



Southern California Multifamily Program Process Evaluation 2014-2015

Volume 2 of 2 (Appendices)

Final Report

February 28, 2017

CALMAC ID: SCE0399.02

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

Table of Contents

APPENDIX A: PROGRAM MANAGER WORKSHOP PRESENTATIONS	1
PRESENTATIONS	1
ADDITIONAL WORKSHOP SUMMARIES.....	19
Key Insights Needed from the Process Evaluation.....	19
Group Discussion / Questions and Answers.....	20
APPENDIX B: CONTRACTOR WORKSHOP ADVANCE CALL MATERIALS	23
APPENDIX C: DATA COLLECTION INSTRUMENTS AND RELATED METHODOLOGICAL INFORMATION	28
PROGRAM MANAGER WORKSHOP	28
Multifamily Programs Presentation Template	29
Low Income Programs Presentation Template	30
CONTRACTOR WORKSHOP DISCUSSION GUIDE	31
LARGE PORTFOLIO OWNER / MANAGER INTERVIEWS.....	39
Summary of Large Portfolio Interviewees	46
MFEER SURVEY	47
Survey Instrument	47
Disposition Report	57
LAUNDRY STUDY.....	57
BUILDING OPERATOR TRAINING	59
APPENDIX D: LAUNDRY EQUIPMENT EFFICIENCY.....	60
APPENDIX E: LAUNDRY STUDY LITERATURE REVIEW	74
RESOURCES SUGGESTED BY IOUs	74
REOURCES FOUND THROUGH INDEPENDENT RESEARCH.....	77
APPENDIX F: INSIGHTS ABOUT BUILDING BENCHMARKING AND ENERGY STAR PORTFOLIO MANAGER	80
APPENDIX G: COMMON LAUNDRY DATA TABLES	83
APPENDIX H: RESPONSE TO RECOMMENDATIONS	86

Appendix A: Program Manager Workshop Presentations

This appendix presents materials and a summary of the program manager workshop held on July 7, 2015, in Downey, California. Representatives of SCE, SoCalGas, and SDG&E program teams presented information about their multifamily and related low-income programs, and a representative from the CPUC gave a presentation about regulatory and policy issues. These presentations are included below, as well as a summary of key information needs the program teams identified for the evaluation study and a summary of the workshop's question and answer session.

Presentations

The slide deck for the program manager workshop presentation follow; please read the slides from left to right.



**California Multifamily Program
Process Evaluation**

Program Manager Workshop
July 7, 2015

Ingo Bensch and Martha Thompson
Evergreen Economics



Welcome

to the
**Program Manager Workshop for the
California Multifamily Program Process
Evaluation**



Workshop Purpose

Today's goals:

**#1) Help the evaluation team understand
your MF-serving program approach
going forward**

- set up our research around your program
design and implementation
- serve in lieu of one-on-one program manager
interviews

**#2) Facilitate information sharing
amongst the utility teams**



Housekeeping Announcements

Please silence your electronic devices
Treats and lunch will be served

Plan to be done around 3:30
Recording the meeting to supplement our
notes only; not for public dissemination

Participants on the telephone
Facility announcements (Hugo)



A big
Thank you
to
**Hugo Gonzalez and Southern California Gas
Caroline Chen and Piotr Urbanski**
Today's presenters



Agenda

Time	Topic	Lead(s)
10:00	Welcome, announcements, introductions	Caroline Chen Ingo Bensch
10:15	Utility MF program vision & process evaluation support	Jose Buendia Ingo Bensch
10:30	Utility-specific implementation presentations	IOU MF and LI program managers
12:00	Clarification / discussion	Ingo Bensch Martha Thompson
12:30	Lunch / time with our electronic devices ☺	All
1:30	Program logic picture	Ingo Bensch
1:45	Guided discussion / group interview	Ingo Bensch Martha Thompson
3:00	Discussion of regulatory issues	Tory Francisco
3:15	Preview of upcoming workshops & wrap up	Ingo Bensch Caroline Chen



Introductions



Process Evaluation

Ingo Bensch



Process Evaluation: research questions

Paraphrased research questions

- 1) How well does the **current MF program vision and strategy** work for implementers (contractors/raters) and meet MF owner/operator needs?*
- 2) How well is the planned **SPOC approach** likely to work for implementers and owners/operators?*
- 3) What are promising approaches, strategies, channels, and data sources for **outreach** to MF owners/managers? Ways to engage implementers?
- 4) What potential skill and **training** gaps exist among the implementers/installers to successfully implement the MF program vision, and how well do existing training resources address the needed skills?
- 5) What are the characteristics of **MF laundry rooms** (ownership, decision-making, and equipment), energy and water saving opportunities, and potential program design approaches?

* How could these plans be improved?



Process Evaluation: tasks

Type of research	Research Task	Feedback on program design	Feedback on SPOC	MF outreach	Training needs	MF laundry rooms	Portfolio Manager
Context and program logic	Document review	●	●	●	●		●
	Program manager workshop	●	●	●	●	●	●
Stakeholder research and input	Stakeholder workshop	●	●	●	●	●	●
	Contractors/raters-workshop and interviews	●	●	●	●	●	●
	MF owners/operators-interviews and focus group	●	●	●	●	●	●
Stand-alone investigations / studies	ES Portfolio Manager study						
	Laundry study					●	
	Secondary research / best	●	●	●	●	●	●



Utility MF Program Vision

Jose Buendia



SOUTHERN CALIFORNIA
EDISON
AN EDISON INTERNATIONAL COMPANY

Multifamily Program Manager Workshop

Program Vision & Process Evaluation Support

July 7, 2015

12

Objective

To provide an overview of the multifamily market segment, including the identification of opportunities and challenges.

Outline

- Market Segment Into and EE Goals
- Multifamily Market Characterization
- Key Industry Actors
- Market Barriers
- Best Practices
- Alignment of Timelines
- Multifamily Strategy

July 7, 2015

13



Multifamily Market Segment



- Multifamily Properties are one of California's largest segments which warrants additional attention and effort to motivate property owners and managers to actively participate in energy efficiency programs.
- Total: 3,126,000 (23% of residential buildings)
 - When adjusted for buildings with 2+ units as MF buildings, close to 1/3 would be MF buildings

California Long Term EE Strategic Plan Goals

- By 2020, 100% of existing multifamily homes will have a 40% decrease in purchased energy from 2008 levels.
- By 2020, 100 percent of eligible and willing customers will have received all cost-effective Low Income Energy Efficiency measures

MF Market Characterization

- Approximately 32% of California's ESA eligible customers live in multifamily (5+) dwellings, per the 2013 Low Income Needs Assessment.
 - 6% Rent Assisted (Affordable Housing)
 - 26% Market Rate
- Large Property Operators
 - 46% of PGE units located in 9% of properties
 - 54% of SCE units located in 14% of properties
- Annual Energy Use
 - 11% of Building Energy Use (not including industrial)
 - Approximately 24% of all residential energy use (includes 2-4 unit buildings)
- Vintage
 - Over 70% of California's existing multifamily buildings were constructed before there were efficiency standards (pre-1978).

Source: 2010-2012 MF Market Characterization & 2013 LI MF Segmentation Study by Cadmus Group

July 7, 2015

15



Key Industry Actors

- Property Owners
- Property/Facility Managers
- Architects & Engineers
- General Contractors
- Real Estate Brokers
- Lenders, Financial Brokers, Underwriters

June 19, 2015

16



Recognized Multifamily Market Barriers

- Economics of Split Incentives
- Lack of knowledge and low priority of EE
- EE benefits may be difficult to observe
- Access to capital and low ROI
- Hassle of dealing with multiple contractors and site visits
- Time burden for tenants/owners
- Impact on rental income
- Strategic investment versus replacement at burn-out
- The variety of building stock and ownership types
- Building owners find it time consuming and daunting to sort through the range of EE programs

July 7, 2015

17



Best Practices

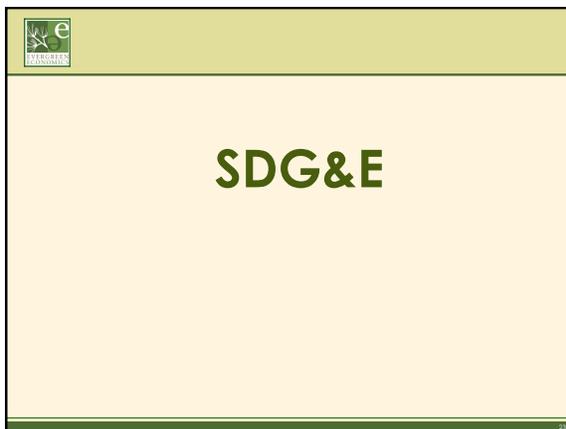
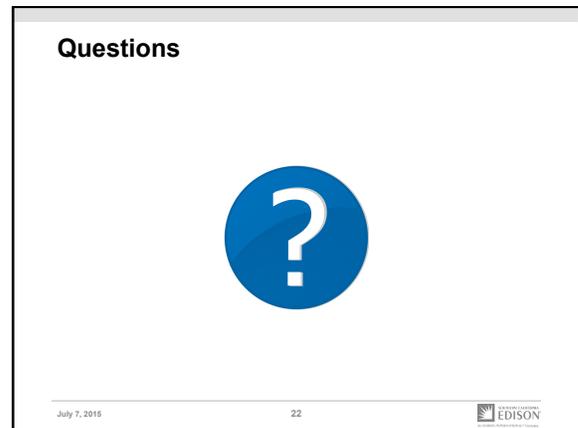
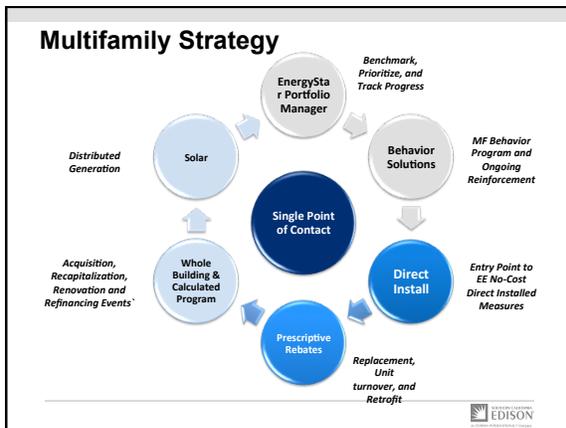
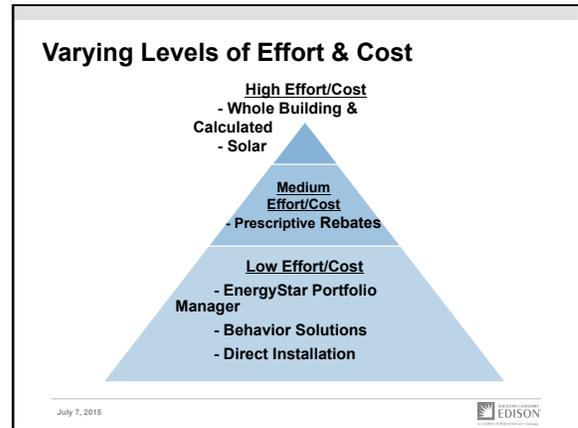
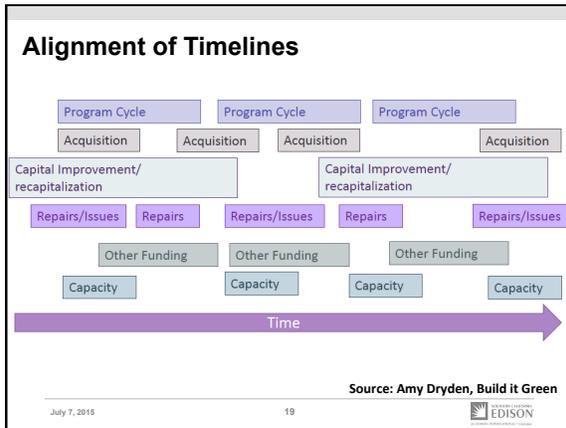
- Provide a one-stop shop for program services
- Incorporate on-bill repayment or low-cost financing
- Integrate direct installation and rebate programs
- Streamline rebate and incentivize in-unit measures to overcome split incentives
- Coordinate programs across electric, gas and water utilities
- Provide escalating incentives for achieving greater savings levels
- Serve both low-income and market-rate MF households
- Align utility and housing finance programs
- Partner with local MF housing industry
- Offer multiple pathways for participation to reach more buildings

