units (Figure 30).

Figure 30: Average Number of Clothes Washers and Dryers in Building Common Area - MFEER Participant Owner/Operator Survey Respondents*



*NOTE: Excludes those who responded that they do not know.

Laundry Lease Contract Terms

Contract length and tenant payment types have implications for potential utility interventions.

Contract length: The three laundry leasing companies we interviewed reported that lease agreements generally last from five to seven years. One of the laundry leasing companies reported that some property managers will not pay attention to the end of a lease agreement and it will carry on with the same terms and equipment until they reach out to the laundry leasing company. These five to seven-year lease agreements allow for a very small window of opportunity for utilities to influence the equipment choices in common area laundry spaces. Lease lengths varied with the larger firm (in terms of washer/dryer placement) reporting seven years as most common and the smaller firm reporting that three to five years is the industry standard. Both of the smaller firms said they have contracts ranging from month to month to 10 years or more.

Profit sharing: Lease agreements are often set up so that if a more efficient machine is offered in a bid, the lease terms for that option will generally have a less favorable revenue split for building owner/managers. This allows lease agreements to encapsulate the long-term benefits of energy and water savings that would generally benefit the owner/managers. Beyond the efficiency of machines, revenue splits can vary based on number of people in units and the length of the lease terms.

Tenant Payment Options: Interviews with the building owners/operators about payment options revealed that tenants need simple instructions on how to operate the machines and pay for their use, and that it is preferable for a load of laundry to cost the same across buildings and within buildings to avoid a perception that some tenants may be treated unfairly, as well as concerns that varied pricing may confuse residents.⁵⁶ This has implications for the possibility of programs that utilize price signals or instructions for more energy efficiency laundry practices to encourage certain tenant behaviors such as performing more washes using cold water.

Coin and card machines are both made available in common area laundry facilities. One laundry leasing company interviewee reported that Northern California is more likely to have card machines than Southern California. In our literature review, we found instances of WASH and Coinmach representatives mentioning that one of the growing trends in the market is a transition from coin-operated equipment to electronically-operated equipment, though one leasing company interviewee said that card machines are unpopular in buildings with non-English language speakers as the instructions can be seen as confusing. With this in mind, posting additional instructions and topics for tenants including, for example, the benefits of cold-water washing may be seen by owner/operators as adding to tenant confusion.

A study done by Battelle in 2008 reported laundry costs in multifamily buildings (only those where the laundry equipment was owned by owners) and found that costs per cycle ranged from \$0.75 to \$2.⁵⁷

5.3.2 Equipment Replacement Practices

Perspective on replacement practices from the viewpoint of the laundry leasing companies and from building owner/operators are important in order to understand the opportunities for encouraging early replacement (if any) in this sector.

Laundry Leasing Company Replacement Practices

Overall, laundry leasing companies prefer to repair their equipment during the contract period, and then are likely to try to entice renewal or contract switching with new

⁵⁶ One interviewee stated that while public laundry facilities sometimes charge different prices for hot water or peak period usage, multifamily buildings tend to avoid variable pricing to avoid potential legal actions under “fair housing” rules that generally prevent differential treatment of tenants.

⁵⁷ Battelle - Pacific Northwest Division. *Cal-UCONS Commercial Laundry Program Measurement and Evaluation*. Prepared for Southern California Gas Company and San Diego Gas and Electric Company, 2008 and Battelle - Pacific Northwest Division. *Cal-UCONS Commercial Laundry Program Measurement and Evaluation* - Prepared for Pacific Gas and Electric, 2008.

machines at the end of a lease period. They report buying machines in bulk, in matched pairs of washers and dryers, and already feel that their stock is energy efficient.

The smaller laundry leasing company we spoke with offers new machines at the renewal of every lease in order to entice clients to stay with their company, whereas the two larger laundry leasing companies will offer new machines only if the building owner/operator requests new equipment. One of the larger laundry leasing companies reported that close to 50 percent of its equipment currently in common area spaces was put in place as new equipment, and the other 50 percent is refurbished equipment. This same representative reported that installing new equipment at the start of each lease is more common within buildings that have a larger number (40-80) of units.

Old equipment is either sold (by the smaller laundry leasing company) or refurbished (by the larger companies) and then offered to building owners who are not interested in new equipment. Additional perspectives on replacement practices are presented in Section 5.3.2. A study from the 2016 American Council for an Energy-Efficient Economy (ACEEE) Summer Study reported that washing machines may be excluded from third-party energy audits because machines are often leased,⁵⁸ meaning they may get overlooked in a retrofit program.

Repair Before Replace, But Only During Contract

Each of the respondents reported that new machines are bought at the start of a lease, with one respondent clarifying that new leases are often important in a multiple bidder situation because they help to make a bid competitive. Options and terms are presented to the owner/operator to make a decision about the direction of the lease. There may be multiple companies bidding to the same owner/manager, which encourages laundry leasing companies to present new equipment and favorable lease terms.

Otherwise, if a contract is in place, leasing companies will repair the equipment. Lease structures benefit the leasing companies more when they are able to repair equipment during the contract term: *"It doesn't happen much that you need a new machine. You can repair them 99.9% of the time, like with a car."* As such, durability is an important quality in the equipment that they purchase.

There was no consensus among the laundry leasing company interviewees about the amount of rebate (whether at the manufacturer, leasing company/distributor, or property manager level) that should be given at the time of equipment failure, if an incentive were to be given. There was however, consensus that if laundry leasing companies were

⁵⁸ Braman, Jonathan et al. "EZ Retrofit: Multifamily Building Energy-Efficiency Evaluation Process Just Got Easy!", Paper presented at the American Council for an Energy-Efficient Economy (ACEEE) Summer Study on Energy Efficiency in Buildings, 2016.

incentivized, that the incentive would need to be rather large. In asking laundry leasing respondents about what would encourage them to replace equipment earlier, all three laundry leasing respondents reported needing significant rebates in order to cover the cost of the investment in the original machine. Two of the laundry leasing respondents mentioned seeing successful programs before with either \$400 or \$500 incentives for washers.

Only one of the three representatives of the laundry leasing companies (the larger one) reported doing early replacement more than just occasionally. The largest firm mentioned that during the drought in California, there have been many trade-ins of old equipment for more water efficient equipment. The two smaller firms said that it is uncommon and that it will either come with an extension of the lease, or that it is unnecessary because technology does not advance enough across the span of a five-year lease.

There was one description given, however, about early equipment replacement when manufacturers presented a favorable discount on new equipment. The respondent from the larger firm reported that they approach customers about available manufacturer discounts on new equipment, which allows them to replace functioning equipment early at reduced cost.

Purchasing Practices for New Equipment

We asked the laundry leasing company respondents about the replacement habits within each firm to further understand what opportunities exist for utility intervention. Two of the three firms reported buying new equipment monthly, in bulk. The other respondent buys them with any new lease (although they will also buy in bulk if they have several contracts on the way or if there is a special promotional sale).