ACEEE Report Number E13N

July 7, 2015

18





Multifamily Process Evaluation

- Program Manager Workshop -

Program Advisor: DeDe Henry
 Multifamily Energy Efficiency Rebates
 Middle Income Direct Install
 EUC-Multifamily

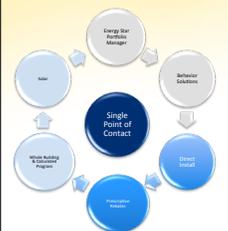
Energy Programs Supervisor: Steve Jaffe
 Energy Savings Assistance Programs - Low Income

• Program Operations, Customer/Contractor Perspective, and Overarching Goals

SDGE connected
A Sempra Energy utility

25

IOU Common Vision



- Energy Star Portfolio Manager
- Behavior Solutions
- Direct Install
- Prescriptive Rebates
- Whole Building & Calculated Program
- Solar
- Single Point of Contact

SDGE connected
A Sempra Energy utility

26

Multifamily Strategy

- MF Energy Star Portfolio Manager & Property Benchmarking
 - Pending SCE/SCG 10-10-10+ Pilot Program lesson learned
 - » SCE/SCG has filed an Advice Letter to conduct the 10-10-10+ pilot to reduce electricity/gas/water usage by a minimum of 10% at the MF complex level by leveraging information from EPA's MF Energy Star Portfolio Manager.
 - » This pilot is designed to support "competition and rewards" at multiple levels (i.e., self-competition, MF-complex vs MF-complex, city to city).
 - » Insight gained on the best way to aggregate individually metered tenant accounts and common area accounts into MF complex usage information.
 - May initiate technical feasibility evaluation (i.e., assess how-to implement) with available funding by the SDG&E program team.
- Behavior Solutions
 - Behavior program guidelines are currently sufficient to encompass multifamily
 - » Current behavior program requires a customer be on a DR or DRLI rate
 - » Must have at least 13 months of energy consumption and not be a gas only account.
 - 2015-17 ESA program plans to include behavior and to reinforce energy education received at time of enrollment.

SDGE connected
A Sempra Energy utility

27

Multifamily Strategy, contd.

- Direct Install
 - ESA/LI - focus on serving 100% of eligible (i.e., 200 FPL) and willing tenants through 2020
 - MIDI - focus on serving 300% FPL households (SF & MF)
- Prescriptive Rebates
 - Service all MF properties regardless of income qualification with common area and building envelope measures
- Whole Building & Calculated Program
 - Service offer through EUC-MF program

SDGE connected
A Sempra Energy utility

28

Multifamily Strategy, contd.

- Solar
 - MASH service via the Solar program team - expedited ESA enrollment for participating customers
- Single Point of Contact
 - Contracted SPOC
 - Focus on major account initiative
 - Shared service between EE/ESA teams

SDGE connected
A Sempra Energy utility

29

Summary of Homes Treated- ESA

SUMMARY OF HOMES TREATED SINCE 2002				
YEAR	SF	MF	MH	TOTAL
2002	6,741	5,472	1,876	14,089
2003	6,860	7,707	1,139	15,706
2004	7,990	6,362	546	14,898
2005	6,575	4,215	465	11,255
2006	8,017	5,302	452	13,771
2007	5,445	7,297	332	13,074
2008	7,505	12,983	316	20,804
2009	9,696	10,942	289	20,927
2010	10,139	10,380	1,074	21,593
2011	9,517	11,460	1,598	22,575
2012	11,061	10,009	1,345	22,415
2013	8,524	7,536	1,508	17,568
2014	8,485	12,309	1,245	22,039
Total	106,555	111,974	12,185	230,714
% of Total	46.2%	48.5%	5.3%	

Source: Annual Reports

SDGE connected
A Sempra Energy utility

30

SDGE^{connected}
Sempia Energy *smv*

Individual Utility Presentations

Operational Questions	2015 (example content)	2016 and Beyond (example content)
Number and types of participating property owners/managers served (annually)	ESA/LE: Included within the ESA program as we serve income qualified tenants only. See summary slide of homes treated since 2002. MIDI/MFEER/EUC-MF: 100 building annually- Serving both market rate and low income tenants.	MIDI/MFEER/EUC-MF: Similar goal, no specific details, yet
Number and types of buildings served (annually)	ESA/LE: Focused on tenants only- given we serve MF of 5 or more. We currently do not look at the program results in this manner. MIDI/MFEER/EUC-MF: The program currently does not track in this manner. The program will need to put metrics in place to look at income qualified zip codes and building types. Additional analysis needed.	MIDI/MFEER/EUC-MF: Same # of buildings, but want to serve more large buildings
Program budget	ESA/LE: Only serve eligible and willing tenants only- not building envelope and common area. MIDI/MFEER/EUC-MF: (MFEER) \$2,500,000 annually- serving in unit, common area, market rate/low income (MIDI) \$2,400,000 annually serving in unit	ESA/LE: 2016 proposed budget is \$30.6 million MIDI/MFEER/EUC-MF: Currently considering fund shift possibility but subject to management approval
Who are the property decision-makers you typically work with?	ESA/LE: Property management firms (2/3 of the time), corporate investors, individual investors MIDI/MFEER/EUC-MF: Property Owners/Managers	MIDI/MFEER/EUC-MF: Property Owners/Managers, expect to work more with corporate investors and property management firms that serve large buildings

31

SDGE^{connected}
Sempia Energy *smv*

Individual Utility Presentations

Operational Questions	2015 (example content)	2016 and Beyond (example content)
Who implements and supports the program? How does that work?	ESA/LE: In-house program manager and staff work with 13 pre-qualified program implementer/contractors, consisting of Outreach, weatherization and HVAC professionals. Of this, 1 is shared with Market Rate EE MF. MIDI/MFEER: Using a common contractor (Synergy) as the SPOC, to help facilitate ESA/MIDI related MF accounts.	ESA/LE: Rather than 1 of 13 being shared between Low Income and Market Rate EE MF, gradually increase. MIDI/MFEER/EUC-MF: Plan to expand to include more shared ESA/MF contractors to serve as contractor-lead SPOCs.
How does coordination work between market rate and low income programs?	ESA/LE: Referral processes are in place between the mainstream EE programs and the ESA Program. MIDI/MFEER/EUC-MF: Align EE and ESA to offer one stop shop using common contractor. We are currently using the common contractor (Synergy) to serve as the contractor SPOC.	Same as above
How many implementers and allies are there?	ESA/LE: 13 pre-qualified program implementer/contractors MIDI/MFEER/EUC-MF: One (ESA contractor Synergy)	See above
When are significant program change set to occur?	ESA/LE: Pending upcoming CPCU decisions. MIDI/MFEER/EUC-MF: Internal fund shift possible subject to management approval and continued expansion of shared SPOC	See above

32

SDGE^{connected}
Sempia Energy *smv*

Individual Utility Presentations

Customer/Contractor Experience	2015 (example content)	2016 and Beyond (example content)
What does participation look like from the customer perspective? What do you think motivates them to participate?	ESA/LE: Participation for ESA Program customers entails enrollment, assessment and installation of all feasible measures. Customers are motivated to participate to improve the health, safety and comfort of their homes. MIDI/MFEER/EUC-MF: Building owners are approached by a variety salespeople who want them to install a specific product(s). This is bothersome for the building managers. (Evergreen Study- 2010-2012)	ESA/LE & MIDI/MFEER/EUC-MF: One stop shop offering a more comprehensive mix of measure. Offering customers solutions not individual programs.
What does participation look like from the contractor perspective? What do you think motivates them to participate?	ESA/LE: SDG&E contracts directly with the ESA Program contractors. MIDI/MFEER/EUC-MF: Contractor is trained as the SPOC to serve all. See above customers (ESA, MFEER, MIDI). Receiving additional funding will enable more robust participation.	ESA/LE: Same, due to shared contractor SPOC with MF programs. MIDI/MFEER/EUC-MF: Same as above. With available funding, the MF program will gradually increase the number of shared contractor SPOC.
How do multifamily owners and operators (or other decision-makers) generally get connected with the program?	ESA/LE: Multi-family owners and property managers are contacted through canvassing efforts and outreach to Associations. MIDI/MFEER/EUC-MF: Outreach by program contractor. Synergy has a property liaison. Web site, trade association	ESA/LE & MIDI/MFEER/EUC-MF: Multiple contractors to explore customer engagement for both rate market and LI customers

33

SDGE^{connected}
Sempia Energy *smv*

Individual Utility Presentations

Customer/Contractor Experience	2015 (example content)	2016 and Beyond (example content)
Does the program direct implementers and installers to any particular training resources or program information? If so, what?	ESA/LE: The ESA Program contractors must follow the California Installation Standards Manual and the Statewide ESA Program Policies and Procedures Manual. SDG&E also offers soft skills trainings to ESA Program contractors. MIDI/MFEER/EUC-MF: We currently offer generic training through the EIC. We are open to explore additional training (technical training)	ESA/LE: Same plus in 2016, SDG&E will provide ESA Program contractors with training for outreach and assessment personnel. MIDI/MFEER/EUC-MF: We are willing to support WE&T Specifications and requirements
What kind of outreach do you do?	ESA/LE: Focus on tenants through community-based organizations, neighborhood canvassing and general utility communications. MIDI/MFEER/EUC-MF: See above	ESA/LE: Same & pending ESA application. MIDI/MFEER/EUC-MF: Build strategic account relationships with major accounts

34

SDGE^{connected}
Sempia Energy *smv*

Individual Utility Presentations

Major Takeaways	(example content)
What is the most important thing you need to learn from the process evaluation?	ESA/LE: We would like to understand how to best market to Property management firms, corporate investors, individual investors. MIDI/MFEER/EUC-MF: The most efficient and effective way to work with ESA and the best way to adopt using a common set of contractors in a way that is most natural to make this work.
What else is important to know about your program?	ESA/LE: "One Stop Shop" installation arrangements to maximize installations, while minimizing inconvenience to residents, managers and property owners. MIDI/MFEER/EUC-MF: The diversity of multifamily building types makes it highly challenging to develop program delivery models, incentives and consistent packages of building upgrade measures that meet the needs of every situation.

35

SDGE^{connected}
Sempia Energy *smv*

Individual Utility Presentations

What does the program look like from the perspective of the MF owner / operator?



- How does a potential program participant find out about it?
- What do they hear?
- With whom do they engage?
- What do they need to do to explore it?
- What happens then?
- What do they get out of participation?
- Then what?

36

SDG&E^{connected}
Semptra Energy smey

Owner/Operator Program View

- How does a potential program participant find out about it?
 - Through targeted key account efforts
 - Through shared contractor, SPOC
- What do they hear?
 - Value of one-stop shop and full range of MF offerings from direct installed services to measure/rebate
- With whom do they engage?
 - Shared contractor SPOC and key account initiative program manager
- What do they need to do to explore it?
 - Single point of contact to initiate program actions

37

SDG&E^{connected}
Semptra Energy smey

Owner/Operator Program View

- What happens then?
 - Eligibility verification for direct installed services
 - Site survey to identify other EE/IDSM investment needs
- What do they get out of participation?
 - Return on Investment, property maintenance and value, easy engagement process, and satisfied tenants with lower bills.
- Then what?
 - When appropriate, SDG&E would support MF benchmarking services to provide ongoing feedback.

38

SDG&E^{connected}
Semptra Energy smey

Appendices

39

SDG&E^{connected}
Semptra Energy smey

2015-2017 Multi-Family Proposal

- SDG&E proposed to accept a building income eligibility verification affidavit signed by the property owner/manager.
- The affidavit would certify that at least 80% of on-site residents meet ESA Program income qualification requirements, based on the program's existing definition of income and categorical programs.
- By certifying 80% of tenants are eligible for the ESA Program, SDG&E would be able to serve 100% of units under the 80/20 multi-family rule.
- The proposal applies to multi-family master meter buildings that meet one of the three criteria:
 - Are in self certification PRIZM Codes,
 - Are in self certification census tracts
 - Are registered low-income affordable housing, with ESA qualified income documents <12 months old on file

40

SDG&E^{connected}
Semptra Energy smey

2015-2017 Multi-Family Proposal

- 80/20 Rule - SDG&E is not proposing to change the Statewide ESA Program Policy and Procedures to lower the level of verifications from 80% of a multi-family building tenants being income qualified to treat unoccupied units.
- Single Intake Form - SDG&E will explore the feasibility of a single intake form between the programs.
- Continue to look for opportunities to integrate with the EE Multifamily program offerings.
- Single Point of Contact - SDG&E will continue offering this approach to property managers/owners.

41

SDG&E^{connected}
Semptra Energy smey

2013-2014 Single Point of Contact

- Full-time outreach employee was assigned to identify and cultivate relationships with large apartment building owners and property managers
- Promoted participation in ESA and CARE programs, other EE programs, and additional services that could benefit tenants
 - Held meetings with various associations (Housing Federation, California Apartment Association, San Diego Housing Commission, San Diego Realtors Association, BIA and San Diego County Apartment Association)
 - Informational events with prospective property management companies at SDG&E's Energy Innovation Center
 - Leads given to third party contractor for follow-up one-on-one meetings
 - Meetings with 31 property management companies to secure and execute the Property Owner Authorization form resulted in 174 completed POAs
 - Resulting in an estimated 1,250 ESA enrollments

42

2015-2017 Single Point of Contact



For 2015-2017, single point of contact for property managers/owners will be responsible for:

- Coordinating efforts to identify internal efficiencies across different SDG&E programs, including:
 - C&I Services, Residential Customer Programs (RDI, MFEER and Home Upgrade)
- Working with property owners/managers to identify which program is the best fit for each property
- Providing support to property owners/managers to reduce barriers and work through the program application process
- Communicating with and supporting efforts of third party ESA Contractors

43

Marketing and Outreach



Continue to utilize a top-down and bottom-up approach when marketing the ESA Program to Multi-family tenants and Property Owners

Tenants

- Integrated, multi-tactic ME&O approach to reach multi-family customers in targeted zip
- Maximize leveraging and integration opportunities with community partners to target hard-to-reach customers (e.g., customers with disabilities, non-English proficient, seniors)
- Enhance program marketing to CARE customers to increase awareness and ultimately enroll more customers into the ESA program

Property Owners

- Expand partnerships with trade organizations providing education, outreach and services to property management companies, owners and managers
- Work to reduce barriers to participation and ease enrollments
- Single point of contact

44

Integration Efforts



- SDG&E's ESA Program staff continues to work with the general Energy Efficiency Programs (EUC, MIDI, MFEER) staff to identify opportunities for integration.
- In 2015, MIDI/MFEER programs released a request for proposal to contractors who had the expertise, training and license(s) to serve a multi-family building with a one stop shop approach to eliminate multiple touch points, confusion of program rules and allow the customer to fully take advantage of all the multi-family offerings provided by SDG&E.
- SDG&E also plans to redesign the ESA Program/EE multi-family program processes to consolidate program delivery such as utilizing the same program contractors across programs where applicable.
- SDG&E will also explore providing integrated contractor training and uniformity of the product offerings.

45



SCE

46



Multifamily Program Manager Workshop

Process Evaluation

July 7, 2015

47

Objective

To provide a high level overview of SCE's proposed Multifamily Integration Strategy.

Outline

- Recognized Multifamily Market Barriers
- SCE's Multifamily Approach (Current vs. Proposed)
- SCE's MF Integrated Strategy Highlights
 - Simplified Customer Engagement Process
 - Seamless Implementation
 - Streamlined Income Verification
- Review of needed Policy Changes
- Operational Items
- Customer/Contractor Experience
- Takeaways
- Questions

July 7, 2015

48



Recognized Multifamily Market Barriers

- Lack of knowledge and low priority of EE
- EE benefits may be difficult to observe
- Economics of Split Incentives
- Access to capital and low ROI
- Hassle of dealing with multiple contractors and site visits
- Time burden for tenants/owners
- Impact on rental income
- Strategic investment versus replacement at burn-out

July 7, 2015 49 

SCE's Multifamily Approach (Current vs. Proposed)

Current Approach	Proposed Approach
<ul style="list-style-type: none"> • Coordinated, linear based approach • Multiple contractors per project • Multiple site visits and tenant disruptions • Multiple program enrollment applications • Bottom-Up Engagement approach 	<ul style="list-style-type: none"> • Integrated, seamless approach • Single contractor per project • Limited site visits and tenant disruptions • Single enrollment application • Top-Down Engagement approach

July 7, 2015 50 

SCE's MF Integration Strategy Highlights

- **Simplified Customer Engagement Process**
 - Focused Engagement Strategy
 - One-stop Shop for program services
 - Layered program services approach
- **Seamless Implementation**
 - Single set of contractors to seamlessly deliver ESA, MIDI, and MFEER “no-cost” products and services
 - Expedited enrollment with use of single program application form
 - Reduced number of site visits and tenant disruptions

July 7, 2015 51 

Simplified Customer Engagement Process

- **Strategic Engagement/Outreach Strategy**
 - Large Portfolio Multifamily Property Owners/Managers
 - Small to Medium Portfolio Multifamily Property Owners/Managers
 - Low-Income Multifamily Property Owners/Managers
- **One-stop Shop for program services**
 - Utilization of SPOC and authorized Contractors to offer direct install, prescriptive rebates, whole-building as appropriate.
- **Layered Services Approach**
 - Support committed EE investments over time



July 7, 2015 52 

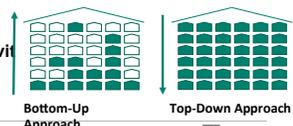
Seamless Implementation

- **Single Set of Program Contractors**
 - Single set of authorized multifamily contractors for ESA, MIDI and MFEER programs
 - Expanded service provider skill sets
 - More comprehensive energy assessments
 - Authorized contractors may also serve as the SPOC role for small to medium MF properties/portfolios
 - Reduced number of site visits and tenant disruptions
- **Single Program Application**
 - Single Program Application for Property Owners Authorization and Project sign-off

July 7, 2015 53 

Streamlined Income Verification

- **Geographic Qualification**
 - MF properties in neighborhoods with at least 80% of households at or below 200% FPG will not require income verification of tenants in order to receive ESA measures.
 - Opt-in approach will be utilized to offer tenants additional products and services.
- **Affordable Housing**
 - May also qualify for expedited enrollment with HUD, TCAC or other federal housing documentation
 - SCE is also open to approach that utilizes property owner affidavit to certify eligibility.



July 7, 2015 54 

Needed ESA Policy Changes

- **Elimination of 10 Year Go Back Rule**
 - Allows servicing multifamily residents with new available products and services
 - Incremental energy savings
 - Would not count towards the ESA homes treated goal
- **Elimination of 3MM Rule**
 - Allows customers to receive any available measures, including Energy Education
 - Allows for true integration with EE programs
 - Reduces confusion for property owners
- **Income Self-Certification**
 - Approval to use of Geographic Qualification to provide ESA services to identified neighborhoods
 - Approval to use federal housing income documentation or property owner affidavits for qualifying Affordable Housing properties for ESA services

July 7, 2015 55 

Operational Items

Operational Questions	2015	2016 and Beyond								
Number and types of participating property owners/managers served (annually)	ESA/MIDI/MFEER: Do not track at the Property Owner Company level. EUC-MF Pilot: 10 participating Property Owner/Manager	No specific goals yet								
Number and types of buildings served (annually)	Information on the types of building not tracked. ESA: Does not track participants by building/property. MFEER: 393 Completed Projects (18,354 install locations), 534 more projects in pipeline. EUC-MF Pilot: 21 properties, range from 15 units to 403 units.	Same # of buildings, but expect to serve low-income buildings more holistically								
Program budget	Annual Budgets: <table border="1"> <tr> <td>ESA</td> <td>MIDI</td> <td>MFEER</td> <td>EUC-MF</td> </tr> <tr> <td>\$72M</td> <td>\$1.6M</td> <td>\$11.3M</td> <td>\$2M</td> </tr> </table>	ESA	MIDI	MFEER	EUC-MF	\$72M	\$1.6M	\$11.3M	\$2M	ESA: \$62M MIDI/MFEER/EUC-MF: TBD
ESA	MIDI	MFEER	EUC-MF							
\$72M	\$1.6M	\$11.3M	\$2M							
Who are the property decision-makers you typically work with?	Property owners, Authorized management firms, REITs, and Housing Authorities	The same.								
Who implements and supports the program? How does that work? How many implementers and allies are there?	In-house program manager and staff administer and support the following EE programs: ESA/MIDI: Direct install of products and services for income qualified tenants, using (2) authorized CBOs, FBOs, and private contractors. MFEER: Offers rebates on a wide range measures, some at "no-cost" via direct install through (6) qualified program contractors. MF-EUC: Offers tiered incentives for comprehensive retrofits. Provides technical support and energy assessments through (3) energy rater firms to assist property owners.	Will utilize SPOCs to appropriately guide customers/projects (DI, Rebate, or Whole Building). Our proposed strategy will utilize a single set of authorized multifamily contractors to implement no-cost direct install measures for ESA, MIDI and MFEER programs.								
How does coordination work between market rate and low income programs?	Regular and ad-hoc coordination meeting between EE and ESA program management and staff. Leads typically come in through SPOC, based on customer's needs and site opportunities we will determine which program to take project lead.	Multifamily program will be jointly administered between EE and ESA programs.								

Program Operational Needs

- **Need to monitor MF properties treated in different income strata**
 - % of properties in 200% Federal Poverty Level Zip-codes
 - % of properties in 300% Federal Poverty Level Zip-codes
 - % of properties in all else zip-codes
- **Need to monitor contractor/installers' work quality, especially as they move up to service building envelope needs**
- **Needs to monitor the customer and contractor satisfaction as SCE converts to this new implementation approach**

July 7, 2015 57 

Customer/Contractor Experience

Customer/Contractor Experience	2015	2016 and Beyond
What does participation look like from the customer perspective? What do you think motivates them to participate?	MF property operators are primarily motivated by two factors: 1) Improving Net Operating Income, and 2) Improving Tenant Retention Rates. Ease of participation via a turn-key approach is also important to customers. Individual tenants are motivated by reducing their utility bill.	Improved communications with MF property operators and individual tenants to highlight these benefits.
What does participation look like from the contractor perspective? What do you think motivates them to participate?	ESA/MIDI: SCE utilizes existing network of CBOs, FBOs, and private contractors that have experience in delivering similar programs (e.g. LH&AP). MFEER/EUC-MF: Contractors engage and outreach to MF property owners. They see the offered rebates as a way to improve ROI for projects which ultimately augments their business.	An integrated approach will enable contractors to offer and deliver a wider set of measures resulting in more comprehensive retrofits
How do multifamily owners and operators (or other decision-makers) generally get connected with the program?	ESA/MIDI: The contractors engage MF owners and tenants through outreach. MFEER/EUC-MF: Outreach by program contractors and program administrators. The program also connects with customers through inquiries via our email link on the SCE Multifamily Property Resource Center on SCE.com.	Expect to engage more customers through increases participation in the various apartment owner trade associations. Potentially, an increase in the number of contractors supporting the integrated MF approach.
Does the program direct implementers and installers to any particular training resources or program information? If so, what?	All contractors must comply with any applicable CSLB licensing requirements. ESA/MIDI: All measures must be installed and conform with Program Installation Standards Manual, which are intended to meet or exceed existing codes and regulations. MFEER/EUC-MF: Annual in-person meetings with all contractors and quarterly sync-up meetings to review specific contractor activity, pipeline, and address other opportunities.	We expect the need of specific training for measures; for example VSD pool pumps which would entail optimal configuration, and working with the various counties for permitting. We would be interested in input from the process evaluation.
What kind of outreach do you do?	MFEER: Trade Shows, Engagement with Trade Organizations and advertisement in ADA websites. ESA/MIDI: "Word-of-mouth," Bill-Inserts, Mailers, E-mails, Website, and contractor outreach to recruit customers (e.g. tenants) for participation in the program.	Continue with the same, but will expand the use of authorized contractors to serve full SPOC role for small to medium MF properties/portfolios.