Desired Non-Energy Equipment Traits

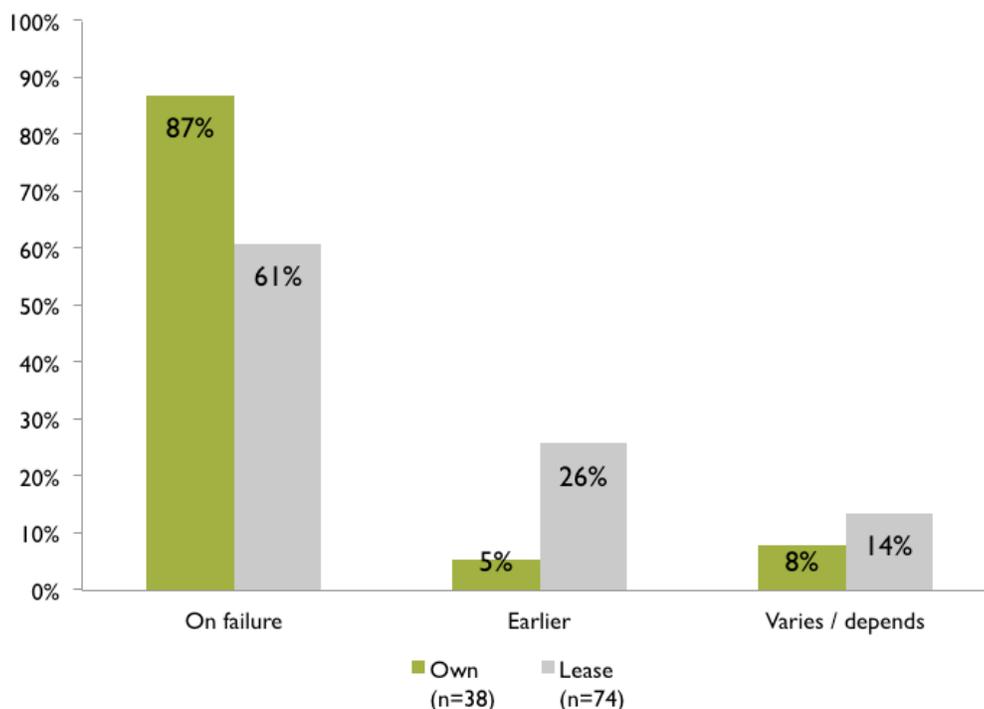
All three laundry leasing company respondents mentioned that they purchase commercial machines by Speed Queen, referencing Speed Queen's quality and reliability. Two respondents mentioned that Speed Queen meets ADA requirements, signaling that that is important in the sector.

Building Owner/Operator Replacement Practices

The MFEER survey results help us to understand how willing building owners and operators who responded to the survey were to replace their equipment before failure. There was a large difference between the companies that own their common area laundry equipment compared to those that lease it, with owners of the equipment being less likely to replace equipment before it fails. Our surveys with MFEER participants show no significant differences in the ages of equipment, whether it is building-owned or leased. It is possible that MFEER participants are more likely to have recently replaced equipment through the MFEER program and may be reporting average ages that are higher than the broader group of multifamily building owner/operators. Those who lease are more

willing to part with their equipment early; this may be due to the competitive bid process that laundry leasing companies go through with building decision makers, in which they may offer new equipment to encourage buildings to stay with or move towards a contract with their company.

Figure 31: Willingness for Early Replacement by Type of Machine Ownership – MFEER Participant Owner/Operator Survey Respondents*



*NOTE: Only buildings with common area laundry, excludes don't know.

We also received insight from a property manager through our in-depth interviews that thought through the decision to replace equipment early. He emphasized that the contract with their laundry leasing company would be a barrier because “even if there is a pretty good program that would help to save a lot of water and we decide to remove those machines, we would be violating the contract with [laundry leasing company].” A more plausible approach for a utility led program may be to work with, rather than against, the leasing company contracting process. The same property manager noted that “When the contract is over with [leasing company] we are going to ask for better machines, if there are any other brands,” and that “we are always trying to upgrade our property with the most water and energy efficiency.”

5.4 Potential for Program Intervention

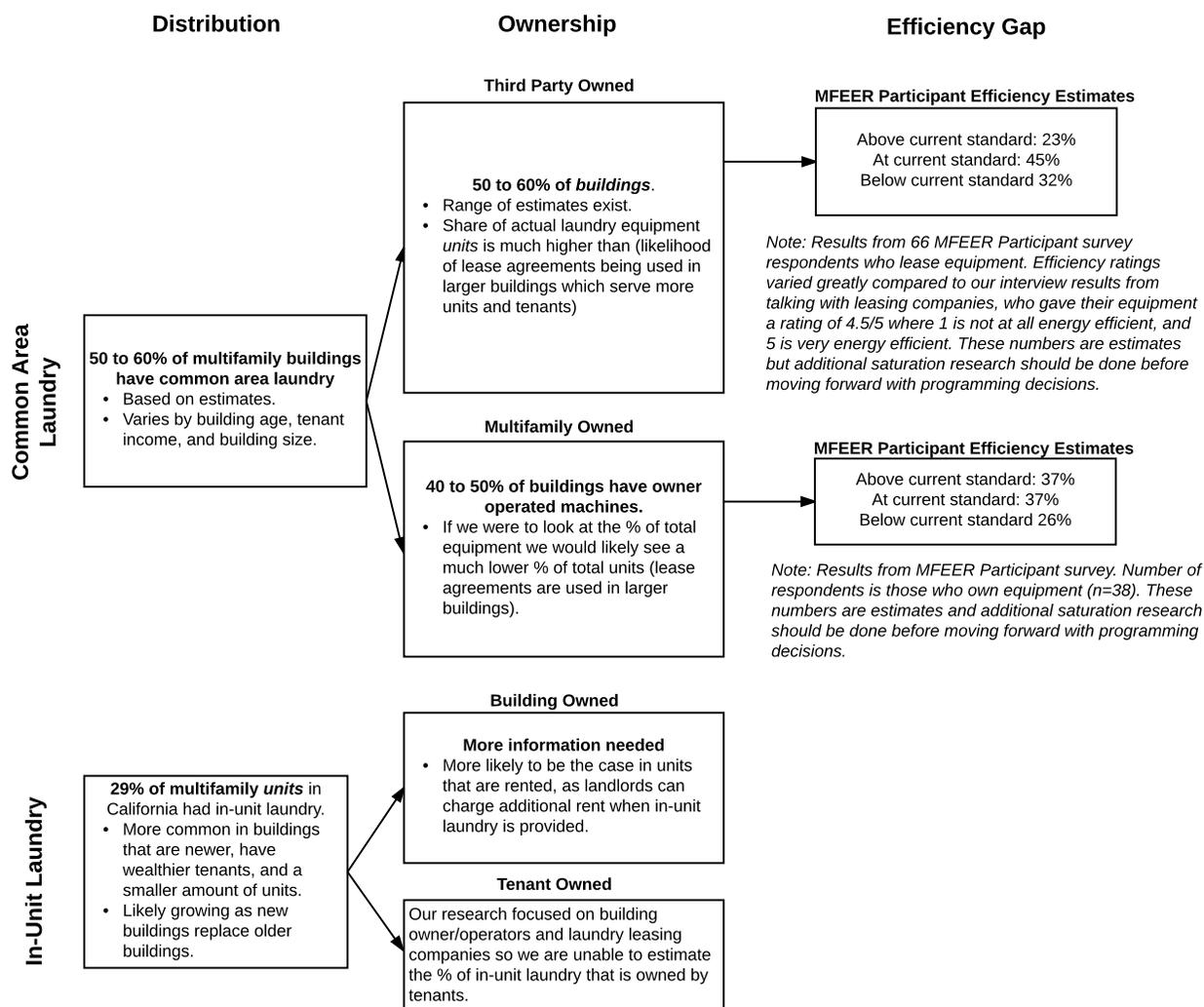
Evergreen's characterization of the common area laundry market provides useful insights for the IOUs' consideration of program interventions. In discussing the research's implications for program interventions, we begin by exploring the potential for new initiatives focused on incenting the replacement of common area clothes washers and dryers. Then, we offer more modest alternatives that could be incorporated into existing program relationships and structures.