What does the program look like from the perspective of the MF owner / operator?

- **How does a potential program participant find out about it?**
 - Outreach by Authorized Program contractors and Major Account targeting
 - Trade Shows, Marketing and Ad-banners through various Apartment Owner Associations and trade publications, and on SCE.com.
 - ESA communicates to tenants via "Word-of-mouth," Bill-Inserts, Mailers, E-mails, and contractor outreach to recruit
- **What do they hear?**
 - Benefits of energy efficiency and value of deep energy retrofit; reduction in energy use resulting in lower energy bills
 - Rebates for a wide-range of products and services, including some at no-cost
- **With whom do they engage?**
 - Program Administrators, Major Account SPOC, and Authorized Program Contractors
- **What do they need to do to explore it?**
 - They can visit the SCE Multifamily Property Resource Center on SCE.com, or contact SCE Call Center to find out more info.
 - They can schedule a visit with SPOC or schedule a no-cost energy assessment.

July 7, 2015 59 

Continued

- **What happens then?**
 - The customer is provided with an overview of energy saving opportunities and guided through appropriate approach.
 - If agreeable, the perspective property may receive a clip-board audit to provide high level scoping of the property upgrade needs. Eligible property owner authorized measures are installed/replaced.
 - Eligible ESA/MIDI customers (tenants) are enrolled in on a per unit basis; all feasible measures are installed/replaced.
- **What do they get out of participation?**
 - Property owners/managers - Improve bottom line through reduced energy bills, improve retention rates, improve ROI on energy efficiency projects
 - Income eligible tenants - Lower energy bills, no-cost EEMs such as refrigerator, room A/C, CFLs, and Smart Power Strips.
- **Then what?**
 - Observe and monitor energy benefits, consider deeper EE retrofits or additional EE projects at other sites
 - Engage in energy saving behaviors and practices.

July 7, 2015 60 

Major Takeaways

What is the most important thing you need to learn from the process evaluation?

Our proposed MF Strategy is a true integration of ESA, MIDI, and MFEER effort to better serve this market segment and provide a wider range of energy saving products and services. We highlight an engagement strategy that caters to size and type of property/portfolio owner. Lastly, we introduce the concept of a two prong SPOC approach to better serve property owners and individual tenants.

- What type of soft or hard skills training do authorized contractors to effectively provide SPOC function?
- What types of properties are well served by our current and proposed approach and why?
- What types of results might we see (with regard to program participation and savings) based on how we are targeting and serving property owners?
- How is the coordination across programs and types of properties effective? What are some of the "best practices" that can be expanded or modified to reach more property owners and tenants for more comprehensive treatments.
- What are some identified gaps or limitations in the approach? How might we best overcome these gaps?
- What resources exist that can identify opportunities for higher penetration of this market? (Understanding size of market, where properties are located, housing stock and property potential, etc.)
- SCE is an electric only utility that often coordinates with our partner utilities to promote and implement projects together. How can coordination be improved?

What else is important to know about your program?

In the past, SCE's MFEER has been dominated by lighting measures on account that they have proven to be the most cost-effective. We have made significant program and operational changes to promote and push more measures to property owners such as VSD pool pumps. Understanding how to build on this and continue to do this will be a useful outcome of this study.

In addition, the MF programs offered through the EE portfolio have become increasingly sensitive to and responsive to the property owners who manage properties within the affordable housing sector. Understanding the unique needs of different types of ownership structures will be an important outcome of this study as we try to leverage the use of a more customized approach. Does what we are doing make sense? Why, why not? What else may help us better reach all MF properties?

Questions



July 7, 2015 62 



SoCalGas



MULTI FAMILY PROCESS EVALUATION

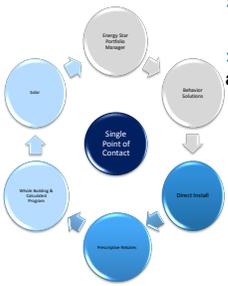
Energy Resource Center
July 6, 2015

Mark Aguirre
Hugo Gonzalez



A Sempra Energy utility

SoCalGas Multifamily Presentation



» What does LI group plan to do

» How do plans differ from current approach and from MF Program?

- Energy Star Portfolio Manager
- Behavior Solutions
- Direct Install
- Prescription Rebates
- Whole Building & Calculated Program
- Solar
- Single Point of Contact

2 Glad to be of service.™

SoCalGas Multifamily Programs

Programs			Apartments		Condominium	
Program Name	Program Type	Income Requirement	Dwelling	Common Area	Dwelling	Common Area
Energy Advisor	Web Service	No	Yes	Yes	Yes	Yes
ES Portfolio MGR	Service	No	Yes	Yes	Yes	Yes
3 rd Party Energy Smart/MF Home Tune Up	Direct Install	No	Yes (Min 5 units building)	No	Yes (Min 5 units building)	No
3 rd Party On-Demand Efficiency	Direct Install	No	No	No	No	No
ESA	Direct Install	Yes	Yes	No	Yes	No
MDI	Direct Install	Yes	Yes	No	Yes	No
MFEER	Prescriptive	No	Yes (2 or More)	Yes	No	Yes
PLA (Single Family)	Prescriptive	No	Yes (Max 4plex)	No	No	No
CAI (MF Properties on a Commercial Rate)	Prescriptive	No	No	Yes (Separately Metered common areas)	Yes	Yes (Separately Metered common areas)
Home Upgrade MF (Pilot)	Whole Building	No	Yes (3 or more units, 4 stories max height)	Yes	Yes (3 or more units, 4 stories max height)	Yes
Solar Thermal	Prescriptive	No	Yes	Yes	Yes	Yes
MASH	Prescriptive	Yes	Yes	Yes	Yes	Yes

3 Glad to be of service.™

ESA Program Multifamily Directive Updates

- 1 Whole Neighborhood Approach – Outreach to property management to serve more households under one project
- 2 Updated Marketing Approach – New collateral in multiple languages; promotion at MF events
- 3 Single Point of Contact (SPOC) – Implemented SPOC approach (see examples next slide)
- 4 EUC/MIDI/MFEER Coordination – SPOC coordinated between programs; roll out of MIDI including update of eligibility requirements up to 300% of Federal Poverty Level
- 5 Same Day Services – Limited number of SoCalGas contractors deliver same day enrollment, assessment and installation; seeking to increase availability of this approach
- 6 Streamlining Practice / Service – Implemented group (or whole neighborhood) energy education to customers with same units / age demographic
- 7 Property Owner Waiver – Implemented uniform waiver form
- 8 Provide Feasible Measures – SoCalGas provided all feasible measures per D.12-08-044

ESA Program Multifamily Proposals

Working Directly with Owners	<ul style="list-style-type: none"> Integrated MF marketing brochure MF association membership SPOC coordinate outreach through existing programs
Targeted Marketing	<ul style="list-style-type: none"> Use electronic notification systems to target properties Leveraging external data systems Leveraging online audit tools
80/20" Rule / Expedited HUD Enrollments	<ul style="list-style-type: none"> Treat entire MF building with owner affidavit that 80% tenants are eligible Must meet 1 of 3 criteria (associated with area / property)

ESA Program Multifamily Proposals

Housing Subsidies Not Counted as Income	<ul style="list-style-type: none"> SoCalGas implemented change; removed from list of sources used to identify income for purpose of enrollment
Single Point of Contact (SPOC)	<ul style="list-style-type: none"> Expand SPOC program with 2 incremental staff Consider "sub-sector" SPOC for MF segment Funding for 4 total staff
Common Areas / Coordinating Among Programs	<ul style="list-style-type: none"> Leverage EE Programs for common area measures SPOCs to facilitate access Working to leverage with partners to offer electric common area measures

EE MFEER Multifamily Proposals

Multifamily Webpage	<ul style="list-style-type: none"> Create comprehensive MF webpage Include all MF opportunities
Energy Education	<ul style="list-style-type: none"> Provide program information to property owner/manager or facility staff and vendors Leverage other program site visits
SPOC	<ul style="list-style-type: none"> Continue expanding SPOCs coordination

SoCalGas Program Budgets

Program Name	2015 Budget	2016 Budget	Dedicate MF Budget
Home Upgrade (MF Budget)	\$ 1,000,000	TBD	Yes
Home Upgrade (MIDI Budget)	\$ 2,000,000	TBD	No
SW-CALS-MFEER	\$ 1,328,972	TBD	Yes
Energy Savings Assistance	\$132,417,191	Waiting for Decision	No
Energy Smart MF Home Tune Up	\$1,464,403 \$1,089,275	TBD	No
On-Demand Efficiency	\$ 1,730,540	TBD	No

SoCalGas Program Participation

Program Name	2015 Units/Properties	2016 Goals/Targets
Home Upgrade (MF)	4262 Units Pending 117 Buildings Pending	TBD
Home Upgrade (MIDI)	260 Units Completed 25 MF Units Completed	TBD
MFEER	131 Applications Paid 92 0 Application Received	TBD
Energy Savings Assistance	24,523 homes treated*	TBD
Energy Smart MF Home Tune Up	11,923 units / 532 properties* 5,852 units / 62 properties	TBD
On-Demand Efficiency	3,224 units	TBD

* YTD May, 2015

SoCalGas Joint Program Presentation

What does the program look like from the perspective of the MF owner / operator?

- **How does a potential program participant find out about it?**
 - Industries conferences or workshops where MF programs were presented
 - Referrals through other programs and contractors
 - SPOC outreach to targeted property owners
- **What do they hear?**
 - Learn about value of working with a SPOC and available MF programs
- **With whom do they engage?**
 - SPOC, program managers, contractors and program leveraging
- **What do they need to do to explore it?**
 - They work with the SPOC, program managers, contractors and program leveraging
- **What happens then?**
 - SCG's (SPOC or Program Managers) begins coordination for program participation each program process flow will vary

 10 *Glad to be of service.*

SoCalGas Joint Program Response

Operational Questions	Current	Future
Number and types of participating property owners/managers served (annually)	Types of property owner/managers are not captured, programs are available to all types of property owners who fit the program requirements: Market Rate, Low-income, Non-profit, City & County Housing Authorities.	Work in progress.
Number and types of buildings served (annually)	Type and quantity of buildings are not captured. Program service all MF property and building types. All building types: High-rise, low-rise, garden style, townhouses, single family homes, etc.	MFEER-Expand outreach to include trades and increase participation
Program budget	Refer to slide 8 : Budgets and Program Participation	Work in progress
Who are the property decision-makers you typically work with?	Property Managers, Owners and retailers, Portfolio Managers, Asset Managers, Maintenance Directors/managers, Property Owners, Property Managers, Facilities supervisors, Project Managers, Housing Managers, Sustainability managers	Expect to target installers, retailers and trades servicing MF properties.
Who implements and supports the program? How does that work?	MFEER is a stand alone program, measures for this program are provided by various trades (plumbing, insulation and HVAC). MIDI is supported by 18 contractors shared with the ESA program. Contractors provide enrollment, assessment and weatherization services. EUC MF is implemented by SCE for the joint program as well as SCG in our muni territory. 3 consultants support the program by providing assessment and consultation services to the IOU and project customers. 3rd party programs have 1 contractor, ESA has about 40 contractors	Encourage more contractor participation through marketing and outreach efforts.