5.4.1 Toolkit for Consideration of Washer/Dryer Incentive Program

This section presents a toolkit based on our research findings that IOU program planners can apply when considering a traditional incentive program designed to spur upgrades in common area washers and dryers to higher efficiency levels. In a sequence of three figures and charts – with accompanying text discussion – we summarize key market and facility attributes, potential program approaches, and benefits and limitations of each.

Figure 32 summarizes the landscape of the multifamily laundry sector by calling out the key attributes of our market characterization that affect any consideration of a potential program initiative. The figure starts with the division of common area laundry and in-unit laundry and provides an estimation of the market share of each. Due to the larger number of washers and dryers in common area laundry facilities, we focused our evaluation on those spaces. After showing where laundry units exist in multifamily buildings, the chart shows the types of machine ownerships that exist in each type of laundry space. As we have discussed, the majority of machines in common area laundry spaces are leased from laundry leasing companies. The final column in the figure shows the efficiency levels of the machines in these spaces. These estimates varied across the different market actors we spoke with and may warrant further investigation before they can be applied to a cost-effectiveness calculation for any specific program design.

Figure 32: Multifamily Laundry Landscape



Due to moderately frequent replacements of third-party laundry equipment, regulatory efficiency standards are a key consideration for program design because they dictate a natural progression towards higher efficiency levels without any program intervention.

Programs have multiple options for technology replacement; they can focus on early replacements or replacements upon failure. Programs that focus on replacements upon failure always target the installation of equipment that exceeds regulatory standards, but programs that focus on early replacement can, in theory, target either expedited upgrades to new regulatory standards or target efficiency levels that exceed the newest regulatory standards.

In order to facilitate IOU consideration of program possibilities, we present information that can help to inform savings potential from the installation of new washers or dryers in these contexts. **Table 28** shows the possible changes in water and energy factors for the various types of machine replacements based on each year that is relevant for various codes and standards.

Note that the table shows the improvements assuming that savings can only be claimed that are above the current minimum efficiency standards. On August 18, 2016, the CPUC adopted the Revised Proposed Decision Providing Guidance of Initial Energy Efficiency Rolling Portfolio Business Plan Filings, which creates new baseline levels for certain sectors beginning in 2017. In this proposed decision, accelerated replacement in existing buildings is eligible for dual baseline savings, which allows the possibility of claiming savings for early replacement of measures below code. This will require a “preponderance of the evidence” to claim savings. The evidence required to do this is a deferred issue, but is one that the IOUs should continue to track as it may mean that there are additional energy and water factor improvements beyond that shown in **Table 28**, which assumes savings can only be claimed beyond current minimum efficiency standards.

Table 28: Commercial Energy and Water Factor Improvements Compared to Regulatory Standards

ENERGY STAR Savings Compared to Regulatory Standard			
Clothes Washers	Energy Factor	Before 2018	38% (top-loader) or 10% for (front-loader)
		2018 and beyond	Note that IOUs likely only able to claim differential between 2018 regulation and ES: 63% (top loader) or 10% (front loader)
	Water Factor	Before 2018	47% (top-loader) or 18% for (front-loader)
		2018 and beyond	- Note that IOUs likely only able to claim differential between 2018 regulation and ES: 55% (top loader) or 2% (front loader)
Dryers	Energy Factor	2015 and beyond	Vented machines (range depending on type of machine): +5 to 6% Ventless machine (electric compact 240 volts): +5%

Note: Energy factors as numeric values are going up with improvement and water factors are going down in numeric values with changes in efficiency. Here, we are showing the percent improvement in water or energy factors as positive values. Please refer to Appendix D for calculations.

Furthermore, we highlight that, as revealed in the Cadmus study, any program focusing on washers and dryers will face the barrier of low prevalence of electric water heaters used for common area laundry spaces. The water heating fuel has implications for cost-effectiveness.

The combination of market characteristics (Figure 32) and the savings associated with various types of upgrades (**Table 28**) has implications for what types of programs, if any, may be most feasible and promising.

To further facilitate program considerations, we lay out the benefits and barriers to programs that focus on either early replacement or replacement upon failure across a variety of machine types. Table 29 shows a list of benefits and barriers to program success and crosses these by the type of ownership of washers and dryers (building owner/operator or laundry leasing companies) and then by type of replacement (either early replacement or replacement upon failure). In the table, a “+” indicates that the benefit applies to the type of replacement shown in the column. A “-” indicates that this is a barrier, or a reason that another approach would be more promising.

Overall, it is clear that there are significant barriers and limitations that should be reviewed before considering a program focused on laundry leasing companies. However, this is a large market with the potential to change the energy efficiency levels for multiple machines with fewer points of contact. An approach that entails working with multifamily property owner/operators who purchase laundry equipment themselves has fewer barriers given that the MFEER program already reaches out to these market actors.

Table 29: Benefits and Barriers to Various Program Approaches

	Owner/Operator Lease Machines from Laundry Leasing Company		Owner/Operators Own Laundry Machines	
	Early Replacement	Replacement on Failure	Early Replacement	Replacement on Failure
Benefits to a Program Effort				
Larger market can be reached.	+	+	-	-
Fits in with current MFEER program efforts. (Lower cost to implement)	-	-	+	+
Higher willingness among building owners who do not lease equipment to do early replacement compared to those who own.	-	N/A	+	N/A
Barriers to a Program Effort				
Short lease terms with new equipment sometimes offered before the EUL of a machine.	-	-	N/A	N/A
Locked in lease terms mean that the window of opportunity to influence equipment selection is difficult.	-	-	N/A	N/A
Durability is important to laundry leasing companies since equipment repair is more affordable than purchasing new equipment.	-	N/A	N/A	N/A
In leasing contracts owner/operators have to give up a portion of the profit sharing agreement in exchange for more efficient machines.	-	-	N/A	N/A
Lower than expected usage of electric water heaters, affecting CE calculations.	-	-	-	-
Lack of upfront information about the type of machines in building before interaction with building owner/operator.	-	-	-	-

Two key considerations are:

- Replacement rates vary depending on the leasing company used and building owner/operator preferences. Buildings with more units are more likely to replace equipment at the end of a lease term (every 5-7 years) than buildings with fewer units which are less inclined to provide newer equipment for their tenants.
- The wide range of (and likely lack of precision in) self-reported efficiency levels of existing laundry machines, which may necessitate the collection of field data if cost-benefit calculations for specific programs being considered are deemed marginal using the data presented above.

It is important to look beyond washers and dryers as there are additional items that can increase energy efficiency in common area laundry facilities. Many additional items that can be offered are already a part of the MFEER program such as efficient lighting and water heaters. Creating a package of measures for these spaces, however, is difficult, given the aforementioned timing of the washer and dryer leasing contracts.

As noted earlier, in a Cadmus evaluation of a clothes washer program focused on the multifamily sector, it was reported that there are very few commercial washers with electric water heaters. This report concluded that electric savings would be low unless lighting or other measures are installed.⁵⁹

Furthermore, an independent report on efficiency opportunities in multifamily laundry facilities by the Stewards of Affordable Housing for the Future and NRDC will become public in early 2017. The report will focus on common area laundry across 12 states (including California) and is specifically focused on affordable housing. This report may include additional information about laundry leasing companies and estimates on the types of machines in these common area laundry spaces.

5.4.2 Beneficial Activities Beyond Traditional Incentive Programs

As an alternative to a new program initiative targeting laundry equipment upgrades through financial incentives, we offer some laundry-focused opportunities identified during this research that may be smaller in scale, but that build on existing program relationships and offerings. To promote energy savings in common area laundry facilities, IOU multifamily programs could:

- Leverage existing program interaction by utility programs with owners and property managers by asking about when lease agreements are expiring and recording this information. This database of information could be used to **follow up**

⁵⁹ Cadmus Study

with owners/managers shortly before the end of a lease in order to educate and remind them about the benefits of choosing more efficient machines.

- Collaborate with water municipalities to **create an information guide for owners and managers to help them through the leasing negotiation process**. This guide could offer the ability to calculate estimated water and energy savings based on the number of tenants, type of water heater, and different machine options. An online calculator may allow for more accurate calculations, as it would allow for more machine types to be included. Along with these estimates, a guide could give owner/managers suggested questions to ask when negotiating with laundry leasing companies about energy efficient equipment, expected payback, and tradeoffs between efficiency and revenue sharing agreements.
- **Utilize messaging about non-energy benefits to upgrading to energy efficient equipment when discussing energy efficient washers and dryers with owner/operators**. Water efficiency is something that customers inquire about and that aligns with energy efficiency. There may also be an opportunity to get a federal tax credit for Americans with Disabilities Act (ADA) compliance with new front-loading clothes washers (which are generally more energy efficient than top-loading clothes washers). We suggest additional research be done with regards to the tax credit as it may only apply to certain business types and may not be applicable to laundry equipment lease structures.
- Outside of working within the laundry leasing company contract structure, the IOUs could create a poster for common area laundry spaces that could **educate tenants about cold washes**. This can be done regardless of barriers of locked-in turnover periods (at the end of a lease), and lack of property-specific information regarding the operation of the laundry machines and their associated utility costs over time.

5.5 Conclusions and Options for Further Consideration

Table 30 shows the conclusions and options for further consideration relevant to multifamily laundry common area spaces.

Table 30: Conclusions/Findings and Options for Further Consideration

Conclusion/Finding	Options for Further Consideration
<p>Lease agreements generally last from 5 to 7 years, and property managers may or may not request new equipment at the end of that cycle. Buildings with more units are more likely to request new equipment at the beginning of each lease period and are more likely to have lease agreements (rather than to purchase their own equipment).</p> <p>Buildings with smaller units are more likely to use refurbished equipment (older than 5 to 7 years) compared to buildings with more units.</p>	<p>If IOUs are interested in targeting older equipment, they should work with buildings with fewer units, which are more likely to be leasing older refurbished equipment.</p> <p>If the IOUs are interested in targeting buildings where they can have a larger impact in terms of equipment numbers, they should work with buildings with more units.</p>
<p>This research did not arrive at a conclusive estimate of the age of washers in dryers within buildings. While it is clear that number of units in a building has implications for the type of equipment that may exist, we only received rough estimates of building equipment.</p>	<p>Perform additional research on the age of washers and dryers within buildings to understand the technical potential before considering a separate third party incentive program for common area laundry spaces.</p>
<p>The Stewards of Affordable Housing for the Future and NRDC is putting out a report about efficiency opportunities in multifamily laundry facilities in early 2017.</p>	<p>Look to this report as it may include additional information about laundry leasing companies and estimates on the types of machines in these common area laundry spaces.</p>
<p>Influence on common area laundry setup and usage is largely dependent on the behavior of property managers/owners and tenants. Educational material may help to push tenants and property managers/owners to make more energy conscious choices.</p>	<p>The IOUs may consider creating posters for laundry rooms that educate tenants on the benefits of cold water washes.</p> <p>Collaborate with water municipalities to create an information guide for owners and managers to help them through the leasing negotiation process. This guide could offer the ability to calculate estimated water and energy savings based on the number of tenants, type of water heater, and different machine options. An online calculator may allow for more accurate calculations, as it would allow for more machine types to be included in calculations. Along with these estimates, a guide could give owner/managers suggested questions to ask when negotiating with laundry leasing companies about energy efficient equipment, expected payback, and tradeoffs between efficiency and revenue sharing agreements.</p>
<p>Water efficiency is something that property owners/managers inquire about with leasing companies more frequently than energy efficiency.</p>	<p>Utilize messaging about non-energy benefits to upgrading to energy efficient equipment when discussing energy efficient washers and dryers with owner/operators.</p>

IOUs have existing multifamily programs that work with property owners and managers for common area measures.

IOUs should leverage existing connections and outreach by third-party programs to multifamily owners and operators to track information on lease end dates. IOUs could then add a program component that checks in with owner/operators at the time of their lease renewal to help and encourage them to negotiate for more energy efficient equipment.