11

SoCalG Joint Program Response

Operational Questions	Current	Future
How does coordination work between market rate and low-income programs?	LIEE and EE have a MF shared brochure that encompasses all SCG MF program offerings. The MF application contains LIEE program information. LIEE and MIDI share contractors and use the same database to track leads. MIDI vendors are required to provide MF property owners with all MF program offering information. The SCG SPOC provides MF program information for SCE/SCG and assist applicants with forms. SPOC, program managers and leveraging staff 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.	Use same database for tracking. Shared forms and requirements. Waiting for CPUC Decision for U application for additional SPOC IT outreach for better coordination and support for MF.
How many implementers and allies are there?	Work in progress.	Work in progress.
When are significant program change set to occur?	Work in progress.	Work in progress.

12

SoCalGas Joint Program Response

Customer/Contractor Experience	Currently	Future
What does participation look like from the customer perspective? What do you think motivates them to participate?	Program participants have various reason to participate and its not always financial. Participation in the MFEER program depends on the Property Owner's business model and whether or its worth their time to participate. However, retailers and installers can help drive the customer's decision depending on the level of support they are willing to provide. This of course depends on their business model as well. MIDI participants are provided with energy education, assistance with forms and scheduling by the MIDI vendor thus providing a turn key solution to participation. For EUC MF, applicants are provided with a high level of support and guidance. The SPOC and the consultants' guide customers through the best mix of programs and measures for their property. Support for customer continues until project completion. Reduction in owner's operating cost (utility and maintenance cost), increase in comfort from more efficient measures, rebate incentives that can be applied towards cost of project. To receive new measures from the utility and reduce energy bills.	Work in progress.

SoCalGas Joint Program Response

Customer/Contractor Experience	Current	Future
What does participation look like from the contractor perspective? What do you think motivates them to participate?	Depending on the contractors business model, but for contractors willing to participate, MFEER allows them to work with their customer to determine who receives the incentive payment. All measure and program information are provide on the application. MIDI contractors are under an agreement with SCG and follow the same rules and protocols used by ESA. Since MF property owners/managers have relationships with their contractors, EUC MF allows participants to work with them. The SPOC and the program consultant work directly with the Property owner and their contractors to assist with program participation. Contractors are able to give more comprehensive offering to MF properties especially under a portfolio with multiple buildings that need different type of services and program qualification.	Work in progress.

SoCalGas Joint Program Response

Customer/Contractor Experience	Current	Future
How do multifamily owners and operators (or other decision-makers) generally get connected with the program?	Participant obtain program information from the program webpage on SoCalGas.com or program collateral material. Property owners/manager may also obtain program information at events and tradeshows. The Program Manager and SPOC though existing relationships, also provide program information. Customer may obtain information regarding programs when calling SoCalGas. Cross program promotions. There are multiple points of contact: Referred by COB, Direct Advertising, collateral, MF brochure, SPOC, Regional Energy Network (REN), Partnership Group, City Programs, other energy agencies. The SPOC has either reached out to the properties or the properties have reached out to the programs.	Work in progress.
Does the program direct implementers and installers to any particular training resources or program information? If so, what?	To the extent possible, MU MF consultants provide technical assistance to project contractors. Information provided is limited to program and project requirements.	Work in progress.
What kind of outreach do you do?	Presentations to property owners and managers at workshop catering to MF. Cold calls, workshops, associations, pre-existing relationships from INCC. Outreach events, SoCalGas web page, program collateral, Program personnel manager, SPOC and	Work in progress.

SoCalGas Joint Program Response	
Major Takeaways	SCG Response
What is the most important thing you need to learn from the process evaluation?	What drives MF decision makers to participate? What is the best path to motivation retailers and installers? What impacts the property owners' decision making with the SPOC?
What else is important to know about your program?	SCG/LADWP Program Coordination (MIP) SCG/SCG Program Coordination SCG EE & LEE Shared contractors Local government partnerships Web Services Working with Property Owner Managers and SPOC together

SoCalGas  Sempia Energy utility 16 *Glad to be of service!*



Lunch

Please be ready to start again at 1:15



Clarification / Discussion

Any questions or discussion
... from the utility teams?
... from the process evaluation team?



Guided group interview

Ingo Bensch and Martha Thompson



IOU Program Manager Panel

Market Actor Engagement / Barriers

- Do you envision MF participants going forward to be mostly experienced or inexperienced with MF programs?
- What outreach approaches have worked in the past to engage owners and managers?
- What are the major differences that will be noticed by implementers/owners/operators?
- How will you describe "the MF program" to owners/operators? What are the key facets you would like feedback on?
- What barriers are common to both the low income population and the general multi-family segment?
- How do you hear back from contractors (feedback loop)?



IOU Program Manager Panel

Training

- What skills gaps among implementers are you most worried about?
- What about for installers?
- Is there anything currently being done to address the mentioned gaps?
- What incentives exist for contractors to share information about other contractors?
- What metrics do you track about their performance?

IOU Program Manager Panel

Single Point of Contact

- What is the relationship between outreach and the SPOC?
- How will SPOCs be educated about the program elements?
- What motivation exists for the SPOC to share comprehensive information with the customer?
- What services will the SPOC provide to the customer? How extensive will these services be?
- Will the SPOC differ for low-income customers?
- What have you tried/done to reach investors/higher level decision-makers for portfolios?
- When a customer participates under SPOC, will he/she see it as participation in "the MF program" or coordinated participation in MIDI, MFEER, etc.?

IOU Program Manager Panel

Program Elements

- Which MF programs are most important? Which are less significant and why?
- Can you say more about the goals by which you will measure your performance and key indicators of success?
- Do you have data from audits or otherwise about what you are interested in?
- Are there measures coming out of ETP?

IOU Program Manager Panel

Additional Questions

- Who funds the SPOC?
- We haven't heard much about the ES Portfolio Manger. How does that fit in? At the front end for identifying targets or at the back end as a source for participants?
- Do you currently use utility billing data to inform customer outreach and targeted marketing?

Regulatory Issues
Tory Francisco

Regulatory Constraints in the MF Sector – A Self-Reflection



Tory Francisco
Regulatory Analyst
Energy Division | Residential Programs
California Public Utilities Commission

This deliberative staff product does not constitute the opinion of the Commission.

Outline of Issues

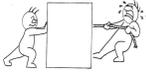
- 1) ESA Specific Program Rules/Culture
- 2) Misaligned proceedings/programs

- The 'Siloing' effect
- Misaligned Regulatory Issues
- Who's doing what?

Some Issues for the ESA Program Specific Rules/Culture

- Push/pull of reaching all willing to participant households by 2020 and having at least *some* effort to control costs.
- Three measure minimum – minimum 3 measures or cumulative deemed savings of 125kWh or 25 therms per household.
- Go-back rule – re-treating homes treated after 2002 currently disallowed.
- Regulated measure mix - Decision approves measures, not PIPs, nor PIP addendums. Proposed vehicles will ease new measure introduction – but the November 2014 ESA apps had no new MF measures...

Push and Pull




Some Issues for the ESA Program Specific Rules/Culture

- Engrained resistance to replacing costly central systems with ESA dollars in renter occupied dwellings.
- ESA contractors do the ESA work. Heavy resistance to property owner selecting own contractors for ESA work.
- ESA doesn't rely on DEER – perceived embro IOU resistance to DEER for LI.
- Each IOU has per-unit caps on measures. May differ by IOU and for different measures.






Misaligned proceedings/programs 'Siloing' effect

- Is feedback/lessons learned from MF HUP Pilots reaching ESA? Is ESA feedback reaching MIDI? Is this a formal process?
- Confusion amongst proceeding stakeholders. How can we formally connect stakeholders to promote awareness? Is the MF PCG 2 or an ESA MF Working Group a solution?
- EM&V efforts have historically been disconnected (although this workshop is evidence of more coordination!)
- Policy positions aren't conveyed uniformly, even within an IOU (in some cases, LI applications were developed with little or no mainstream EE input...)





Misaligned proceedings/programs Misaligned Reg Issues

- Issues in mainstream EE have little or no bearing in the ESA world – NTGR, HTR, to-code vs. above code, motivation towards a 1.0 TRC, fuel-switching 3-prong test, etc.
- Preponderance of Evidence – if MF is HTR, why do we need a separate document 'proving' that customer wouldn't have done a retrofit? We 'know' this from our EM&V efforts.
- REA – Retrofit add-ons. While this is a rule for custom programs, *if* this becomes policy for deemed measures – it could ding those programs.
- Cost effectiveness is all over the place with ACEEE/ stakeholders pushing for a unique MF C-E test. How can this be reconciled? Is this an R.13-11-005 issue or a A. 14-11-007 one?




Misaligned proceedings/programs Who's doing what?

- Who here is monitoring MF-centric ETP and EPIC projects/efforts?
- Where is the SPOC funded from? What's the position on whole-building data access? What about EPA portfolio manager?
- For the ESA Program 3 Measure Minimum rule: If a *building* receives 2 measures from ESA and 1 from MFEER, does that meet the rule? Why, why not?
- Stakeholders have proposed for ESA to pay partially (via a copay) for costly central systems. Isn't this just a LI-specific MFEER rebate then? Is that a bad idea? Can MFEER have a ESA funded 'adder' to increase the incentive but maintain (or increase) program cost-effectives?
- ESA has been coordinating with CSD's LIHEAP/WAP for years. CSD has \$75 Million for 20+ unit MF buildings. How are the IOU programs going to leverage this?
- Why no new MF measures in the 11/2014 ESA apps? No new copay ideas? Were MFEER/MF HUP folks consulted?

Thank you!

(and thanks to my sponsor)



Tory Francisco
tnf@cpuc.ca.gov
 415-703-2743

96



Discussion and Q&A



**Preview of Goals and Agendas for
Contractor and Stakeholder Workshops**
Ingo Bensch and Caroline Chen



Workshop	Date	Goal
Contractor	September 16 San Diego	Obtain feedback from key contractors on MF program approaches, structure, and implementation plans <ul style="list-style-type: none"> • identify issues and challenges to be overcome • receive suggestions
Stakeholder	October 14 Los Angeles	Obtain input from stakeholders on program approaches and structure <ul style="list-style-type: none"> • identify concerns, strengths, weaknesses • receive input and/or suggestions



Wrap up
Caroline Chen and Ingo Bensch



Thank you!

Safe travels!

Additional Workshop Summaries

Key Insights Needed from the Process Evaluation

Prior to the workshop, program managers were prompted to think about the key questions that they would like to get answered by the study. All three IOUs were curious about how they could best motivate multifamily property decision makers and how they could coordinate across programs in order to encourage participation in their offerings. The questions reported by each IOU are shown below:

SCE

- What skills and trainings do contractors need to fill the role of SPOC?
- Which property types are well served by the current approach or the proposed approach?
- Given the new strategy to target and serve property managers, what types of changes can be expected in terms of program participation and savings?
- How can coordination with partner utilities (gas and water) be improved?
- What resources exist to identify opportunities for higher market penetration (market size, locations, housing stock and potential, etc.)
- What are the limitations of the proposed approach and how can they be overcome?
- How can cross-program coordination be most effective? What can be done to reach additional property owners and tenants for more comprehensive treatments?

SoCalGas

- What drives multifamily decision makers to participate?
- What is the best path to motivate retailers and installers?
- What impacts property owners' decisions to work with the SPOC?
- At what point do property decision makers want to be contacted and what do they want to be contacted about?

SDG&E

- What is the best way to market to property management firms, corporate investors, and individual investors?
- What is the most effective and efficient way to work with ESA? How can ESA and MFEER best transition to using a common set of contractors that will work well going forward?

- Given the diversity of multifamily building types, how can they best develop program delivery models, incentives, and consistent packages of building upgrade measures that meet the needs of every situation?