6 BOC Training for Multifamily Operators

6.1 Introduction / Background

This study's review of needs and opportunities for multifamily operator training sought to inform IOU program managers how training offerings like the Building Operator Certification (BOC) training⁶⁰ may or may not fit into the utility energy efficiency programs for multifamily buildings.

The research comprised a review of training curricula and offerings currently available—with a particular focus on the BOC training—as well as interviews with training providers and the inclusion of training-related topics and questions in our market actor research (the large portfolio manager interviews and the MFEER participant survey discussed in Section 4).

In conducting this research, we sought to answer the following questions of interest to the IOU program teams:

- Is there a program need for BOC training for multifamily owners and operators?
 - What value would this training provide to owners and operators of multifamily buildings in California?
 - Does it, or could it, provide content that is sufficiently applicable to multifamily buildings and energy-saving opportunities in California?
 - Does its value include measurable and creditable energy savings?
 - For whom would this training be useful?
 - What changes would be needed to make this course useful for California multifamily programs?
- What would be the cost to utility programs and attendees?

6.2 Existing Training

Our review of existing training offerings focused on the Building Operator Certification course, which the IOUs already offer for customers with commercial buildings. We provide a review of that course and the potential for customizing it for multifamily building operators below. We also note a few other training offerings for multifamily building operators to highlight that other trainings exist, but we did not investigate them in as much detail.

⁶⁰ Building Operator Certification is a national training program developed and operated by the Northwest Energy Efficiency Council that provides technical training on equipment maintenance and operating practices that optimize system performance and efficiency.

6.2.1 Building Operator Certification Training

Building operator certification is a national course developed by the Northwest Energy Efficiency Council (NEEC). It is intended for operators of commercial buildings to better understand the building systems they operate and improve their efficiency. Courses in California are offered regularly throughout the state and sponsored by all four investor-owned utilities in the state and by the Sacramento Municipal Utility District. We reviewed existing offerings and interviewed a NEEC representative to better understand the potential fit and customization for multifamily building operators.

Existing BOC Training

There are two levels of certification: level 1 and level 2. Both involve classroom training and project work spread out over a period of several months. Classroom training occurs in full-day increments, generally scheduled over a nine-month period. Classes tend to comprise 30 students.

Level 1 involves 74 hours of training and project work in building systems maintenance. The standard tuition is \$1,695 (as of early 2016), but costs for California residents are advertised at \$1,495 with a further reduction to \$995 for additional attendees from the same facility. Individual sessions, each encompassing one day of instruction, are:

- Energy efficient operation of building HVAC systems
- Measuring and benchmarking energy performance
- Efficient lighting fundamentals
- HVAC controls fundamentals
- Indoor environmental quality
- Common opportunities for low-cost operational improvement
- Facility electrical systems

Level 2 involves 61 hours of training and elective coursework in equipment troubleshooting and maintenance. The standard tuition is also \$1,695 (as of early 2016). Individual sessions comprise:

- Preventive maintenance and troubleshooting principles
- Advanced electrical systems diagnosis
- HVAC troubleshooting and maintenance
- HVAC controls and optimization
- Water efficiency for building operators
- Introduction to building commissioning

Level 1 courses focus on providing an understanding of the key energy-using systems in commercial buildings, their operation, their maintenance, and energy-saving opportunities. At-work projects complement in-class teaching and group exercises. Projects include:

- Developing an HVAC equipment floor plan
- Benchmarking one's building in ENERGY STAR Portfolio Manager
- Conducting a lighting survey and exploring utility program-incented lighting retrofits
- Conducting an HVAC controls review
- Developing an occupancy schedule
- Collecting and analyzing building information using a data logger

Potential Fit and Customization of BOC for Multifamily Operators

Our interview with the national program manager for the BOC training provided the following insights and perspectives:

Greatest applicability for larger buildings: The national BOC program manager indicated that NEEC had completed a blueprint of knowledge, skills, and abilities for developing training curriculum and assessment tools. This assessment suggests that, generally speaking operators of multifamily buildings find value in BOC training only if they have central systems for heating, ventilation, and air conditioning (HVAC); lighting; and building controls. These systems tend to be found in larger multifamily buildings of 60 or more units, but not smaller ones. Key systems addressed by the training include air handling units, chillers, large packaged rooftop units, central lighting in larger common areas (such as food preparation areas, gyms, and common area laundry facilities).

Operators of smaller buildings tend to benefit from BOC training only if they are interested in broader professional development or specific components of the BOC content. Multifamily operators can – and do – attend individual classes. Topics of particular applicability for these attendees might be indoor air quality and an overview of building systems.

Overall, interest from multifamily operators has been small, but there is increasing interest from energy efficiency programs in better reaching multifamily operators. There is currently no map to help guide operators of smaller multifamily buildings to the content most appropriate for them (to help them select individual sessions they might want to attend), but developing such a map would be very valuable if there is greater interest in operator training from the multifamily sector in the future.

Opportunities for program adjustments: The program manager explained the BOC curriculum is moderately flexible and customized to local conditions. The curriculum

comprises a set of core content, as well as “elective” content that rounds out the remainder of the program. The elective content is defined in conjunction with the training sponsor⁶¹, and trainers further tailor content to fit local conditions, including local codes, regulations, and climates. The program manager offered an example of customization by indicating that demand response issues and automation are of interest to California utilities and often included in training in the state.

Furthermore, there is an opportunity for representatives from local utilities to present information about local energy efficiency program offerings. However, the program manager characterized these presentations as addressing entire portfolios of programs and generally lasting 20 to 30 minutes. There may be an opportunity to tailor this content more to multifamily programs specifically, if participants for a course were primarily multifamily operators, and to enhance the connection between the curriculum presented and the program support available to training participants.

Inclusion of building owners: The training is designed for building operators and focused on technical skills. Managers of building operations staff and building owners tend not to benefit from it unless they are technically oriented and involved in the building operations too. Mostly, it is up to training participants to take content back to their managers and building owners, although managers and owners are welcome to attend individual classes at no additional charge. NEEC offers webinars for owners and decision-makers in lieu of on-site training and has developed a half-day training session targeted to managers, which can be included in the training. The program manager cautioned, however, that managers are “time challenged” and are unlikely to participate in large numbers.

The BOC curriculum does include a session on benchmarking using ENERGY STAR Portfolio Manager in which participants are encouraged to benchmark their own building(s). For participants without access to their buildings’ data, the BOC program provides sample data.