Group Discussion / Questions and Answers

The last portion of the Program Manager Workshop consisted of a group discussion moderated by Evergreen. Evergreen prepared questions ahead of time and also integrated questions that came up in the presentation section of the day. The questions were grouped into the following categories:

- Market Actor Engagement/Barriers
- Training
- Other

We share the highlights of each discussion by topic below.

Market Actor Engagement/Barriers

For this section, we asked the following questions:

- Do you envision multifamily participants going forward to be mostly experienced or inexperienced with multifamily programs?

The general consensus among the IOUs was that larger property owners will be repeat customers and that more of the smaller property owners will participate less frequently. SoCalGas pointed out that mid-level owners are more likely to have been reached by contractors and non-utility entities.

- What are the major differences that will be noticed by implementers/owners/operators?

SDG&E used to have 18 contractors that sell SDG&E services, and now there is just one single contractor who serves as the SPOC with additional contractors that serve ESA only. SoCalGas will attempt to go deeper with customers. They expect this to involve needing additional information about the customer to understand their interests and to create an ongoing relationship with them. SCE plans to be the resource to answer customers' questions, validate the programs, and put customers in touch with the appropriate people.

- What data do you use for marketing and targeting?

One workshop participant mentioned the possibility of using billing data and energy intensity but noted that they cannot identify which accounts belong to an entire

multifamily property that may span several addresses. The regulatory representative added that the utilities could mine for accounts that were terminated and not yet renewed to find empty spaces (which would allow whole-building work to be done without inconveniencing tenants). SoCalGas mentioned the possibility of using the Tax Credit Allocation Committee of California to get information on the use of tax credits.

- What have you done to try and reach investors and higher level decision makers for portfolios?

The IOUs have tried a combination of cold calls, conference attendance, and referrals. At least two of the IOUs emphasized the importance of building relationships once able to get a foot in the door with larger portfolio managers.

- How do you hear back from contractors (feedback loop)?

SDG&E performs monthly calls with their contractors and also has quarterly check-ins. They also rely on calls from customers for feedback. SCE used to call customers whenever they received a completed application but stopped this exercise after receiving consistent positive feedback. They currently rely more on contractor quarterly reports and meetings, and notes from inspectors. SoCalGas relies on calls that go directly to the Program Manager.

- How do you track contractor performance?

The IOUs track performance by watching out for inspection failures and begin to investigate contractors more frequently if these failures become more common. Customer satisfaction is also part of the inspection process at SDG&E. The IOUs measure success by tracking progress towards their goal of 20 percent reduction in all multifamily properties in 2020 compared to 2008. They also have goals by total units, number of applications, and to have fewer discrepancies in inspection reports.

Training

For this section, we asked the following questions related to training needs:

- What skill gaps among implementers are you most worried about?

This varies from firm to firm. The regulatory perspective is that the challenge will be making sure contractors have the soft skills on energy education. SDG&E plans to combat this with quarterly soft skills trainings.

- What incentives exist for contractors to share information about other programs?

The general consensus is that there is no incentive to share information about other programs from the perspective of the implementer. The CPUC representative pointed out that in some cases there is disincentive, with ESA contracts forbidden from upselling tenants.

Other

For this section, we asked the following questions:

- What are the relative priorities among bubble chart program elements?

The lower priorities at this time were reported as Behavior Programs and Solar. SoCalGas emphasized the notion of the SPOC as a high priority.

- Where do you find new measures and how do you integrate them?

The IOUs referenced both internal processes (through their Emerging Technologies Program, etc.) and external processes (from vendors, at events) but SoCalGas reported that getting the savings that are needed is difficult. SDG&E said that this is often hit or miss and that many measures do not apply to the multifamily sector.

- How does the ENERGY STAR Portfolio Manager fit in? At the front end for identifying targets or at the back end as a source for program participants?

The ENERGY STAR Portfolio Manager is viewed as a tool for customers that could be used to identify new opportunities for both new and ongoing participants. The tool could be used to provide post-participation feedback on the energy benefit of the project. PG&E mentioned that there is another study being done on this tool.

Appendix B: Contractor Workshop Advance Call Materials

To prepare program contractors for a workshop and focus group on September 16, 2015, we held an advance call with them on August 21. This appendix contains the presentation delivered by the evaluation team and the SCE multifamily program manager on that call.



Contractor Focus Group
Pre-Focus Group Introduction Call

CA Multifamily Program Process Evaluation
August 21, 2015

Jose Buendia
Southern California Edison
Ingo Bensch and Martha Thompson
Evergreen Economics



Agenda

- Introduction and Background (10 mins)
- Program Design Needs (20 mins)
- Q/A from Contractors (20 mins)
- Wrap up and Focus Group Logistics (10 mins)



Welcome

- Quick review of our research/goals
- Introduction of team



Focus Group

We'll have questions for you at the Focus Group about how well you think this approach will work for you, for your customers, and for bringing additional customers through the program.

As Jose presents, please think about any additional information you'll need to react to these types of questions.



Multifamily Contractor Pre-Workshop
Program Vision & Process Evaluation Support

August 21, 2015

1

Objective

To provide an overview of the multifamily market segment, including the identification of opportunities and challenges.

Outline

- Market Segment Into and EE Goals
- Multifamily Market Characterization
- Key Industry Actors
- Market Barriers
- Best Practices
- Alignment of Timelines
- Multifamily Strategy

2 

Multifamily Market Segment



- Multifamily properties are one of California's largest segments which warrants additional attention and effort to motivate property owners and managers to actively participate in energy efficiency programs.
- Approximately 1/3 of residents live in Multifamily properties.

California Long Term EE Strategic Plan Goals

- By 2020, 100% of existing multifamily homes will have a 40% decrease in purchased energy from 2008 levels.
- By 2020, 100 percent of eligible and willing customers will have received all cost-effective Low Income Energy Efficiency measures

MF Market Characterization

- Approximately 32% of California's ESA eligible customers live in multifamily (5+) dwellings, per the 2013 Low Income Needs Assessment.
 - 6% Rent Assisted (Affordable Housing)
 - 26% Market Rate
- Large Property Operators
 - 46% of PGE units located in 9% of properties
 - 54% of SCE units located in 14% of properties
- Annual Energy Use
 - 11% of Building Energy Use (not including industrial)
 - Approximately 24% of all residential energy use (includes 2-4 unit buildings)
- Vintage
 - Over 70% of California's existing multifamily buildings were constructed before there were efficiency standards (pre-1978).

Source: 2010-2012 MF Market Characterization & 2013 LI MF Segmentation Study by Cadmus Group

Key Industry Actors

- Property Owners
- Property/Facility Managers
- Architects & Engineers
- General Contractors
- Real Estate Brokers
- Lenders, Financial Brokers, Underwriters

Recognized Multifamily Market Barriers

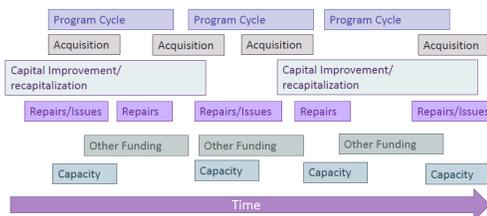
- Economics of Split Incentives
- Lack of knowledge and low priority of EE
- EE benefits may be difficult to observe; access to capital and low ROI
- Hassle of dealing with multiple contractors and site visits
- Time burden for tenants/owners; impact on rental income
- Strategic investment versus replacement at burn-out
- The variety of building stock and ownership types
- Building owners find it time consuming and daunting to sort through the range of EE programs

Best Practices

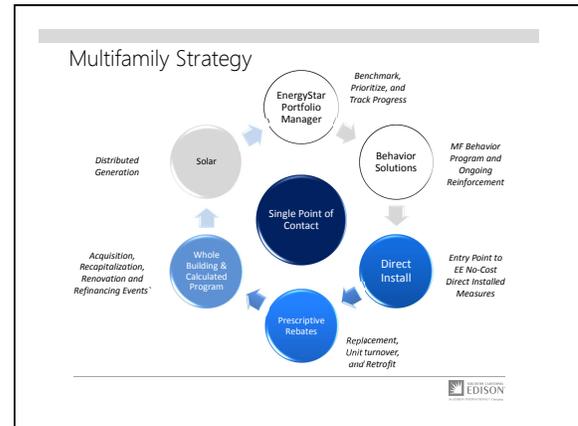
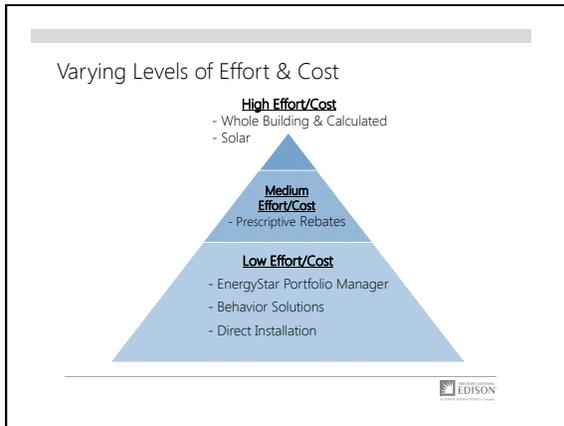
- Provide a one-stop shop for program services
- Integrate direct installation and rebate programs
- Serve both low-income and market-rate MF households
- Streamline rebate and incentivize in-unit measures to overcome split incentives
- Coordinate programs across electric, gas and water
- Provide escalating incentives for achieving greater savings levels
- Partner with local MF housing industry
- Offer multiple pathways for participation to reach more buildings

ACEEE Report Number E13N

Alignment of Timelines



Source: Amy Dryden, Build it Green



Questions



July 7, 2015 11 EDISON

Questions?

We'd like questions from contractors about what you heard from Jose.

- Do you have any clarifying questions about the overall strategy and plan?
- What additional information do you need to react (at the Focus Group) to questions related to the new approach and how it will work for you and your clients?

EDISON

Focus Group Topics

Key Research Questions

- What does participation and success look like from contractor POV?
- What are keys to decision maker engagement?
- What is working with the existing programs?
- Are you happy with level of communication/coordination?
- What do you think are the strengths/weaknesses of new program approach? What is the key to success of this new approach?
- What do contractors need to do/what support do they need to effectively act as a single point of contact?

What questions can we answer for you now so that you are prepared to answer these questions at the Focus Group on September 16th?

EDISON

Questions from Contractors?

In addition to the questions asked now, you can also submit questions/concerns/ thoughts independently by 8/31 to have them addressed at the Focus Group session on 9/16

Send to thompson@evergreenecon.com
Or call 510.899.5558

EDISON

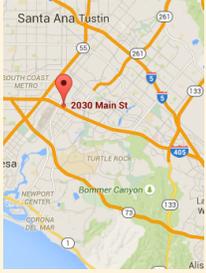
 **Focus Group Details**

When: Wednesday September 16th, 2015 9:00 AM to 11:30 AM

Where: Fieldwork, 2030 Main St, Suite 300, Irvine, CA, Room 1 (Wells Fargo Bank Bldg)

What: 1.5 hour guided discussion facilitated by Evergreen and 1 hour group discussion with IOU staff

Snacks provided and parking reimbursed



19

 **Contact for Additional Questions**

Or if you have trouble finding the location on the day of...

Martha Thompson
thompson@evergreenecon.com
510.899.5558

20

 **Thank You**

Thank you for taking the time to help us with this research.

We look forward to seeing you on September 16th!

21

Appendix C: Data Collection Instruments and Related Methodological Information

This appendix includes data collection instruments and other methodological information for this study's:

- Program manager workshop
- Contractor workshop and focus group
- Large portfolio decision-maker interviews
- MFEER participant survey
- Laundry study
- Training investigation

Program Manager Workshop

The program manager workshop consisted primarily of presentations by IOU program teams, representing both the multifamily and low-income program groups. In lieu of a data collection instrument, we created a template for the program teams to follow to ensure consistency across presentations. Those templates are included below.

Multifamily Programs Presentation Template



Utility-specific implementation
SDG&E: De De Henry
SCE: Jose Buendia
SCG: Hugo Gonzalez

Program Operations, Customer/Contractor Perspective, and Overarching Goals

Note to presenters: Each IOU will have 25-30 minutes total to present (includes both MF and LI components) and then we will have time for 5-10 minutes of Q&A.



Individual Utility Presentations



Requested content:
What does utility plan to do?
How do plans differ from current approach?

- Energy Star Portfolio Manager
- Behavior Solutions
- Direct Install
- Prescription Rebates
- Whole Building & Calculated Program
- Solar
- Single Point of Contact

Note to presenters: In your presentation, please share brief descriptions of your programs (name, size, and role) and indicate whether/how they relate to the components of the chart above.



Individual Utility Presentations

Operational Questions	2015 (example content)	2016 and Beyond (example content)
Number and types of participating property owners/managers served (annually)	About 50	No specific goals yet
Number and types of buildings served (annually)	150 buildings, mostly mid-sized	Some # of buildings, but want to serve more large buildings
Program budget	\$2,500,000 annually	Same
Who are the property decision-makers you typically work with?	Property management firms (2/3 of the time), corporate investors, individual investors	Expect to work more with corporate investors and property management firms that serve large buildings
Who implements and supports the program? How does that work?	See program flow chart – in-house program manager and staff work with program implementers X and Y, who maintain a network of 10 independent raters and 50 pre-qualified contractors (mostly lighting installers)	Our new model will comprise 10 independent raters who serve as the SPOC and engage lighting, HVAC, and other relevant contractors as needed.
How does coordination work between market rate and low income programs?	Meetings every X weeks between Y & Z in person.	Meetings and report submitted on X day of month, information sharing continues.
How many implementers and allies are there?	See above	See above
When are significant program change set to occur?	See above	See above

Note to presenters: Please include information on all of the "operational questions" listed here for both the current programs and your anticipation for the next few years. The entries above are made-up to give you a sense of the level of detail that might be useful.



Individual Utility Presentations

Customer/Contractor Experience	2015 (example content)	2016 and Beyond (example content)
What does participation look like from the customer perspective? What do you think motivates them to participate?	Reductions in owners' operating costs; some features serves as great or comfortable to increase tenant retention.	Same
What does participation look like from the contractor perspective? What do you think motivates them to participate?		
How do multifamily owners and operators (or other decision-makers) generally get connected with the program?	1/3 are repeat participants; 1/3 find us; 1/3 are proactive outreach by program contractors	Expect more repeat participants
Does the program direct implementers and installers to any particular training resources or program information? If so, what?	We maintain a website for contractors that provides program details (mostly eligibility and administrative information). Contractors are on their own on technical and marketing training, but we market energy center courses and events to them.	We are still figuring this out and would be interested in input from the process evaluation.
What kind of outreach do you do?	Large accounts: Account executives makes annual visit, calls quarterly. Other market rate: web and bill inserts.	Continue the same, but add follow-ups from implementation contractors after a project is completed. Make a push through account executives to encourage use of Energy Star Portfolio Manager.



Individual Utility Presentations

Major Takeaways	(example content)
What is the most important thing you need to learn from the process evaluation?	Our new approach relies more heavily on raters to serve as the single point of contact. We need to know whether our current raters are well-equipped to market the entire program, interested in doing so, and bought into promoting the use of Energy Star Portfolio Manager.
What else is important to know about your program?	Our program is tightly coordinated with our partner utilities and generally promoted together.



Individual Utility Presentations

What does the program look like from the perspective of the MF owner / operator?



- How does a potential program participant find out about it?
- What do they hear?
- With whom do they engage?
- What do they need to do to explore it?
- What happens then?
- What do they get out of participation?
- Then what?

Note to presenters: In your presentation, please include an explicit description of the way your MF program appears to MF owners/operators, addressing the parameters listed to the right of the picture.

Low Income Programs Presentation Template



Utility-specific implementation
SDG&E: Sandra Williams
SCE: Davi Ibarra, Roberto Del Real
SCG: Mark Aguirre, James Ozenne, Emma Ponco

Program Operations, Customer/Contractor Perspective, and Overarching Goals

Note to presenters: Each IOU will have 25-30 minutes total to present (includes both MF and LI components) and then we will have time for 5-10 minutes of Q&A.



Individual Utility Presentations



Requested content:

What does LI group plan to do?

How do plans differ from current approach and from MF Program?

- Energy Star Portfolio Manager
- Behavior Solutions
- Direct Install
- Prescription Rebates
- Whole Building & Calculated Program
- Solar
- Single Point of Contact

Note to presenters: On this slide, please describe the programs you offer for MF buildings (including program name, size, etc.). As relevant, please describe any of the program elements/concepts on this figure that your program (current or envisioned) addresses.



Individual Utility Presentations

Operational Questions	2015 (example content)	2016 to 2020 (example content)
Number and types of participating MF property owners/managers served (annually)	About 25 PMs and 2 LI Housing Orgs	No specific goals yet
Number and types of MF buildings served (annually)	180 units	190 units
Program budget (specific to MF)	\$X, but also includes Y	Same
Who are the MF property decision-makers you typically work with?	Property management firms (2/3 of the time), corporate investors, individual investors	Expect to work more with corporate investors and property management firms that serve large buildings
Who implements and supports the MF program components? How does that work?	In-house program manager and staff work with program implementers X and Y, who maintain a network of 10 independent raters and 50 pre-qualified contractors (mostly lighting installers)	Our new model will comprise 10 independent raters who serve as the SPOC and engage lighting, HVAC, and other relevant contractors as needed.
How does coordination and integration work between market rate and low income programs?	Leads received from MF Program are handed to LI staff, jointly administer X.	
How many implementers and allies are there (specific to MF)?	See above	See above
When are significant program change set to occur?		

Note to presenters: Please include information on all of the "operational questions" listed here for both the current programs and your anticipation for the next few years. The entries above are made-up to give you a sense of the level of detail that might be useful. Please focus on the multi-family components of your efforts.



Individual Utility Presentations

Customer/Contractor Experience	2015 (example content)	2016 to 2020 (example content)
What does participation look like from the customer perspective? What do you think motivates them to participate?	ESA addresses both MF and SF buildings. Outreach is mostly through community-based organizations, neighborhood canvassing, and general utility communications through bill stuffers (to all customers) and on the utility web site.	Same
What does participation look like from the contractor perspective? What do you think motivates them to participate?		Expect more community orgs
How do multifamily owners and operators (or other decision-makers) generally get connected with the program?	1/3 through community orgs; 1/3 find us; 1/3 are proactive outreach by program contractors	We are still figuring this out and would be interested in input from the process evaluation.
Does the program direct implementers and installers to any particular training resources or program information? If so, what?	We maintain a website for contractors that provides program details (mostly eligibility and administrative information). Contractors are on their own on technical and marketing training, but we market energy center courses and events to them.	
What kind of MF specific outreach do you do?	Focus on tenants through community-based organizations.	Continue the same, but add follow-ups from implementation contractors offer a project is completed. Make a push through account executives to encourage use of Energy Star Portfolio Manager.



Individual Utility Presentations

Major Takeaways	(example content)
What is the most important thing you need to learn from the process evaluation?	We would like to understand who is best equipped to be the SPOC and what groups would need various levels of training
What else is important to know about your program?	Our program is highly coordinated with our partner utilities and generally promoted together.



Individual Utility Presentations

What does the program look like from the perspective of the MF owner / operator?



- How does a potential program participant find out about it?
- What do they hear?
- With whom do they engage?
- What do they need to do to explore it?
- What happens then?
- What do they get out of participation?
- Then what?

Note to presenters: In your presentation, please include an explicit description of the way MF aspects of your program appears to MF owners/operators, addressing the parameters listed to the right of the picture, as applicable.

Contractor Workshop Discussion Guide

Multifamily Process Evaluation Contractor Workshop: Focus Group & Group Discussion Moderator Guide for September 16, 2015

We will conduct the workshop in two parts. The first will be an hour and a half in the style of a traditional focus group, with contractors in the main room, and IOU staff behind the mirror. During the last hour, IOU staff will join contractors in the main room in order to facilitate a direct discussion. Ingo Bensch will moderate the focus group. Martha Thompson will facilitate the group discussion.

Focus Group Portion

Getting started (15-20 mins)

Introductions & ice breaker

Prep: Have table tents for all participants available.

Have three visuals posted on a wall and colored stickers available for the introductions. The first visual will be the "bubble chart." The second will be a list of the existing MF and LI programs (MFEER, MIDI, ESA-common areas, ESA-unit direct install, EUC, non-utility programs). The third will be a list of customer types (1-housing agencies/HUD, 2-owners of large, privately held portfolios, 3-property managers within large, privately held portfolios, 4-owners of medium portfolios, 5-property managers within medium portfolios, 6-owners/managers of individual buildings, 7-tenants, 8-other).

Moderator: Introduce self and then go around the room to have each person state:

- name
- affiliation
- role with company
- the elevator speech he/she might give when describing what the company does for multifamily owners, operators, or tenants (limited to 20 seconds)
- a unique fact about him/herself

[Only if the group seems tense or uncomfortable, add an ice breaker. Could be to add the following as a fourth question for the second go-around: What would you most like to be able to report to the utilities in an annual report about your work with their multifamily customers.]

Moderator: Go around the room again and get the following information for each company represented:

- what aspects of the bubble chart they currently are engaged with
[Moderator instructions: Put a sticker representing each participant's company on a large printed "bubble chart" so we have an overview of what companies are engaged in which bubbles]
- what programs they currently interact with regularly
[Moderator instructions: Put a sticker representing each participant's company on a large printed list of MF programs]
- what types of customers they generally work with on MF efficiency program activity
[Moderator instructions: Put a sticker representing each participant's company on a large printed list of customer types]

Purpose & Guidelines

As many of you know, this effort is part of a larger program evaluation that Evergreen is conducting for the California Investor Owned Utilities. The overarching goal of the evaluation is to provide feedback to the IOUs that will help them move forward and improve their multifamily programs. As you recall from our pre-workshop call, the utilities would like your feedback and thoughts on several potential components of the multifamily program of the future, such as the idea of a single point of contact and the goal of getting to do *more* with each customer and reaching a larger number of customers. Today we really want to ask questions that will help us understand your thoughts, suggestions and concerns about the direction the utilities are thinking of going.

Before we dive in we would like to set up some rules and guidelines to make sure we can get through this as efficiently as possible and be respectful of the time you guys were generous enough to give us today.

1. There are no wrong answers. Each firm is slightly different and we want to get perspectives from everyone.
2. We appreciate your candor and frankness. The utilities would not have asked us to run this workshop if they already had all the answers. You are an important part of the process of helping the utilities define how the multifamily programs will work in the future.
3. We would like everyone to participate. One of my jobs is to make sure we hear the broad range of thoughts and perspectives, while also staying on track to cover the questions we have. So, I may call on some of you, especially if I haven't heard from you in a while. I may also stop a particular conversation if we need to move on to stay on track. Please don't take any directing of traffic I do personally. I am just facilitating the conversation.
4. Please speak only one person at a time.
5. At one or two points, we will ask you to write down a response to a question. In those cases, we will keep your identity confidential. In fact, I might not even know who submitted what response.
6. We will be tape recording the group but this is only for our note taking purposes. We will not post the video in any public location!

Also, I should be clear that we have some observers from the utilities behind the glass here. I will be directing the questions and facilitating our conversation. But, the utility program representatives value your thoughts and don't just want a report from us after the workshop. They want to hear your thoughts. For the first hour-and-a-half of the workshop, I will moderate a focus group. After that, we will have a group discussion in which the utility program managers will participate. Does anyone have any questions?

Parking Lot

Prep: Have an easel or white board available as a parking lot for issues to be addressed later.