Option for shorter training for multifamily operators: Creating a shorter training for multifamily building operators is within the realm of possibility, but the program manager would recommend keeping it at a minimum of three days. Four days would be preferable. The program manager envisions that such a training would encompass HVAC, lighting, building controls, indoor air quality, low-cost opportunities and immediate operational improvements. Adding the existing content for the ENERGY STAR Portfolio Manager and demand response and water efficiency might be of interest to California utilities as well. Of all these potential content options, the program manager thought that a building

⁶¹ Often, the training sponsors are energy efficiency programs. Depending on the region of the country, they might be utilities, third-party administrators, or regional collaboratives.

systems overview tailored for multifamily buildings would be among the highest priorities.

A tailored program could easily include more information than is currently offered about multifamily program opportunities and help make the connection between efficiency opportunities and rebate opportunities or other program support. Combining the two would be ideal for the current HVAC and lighting training content.

Overall, and not surprisingly, the BOC program manager believes that the BOC training platform would serve as a good foundation for a customized training program for multifamily operators. There are economies of scale in basing a training on the BOC platform, and some of the existing BOC instructors do have multifamily experience. However, new development work would be needed to create such a program.

Presumably, the costs of multifamily-oriented BOC training would depend on the level of customization and could be shared by various programs and providers showing interest in multifamily operator training or borne by NEEC with cost recovery through training fees. The program manager listed four other entities that have shown interest in multifamily training, including the Midwest Energy Efficiency Alliance, which recently piloted a BOC training for multifamily operators (discussed in more detail below). Current cost structures listed earlier can serve as a guide for estimating potential costs of a multifamily-oriented BOC training.

Also, as of September 2016, NEEC was working with a BOC administrator on adapting the curriculum for a multifamily audience with an anticipated pilot in the spring of 2017. High-level details were expected to be developed by November of 2016.

Midwest Energy Efficiency Alliance Pilot and Future Multifamily Operator Training

The Midwest Energy Efficiency Alliance (MEEA) ran a BOC training pilot for nine multifamily operators in Chicago in the fall and winter of 2015-16 to help certify them for energy reporting that will be required under a city benchmarking ordinance. The ordinance requires building owners or operators to report building-level energy consumption and have it benchmarked using ENERGY STAR Portfolio Manager. The training followed the standard BOC curriculum in its entirety, but included ad-hoc adaptation during the classes by the instructor. The participants were operators of large multifamily buildings in Chicago. Feedback from attendees was positive.

There was interest from around the MEEA region for additional multifamily training, and MEEA was in conversations with NEEC when we interviewed MEEA staff in the spring of 2016. More recently, MEEA has developed plans to offer multifamily-focused BOC training in Milwaukee and Chicago. That training will be based on the full BOC level 1 course, but include customization to multifamily operator needs. Both trainings are expected to start in March 2017. The base cost will be around \$1,700 per attendee with two

sets of cost reductions for attendees in the \$100 to \$300 range. Attendees will be eligible for partial reimbursements of up to \$500 (depending on location) upon completion of the training. Cost offsets are provided by energy efficiency program administrators (in Wisconsin) and state funds (in Illinois).

At the time of our interview with MEEA staff, the target audience was anticipated to be operators of large multifamily buildings since they tend to have centralized systems and common area space that, in MEEA's estimation, benefit most from BOC training. Small multifamily buildings are not as good a fit for the training. Prospective attendees had given positive feedback on the length of the training (i.e., the full level 1 course, which MEEA has tended to deliver in a compressed period of 3-4 months), and MEEA suggested that the "in the field" time afforded by the at-work project requires that length and level of content.

6.2.2 Other Training Offerings

As noted earlier, our research focus was on BOC training, but we did hear about some other multifamily oriented training that we note here briefly. This is not intended to be an exhaustive list, but rather just acknowledgement that there are other offerings and approaches to multifamily operator training that could be investigated further.

During our research we heard of two other multifamily-oriented training packages in the industry: the U.S. Green Building Council's Green Professional Building Skills training (GPRO) and the Building Performance Institute's training and certification (for multifamily building analysts and for multifamily building operators). In addition, some MEEA members have their own proprietary training for multifamily customers.

Furthermore, we discovered that the Stewards of Affordable Housing for the Future has offered free, multi-day operations and maintenance trainings for maintenance staff working in multifamily buildings. At past trainings, participants included property managers, maintenance managers and sustainability managers.⁶² The goal of the trainings is to highlight potential energy and water savings opportunities for maintenance personnel working closely with the operating systems in multifamily buildings, focusing specifically on basic building science, identifying organizational communication issues, learning about opportunities in different building types, and "operationalizing the toolkit materials."⁶³

⁶² <http://www.sahfnet.org/media-center/success-stories/stewards-affordable-housing-future-support-neighborworks-america-offers>

⁶³ <http://www.sahfnet.org/our-work/energy-and-water-conservation/operations-maintenance>

6.3 Multifamily Owner and Operator Needs

For a further understanding of building owner and operator practices and potential interest in building operator training, we incorporated targeted questions into our interviews with large portfolio managers and survey of MFEER program participants. These questions were intended to inform the IOUs about current dispositions toward training and the potential that building owners and operators would send staff to building operator training targeted at multifamily properties. These questions did not explore content needs or serve as a needs assessment, however.

Full results are presented in Sections 4.1.5 and 4.2.6 above, but we summarize the key findings here and present recommendations based on the study in its entirety in the overall conclusion and recommendations section of this report.

Large portfolio managers we interviewed did not have formal technical credentials or certification in building operations, and we suspected that the same was true of their on-site property management staff. Efficient operation of buildings is something that facility staff appear to pick up from various industry connections and events, and through efficiency projects. Overall, there was no particular perceived pressing need for training related to energy efficiency, but some interviewees expressed interest in potential future education or credentialing on the topic.

Among MFEER participants – which represent a broader mix of small and large portfolio operators – formal training on building topics generally varies. (We did not ask about training on energy-efficient building operation specifically.) Fewer than half of respondents indicated that they send operations staff to training even sometimes, and about a fifth send staff to training regularly. Operators of larger portfolios send staff to training somewhat more often.

At the same time, half of MFEER participants who responded to the survey indicated that technical training provided by their utility would be very valuable to them, however, indicating an openness to training that is not currently happening. Topics of interest included building maintenance, HVAC equipment, energy efficiency, and safety.

6.4 Conclusions / Implications

Overall, we find that the existing BOC program provides technical training that tends to apply to operators of larger multifamily buildings with centralized systems, but would serve the needs of those with smaller buildings in only a limited way. Tailoring the content to fit the needs of operators of large multifamily buildings in southern California could be achieved easily within the structure of the BOC training and is already in progress in other regions, most notably the Midwest. The BOC curriculum does cover a variety of

equipment types and appears to be suitable for the full range of climate regions in the United States.

Better serving the needs of operators of small multifamily buildings would require a more substantial redesign of the BOC training or might be accomplished by inviting these operators to selected training days only. Doing so would require the development of an explicit map of which training days are most applicable or separate packaging of those training days as a stand-alone training offering.

Considering the modest level of training currently being pursued by operators of smaller buildings, such training would probably need to be much shorter than even a modified BOC course, however. To serve the needs of operators of smaller buildings, the IOU program managers may need to look beyond BOC for simpler offerings or discuss the potential for creating a one-day (or shorter) training specifically for small multifamily buildings that draws upon the BOC level 1 content and also serves as an awareness-promoting event about utility program offerings. Alternatively, more in-depth research on the current perceived training needs and interests among small building operators may reveal opportunities to pair training on their highest priorities with content on operational and equipment efficiencies.

Cost and cost-effectiveness of any training depends on the depth of the curriculum provided and the training length. As noted, costs to attendees for a full BOC course vary from just under \$1,000 to about \$1,600, depending on the reimbursement or subsidy provided by program administrators or other training sponsors. For training attendees, the time commitment may be as significant a barrier to participation as cost. Again, large portfolio operators with large buildings stand to gain more from a full BOC training, and more limited (and less expensive) courses would need to be offered for those who operate small buildings.

Except where program administrators can claim energy savings from training-derived efficiency, the program benefits of sponsoring BOC training are in promoting better practices in building operation and maintenance and to facilitate participation in efficiency programs. BOC training events do offer an opportunity for programs to communicate their offerings to attendees and for trainers to make participants aware of local resources and rebates when discussing specific efficiency improvements. Training for building operators could be offered through the IOUs' marketing, education, and outreach efforts.

7 Conclusions and Recommendations

We discussed implications of each component of this study in the respective sections. Here, we offer overall observations that span across the totality of the study. We focused in this section on new insights and considerations, while distinguishing between potentially useful information for program managers' consideration and, where warranted, recommendations.

7.1 Overall Program Design

The program concept presented by the Southern California IOUs is a logical overall framework for future multifamily energy efficiency programs that draws on best practices (both existing and conceptual) in the multifamily sector and builds on existing program offerings in California. As the overall program framework appears to be sound and comprehensive, we focused our discussion and recommendations on program-related topic areas for which this study provides new insights or confirms program assumptions.

As noted in the program manager workshop, the Southern California IOUs are transitioning their programs to the overall framework at different speeds with utility-specific customization.⁶⁴ Consequently, the main take-aways may vary somewhat from IOU to IOU depending on the state of their transition to this program concept.

7.2 Geographic and Temporal Consistency

Regardless of program model, research conducted as part of this study highlights the importance of consistency of offerings both across geographies and time, as well as the importance of utility-specific relationships.

Optimal practices for meeting the needs of multifamily owners and operators include:

- Offering the same measures with the same incentive levels across all IOU customers (recognizing, however, that measures will vary by fuel type);
- Aligning the timing of measure offerings across IOUs as much as CPUC rules and program budgeting allows;

⁶⁴ These transitions could be replaced by a statewide administrator model for the multifamily programs. However, as of completion of this report, the IOUs reported that transition of the multifamily programs to a statewide administrator was not likely in the near term. Consequently, we directed our program-oriented recommendations to the IOUs. If the program were transferred to a statewide administrator at some point, these recommendations would apply to the statewide administrator, although their implementation would need to be adjusted somewhat to address the comparative advantages and disadvantages of the statewide administrative model.

- Aligning communications to multifamily owners and operators about program offerings (including descriptions of measure offerings) and participation requirements (such as forms that need to be completed) across IOUs;
- Making joint outreach visits to operators of large portfolios that span across IOU service areas to engage multifamily decision-makers around energy efficiency and increase the value of the meeting by focusing on the portfolio as a whole; and
- Coordinating in a similar fashion, wherever possible, with large energy and relevant non-energy utilities that did not participate in this study to provide statewide consistency on multifamily energy efficiency offerings and to leverage cross-promotion that is possible with water utilities. (Utilities of potential interest include the Los Angeles Department of Water and Power, Pacific Gas & Electric, and large water-only utilities.)

The IOUs are already addressing these needs to varying degrees. However, feedback from contractors and large portfolio managers suggests that periodically, program offerings change or expire on a faster timeline that multifamily building decision-making processes can accommodate. A transition to longer-term rolling portfolios should address some of these concerns.

Recommendation #1: We recommend that the Southern California IOU multifamily programs and the California Public Utilities Commission (CPUC) maintain consistency and predictability in program offerings. Specifically:

- **The IOU programs should provide long-term measure and program offerings that span two or more years and continue to allow multifamily customers to reserve funds for projects.**
- **The CPUC should consider the timespan of multifamily building renovations in the establishing future program cycles or otherwise ensure sufficient flexibility in allowing program spending and commitments of sufficient duration to accommodate market decision-making practices. Any changes in program cycles will require adjustments in impact evaluations and the program application timelines as well.**
- **Programs should continue to coordinate on program eligibility parameters and other customer-facing program components so they are aligned as much as practical (within the constraints of unique program design needs).**

Allowing for (or continuing) longer program cycles and rebate offerings facilitates consideration of larger energy efficiency projects by property owners and managers within their planning horizon and reduces an identified barrier to program participation. IOU representatives have indicated that a move toward 10-year rolling portfolios will address the need identified in this recommendation. Further, the single-point-of-contact is also

intended to help customers navigate nuances and program requirements while meeting multifamily complexes' overall energy efficiency and investment needs.

7.3 Single Point of Contact

The concept of a single point of contact – a key feature of the IOUs' program concept – is conceptually good and viewed favorably by contractors and multifamily decision-makers. However, it is also clear that both the utility and contractor relationships with customers complement each other, and other details about the nature of the program interaction with customers seem to matter more than whether customers have a single person acting as their main contact.

Single points of contact may function somewhat differently for program relationships with decision-makers for small and large portfolios of multifamily properties. In-person outreach and consistent staffing over time were highlighted as important by large portfolio decision-makers, who may also be more interested in blending discussions about energy efficiency opportunities and other aspects of their utility-customer relationship that may otherwise be handled by an account executive or customer service team. Inventorying the typical interactions with large portfolio managers by the utility overall and complementary energy efficiency services (including regional energy networks or local government partnerships) would provide further insights about opportunities to make the single point of contact a “one stop shop” for large multifamily customers.

Recommendation #2: We recommend that continued transition to a single point of contact include joint customer outreach by both utility staff and implementation contractors acting as a unified team. To the extent practical, outreach to customers should be customized to the customer's needs and circumstances, which may include being able to address details about a specific efficiency upgrade, efficiency opportunities across multiple buildings, and aspects of the customer-utility relationship beyond efficiency (such as rate options and billing). Approaching the single point of contact with this goal will maximize the value to the customer and should increase customer engagement and receptivity.

7.4 Program Participant Experiences

Overall, participants' experiences with the IOUs' multifamily programs appear to have been consistently positive over time.⁶⁵ Simplifying the program participation process through reduced or consolidated paperwork (such as application forms and processes that

⁶⁵ Based on follow-up surveys of MFEER participants, who were predominately participants in SCE's multifamily program and implemented largely no-cost direct-install measures. There were not enough survey completions from the limited number of SoCalGas or SDG&E participants to accurately gauge their level of satisfaction.

simplify multi-unit and multi-building participations) and verification visits that are coordinated with any in-unit installations would reduce the “hassle factor” for program participants. Simplifying program participation in these ways competes with program needs for tracking and verification, but shifts toward electronic forms and signing up multiple properties on a single form could be expanded.

7.5 Expanding to More Comprehensive Measures and Participation

Program participants continue to make use of lighting upgrades above all other efficiency opportunities available through the Multifamily Energy Efficiency Rebate (MFEER) program. While some participants are returning customers (either for lighting upgrades in other facilities or non-lighting upgrades), there appears to be unrealized potential for more repeat participation. Furthermore, and more importantly, there is room for more engagement by past MFEER program participants in the implementation of additional measures through MFEER and other multifamily efficiency offerings, such as Energy Upgrade California Multifamily or ESA. Such cross-program engagement would need to be expanded for the IOUs’ program vision to function as intended.

Recommendation #3: We recommend that the IOUs expand customer involvement in the full range of multifamily programs and measures available by continuing and expanding the use of the MFEER program as an entry point to program participation. To facilitate the promotion of the full range of multifamily program offerings, IOUs should record and track:

- **Customer-specific energy-saving opportunities identified during IOU staff and program interactions with customers and subsequent follow-up efforts so program staff and representatives have an up-to-date record of suspected and known efficiency opportunities for properties and past interactions with decision-makers about those opportunities;**
- **Program participation by measure category;**
- **Program participation status for each customer (such as first-time participants, repeat participants, repeat participants with enhanced levels of engagement, and dormant past participants with identified remaining opportunities).**

This information can facilitate strategic outreach campaigns as well as help program representatives conduct more customized and informed conversations with customer decision-makers.

Recommendation #4: Further, we recommend that the IOUs continue to seek out and offer new (and cost-effective⁶⁶) measures.

Two potential offerings include a laundry initiative to promote greater equipment efficiency among common area laundry equipment and enhanced multifamily-specific building operator training for facility staff. We discuss both of these topics below.

7.5.1 Common Area Laundry

Laundry initiatives for common area appliances would need to involve laundry leasing companies that control a substantial share of the washers and dryers in these spaces. Given the range of replacement rates of washers and dryers currently under leasing arrangements and considering the frequently-updated regulatory standards for laundry equipment, it is not clear whether equipment rebates would be a cost-effective program approach. IOUs could follow a phased approach, however, that concentrates on an informational campaign in the near term and program opportunities thereafter.

Recommendation #5: Unless or until a more comprehensive laundry rebate program proves to be cost-effective, we recommend that the IOU multifamily programs consider an informational campaign to encourage efficient laundry practices in common areas and transition to the most practical efficient laundry equipment when leased equipment is upgraded. This campaign could comprise two components:

- **Informational tools for multifamily owners and operators to encourage energy-efficient washing practices in common area laundry rooms; and**
- **An outreach effort directed at multifamily owners and operators when their laundry leases are due for renewal, to support their decision-making and potential negotiations for more efficient equipment at that time. (Program staff would need to identify multifamily properties with upgrade potential and laundry lease schedules as part of on-site visits to multifamily properties when they occur for other reasons.)**

Development of a laundry equipment replacement program would require more research to determine the cost-effectiveness at the program and property level. Mid-stream interventions (including incentives) could be explored as a potential program delivery approach due to the more limited number of laundry leasing companies and the large number of multifamily buildings with common area laundry rooms. Motivations and

⁶⁶ Programs will need to meet both regulatory and practical cost-effectiveness requirements for new measures. We note that, at a national level, some programs have found it useful to approach cost-effectiveness at a building level rather than for individual measures, so that measures can be bundled and increase the value and attractiveness of an efficiency upgrade to the building decision-maker.

relative benefits from incentive structures among leasing companies and building owners and operators (as discussed in this report) would need to be considered and accounted for in the program design. Such a program would be a good candidate for implementation as a third-party program, particularly if the third party provider has already vetted the program design and cost-effectiveness.

7.5.2 Building Operator Training

Building operator training is available through the Building Operator Certification (BOC) program and would serve operators of large multifamily buildings with extensive common area equipment well, with some customization. Operators of smaller buildings would need a different, customized (and substantially shorter) training option.

Neither type of training seems to be a high priority for most building operators, however. Therefore, any training offerings would need to be well-tailored to specific customer needs and marketed well. Alternatively, training could be tailored by bringing the offering to the customer's location when economies of scale permit. This report identifies some other building operator training options (beyond BOC) that available to multifamily operators, as well.

7.6 Integration of Disparate Multifamily Programs

Integration of separate programs into a unified program umbrella will require internal consistency (within IOUs) in participant tracking, marketing, and outreach. Ideally, program metrics should consistently track production in terms of units, buildings, or complexes served, and outreach to customers should be tracked across programs to ensure that customer contacts build on one another. Sharing of relevant information across program and utility boundaries – as well as between energy efficiency efforts and other utility customer contacts – improves the effectiveness of customer outreach and the customer experience.

Recommendation #6: We recommend the use of a shared customer relationship management (CRM) system to facilitate information sharing across program, functional, and utility lines.

Ideally, utility business call centers would be aware that the multifamily program has recommended a particular efficiency upgrade if the customer calls in for an unrelated reason and could offer a gentle reminder of the opportunity. Similarly, program staff would be aware that a customer has called with a bill concern to inform their outreach and communications with the customer. Further, where a decision-maker is served by multiple utilities (either for the same building or for a portfolio of properties), relevant efficiency-related contacts would be shared among the IOU programs to allow for coordination and complementary engagement with the customer, within practical limits.

While efficiency programs can be integrated under a single umbrella, the integration of low-income and standard energy efficiency programs face substantial challenges due to their varying missions, objectives, and policy goals. Low-income and market rate programs may need to remain distinct as long as fundamental program characteristics , regulatory reporting, and budgets differ as much as they currently do.

List of Appendices in Volume 2

Appendices listed below are included in Volume 2 of this report.

- Appendix A: Program Manager Workshop Presentations
- Appendix B: Contractor Workshop Advance Call Materials
- Appendix C: Data Collection Instruments and Related Methodological Information
- Appendix D: Laundry Equipment Efficiency
- Appendix E: Laundry Study Literature Review
- Appendix F: Insights About Building Benchmarking and ENERGY STAR Portfolio Manager
- Appendix G: Common Laundry Data Tables
- Appendix H: Response to Recommendations