Also, you will see that we have a big note sheet labeled “parking lot.” That is for any topics or questions that come up that we can’t address during the focus group portion of the workshop. For example, you might ask me a question that I can’t answer. We will put those kinds of topics in the parking lot and address them during the group discussion or separately thereafter.

Overall reaction (2-5 mins)

Prep: Have a piece of poster board with the choices to the first two questions below written on them ready to display. Have index cards for every participant on hand.

The utilities have presented a vision for the direction they’d like to take the multifamily programs. I have specific questions about the program elements, the single point of contact idea, and going “broader and deeper.” Before we dive into those questions, though, let’s do a check-in on two higher level issues.

Since I will be asking you to comment on the utilities’ vision, it would help me to know just how well you feel you understand what they are thinking based on the preparatory call we had and any follow up after that. I have four statements written on the [easel / whiteboard]. By show of hands, please indicate if you think that:

- You understand what the utilities are trying to do and are in a good position to comment on that direction.
- You understand the general idea of what the utilities are trying to do, but there are some important gaps of information that might make it hard to comment. You need to hear a bit more.
- You got bits and pieces of the plan and will provide input as best as you can, but you’d need a lot more information

Now, please take the index card in front of you and write one of the following numbers on the card and then give me your card. Write a:

- 1 if you are skeptical of the proposed direction for the multifamily programs
- 2 if you are uncertain what to think of the proposed direction for the programs
- 3 if you think the proposed direction is a good one, but think success depends on the details
- 4 if you think the proposed direction is a good one and will improve the multifamily offerings for energy efficiency

Bubble chart (15-20 mins)

Prep: Have some space to take notes (or large post-its) at each circle in the bubble chart. Have copies of the bubble chart to pass out with boxes by each outer circle marked “probably,” “possibly,” and “unlikely.”

[Moderator instructions: Point to the bubble chart.]

Now let’s get your input on some aspects of the utility’s vision. You saw this bubble chart in the pre-workshop call. This chart is intended to show that the utilities would like to make the multifamily program more holistic and comprehensive, providing a fuller range of services to program participants. It also presumes that contractors work across program lines, by the way. I’d like to get your thoughts on getting to that fuller range of services. That could be through expansions of what you offer, partnerships you create, and maybe referrals or the utilities’ activities.

[Moderator instructions: Go around the room to ask each participant – begin with the companies that represent mostly MF EE programs and then move to the companies that work mostly on ESA/LI.]

What opportunities do you see to do more in one of these areas? Please identify the activity area you want to comment on and what you see as opportunities to do more there.

Probe: What challenges do you foresee?

What would the utilities need to do to make this happen / possible?

What would you need to do differently?

[Moderator instructions: Open it up for anyone who has additional thoughts.]

Let’s hear from anyone on additional thoughts you have about expanding the services offered to multifamily customers. Feel free to build on thoughts that people have expressed or give us additional thoughts on expanding the breadth of the program.

Probe if needed on:

- measures offered or measure eligibility requirements
- customer eligibility requirements
- delivery methods and processes
- utility administrative processes
- coordination across programs

Let’s think about this more narrowly for a bit. Consider which of these areas you would or might consider your business as a potential service provider and which areas would need to be covered in some other way. I am passing around paper copies of the bubble chart. For each bubble except for SPOC in the middle, please indicate whether you see your business as probably wanting to provide services to customers in three years, possibly, or unlikely. You don’t need to put your name on the sheet, but please do indicate whether you are currently primarily an ESA contractor, multifamily contractor, or both.

[Moderator instructions: If needed and time permitting, pick an area with no comments and invite participants to comment on what the utilities or they could do to increase activity in this area.]

SPOC (20 mins)

Let's move on to our next topic... The utilities realize that no single contractor is going to provide all the services on the bubble chart, but they would like the multifamily programs to be more of a one-stop shop. The vision is that customers get to have a single relationship with someone representing the utility programs and work through that person. In most cases, that would be a program contractor, although in selected cases it may be a utility customer service representative.

Did the concept make sense to you? *[Moderator Instructions: Get the sense of the group only; no need to ask individually.]*

What would that look like? *[Moderator instructions: Record models/approaches on white board or easel.]*

Probe, if needed: Who do you see being the single point of contact? How might that work? *[If needed, clarify that there could be hybrid approaches where different contractors operate as SPOC based on relationships or first contact.]*

Probe: What other thoughts do you have on what the single point of contact approach might look like?

What do you see as being the strengths of the SPOC approach (for the customers, contractors, utilities)?

What are the challenges with the idea of a SPOC?

Probe, if needed: Are there any aspects that concern you because you think they might not work or be difficult to do?

In a SPOC approach, would any particular kinds of customers and program participants receive more or less attention than they do right now? Who would get more attention? Who would get less attention?

This next question has two parts. If you were to serve as a single point of contact, what would you need to do differently and what would you need from the utilities to be effective in that role? *[Moderator instructions: Ask each company present if time allows unless answers repeat. Note responses on white board or easel.]*

In what ways would being a single point of contact complement or interfere with your business strategy? I don't want you to reveal any business secrets here, but would be interested to hear if you have any concerns about trying to be a single point of contact that you haven't already shared.

Going wider and deeper (20 mins)

One goal the utilities have for the multifamily programs is to go wider and deeper – that is, have each participating customer do more and to reach more customers. I'd like to get your insights and thoughts on how to get there.

Let's first focus on getting existing participants to do more. A lot of program activity is limited to a modest number of measures and just a few of the bubbles on the bubble chart. What would it take to do more with existing participants—to expand to a greater range of measures and more energy savings?

Probe: What do you need from the utilities to make this happen?

We'll stay on the topic of existing participants for a moment. The utilities would like to start filling in gaps in entire buildings when the focus is on tenant units. What strategies would you suggest (or have used in the past) to reach a greater number of tenants in buildings?

Probe, time permitting:

- What are the barriers?
- What could utilities do to support deeper activity in participating buildings?

What about the common areas? If you generally work with tenants, how do you reach the managers/owners who can make decisions about the common area measures?

Part of scaling up to go deeper and wider means reaching customers who serve a large number of buildings and units or just reaching more units. What strategies do you employ or suggest for reaching customers who can make decisions about a large number of buildings or total space?

Probe, time permitting:

- **What are useful data sources for finding portfolio decision makers, preferably when they are open to program participation?**
- How do the best approaches differ by type of building?
- By what characteristics do you distinguish between large portfolio owners and managers? What groupings do you use in your thinking about these customers?
- What are the best ways to reach each?

What are your thoughts about ways the program and you can scale up to reach more willing participants effectively?

How might trade allies who are serving multifamily buildings be engaged to drive more program activity?

Utility-specific feedback (10 mins)

Prep: We need a handout that has the following questions on it and a set of check boxes for each utility.

This next piece will be an anonymous written exercise. I would like you to think of the utility whose programs you work with the most. On the papers I am passing out, please check the name of that utility and then answer the questions on the page. This is your opportunity to provide feedback to that specific utility. Please be candid. We will not share anything you write with the other contractors present here and we will share the feedback with the utility only in aggregate. If you would like to provide feedback to more than one utility, please go ahead and fill out part or all of a second (or third) sheet. The questions on the sheets are...:

What are the main opportunities you see for this utility to achieve the overall goal of serving more MF customers and engaging them to go beyond the easy measures they currently implement?

What would you most need the utility to do differently so you could serve more customers or serve them deeper?

In what ways would the new model the utilities are presenting work well with your business model and strategy?

In what ways would the new model the utilities are presenting not work well with your business model and strategy?

What other feedback or suggestions do you have?

Transition Issues (10 mins)

Finally, I would like to ask a few questions to help inform the utilities' program design and considerations for a transition to a revised program approach.

What is already working well with the current programs and processes and should not be lost in any adjustments or transitions to new program approaches?

Probe, if needed: What are the benefits of the existing features/elements you would most want to continue?

Besides what you have already mentioned as a group, what is working poorly and would stand in the way of program success if continued?

Group Discussion – Approach

We plan to facilitate a discussion between the participating contractors and the program managers based on follow-up topics that the program managers or the Evergreen team identify during the focus group portion of the workshop. Questions that the program managers identify will have first priority. A member of the Evergreen team (Martha Thompson) will be present with the observers during the focus group and keep a record of topics the utility staff in attendance would like to revisit or explore further. Similarly, the Evergreen team (Ingo Bensch and Martha Thompson) will keep a record of topics of value for further

discussion. Martha will then moderate a group discussion about those topics among the contractors and the utility program managers.

Depending on the nature of the questions to be covered, the discussion could be held in one large group or in small groups or both. Small groups could be organized by utility (and the contractors serving the utility) or by programs served (market rate and low income).

We might also want to include the following questions in the discussion, which we had teed up for the focus group, but didn't fit well in the flow and within the time limitations:

Next, we'd like to hear what you think success looks like. Please think about three different perspectives: your perspective as a business, the customer's perspective, and the utility's perspective. How would you define success from the perspective of:

- your business?
- the customer?
- the utility?

Please share what insights you can share about how customers view the utility programs currently. What do you hear from:

- tenants?
- property managers?
- property owners?
- installation contractors?

Large Portfolio Owner / Manager Interviews

MEMORANDUM

Date: April 26, 2016

To: Multifamily Process Evaluation Study Team

Re: In-Depth Interviews with Large Portfolio Decision-Makers

We have prepared an interview guide for your review for the in-depth interviews we plan to conduct with large portfolio decision-makers for the Multifamily Process Evaluation. This memo presents background on the interviews and a draft interview guide. We welcome your comments and suggestions on the guide.

Background

As part of our research involving multifamily owners and operators, we are planning to conduct interviews with 10-12 decision-makers for large portfolios of multifamily buildings in southern California. We will recruit from a purposive sample of decision-makers nominated by the utility program managers. These nominations will be based on the program managers' knowledge of the major property owners and include both program participants and non-participants. We will recruit a mix of decision-makers from this list to include developers, property owners, and property management firms; program participants and non-participants; and firms with different geographic and market concentrations.

We hope that respondents will give us about an hour to complete each interview, but will offer to complete them in 45 minutes (or less) if needed to obtain participation.

We will employ a semi-structured approach using consistent questions to start a topic and allow for relevant probing by the interviewer based on responses. Responses will be analyzed qualitatively.

In our research plan, we had raised the possibility of including some closed-ended questions from the MFEER participant survey in these interviews for comparison purposes. We have not included any such questions in this draft, mostly because we anticipate that the interviewees' roles will be very different from the survey respondents and the focus of the conversations will differ substantially too (portfolio generally vs. building framed in the context of a particular retrofit project). Nevertheless, we are open to

adding a question or two from the participant survey if the study team feels this would be useful.

Overall, these interviews – *together with a survey of participants in the Multifamily Energy Efficiency Rebate (MFEER) program* – are intended to address (1) awareness and practices concerning energy efficiency and programs; (2) information sources used; (3) perceptions, experience, and satisfaction with existing services; and (4) drivers and decision-making factors that lead to efficiency-oriented actions.

We anticipate that our decision-maker interviews with operators of large portfolios will be with high-level managers and executives. In recognition of the interviewees' roles, we have designed the interviews to focus primarily on how energy considerations factor into their management of their portfolios, their participation in – and perceptions of – existing energy efficiency programs, and suggestions for program improvements. We explore suggestions and feedback both in an open-ended (unaided) way and with specific questions about areas of current focus for the utilities' multifamily programs (single points of contact and benchmarking). We also incorporate some questions about operator training and laundry equipment to inform our exploration of those two topics.

Draft Interview Guide

Introduction

- Thank interviewee
- Introduce self as working for an independent research firm hired by SCE, SCG, and SDG&E to provide input and insights for their multifamily energy efficiency programs
- Summarize project purpose (if needed)
- Explain that we are conducting about a dozen interviews like this with decision-makers for large portfolios of multifamily buildings, and our report back to the utility will aggregate what we heard.
- We appreciate candid and frank responses. Individual responses and comments will remain anonymous.
- Any questions before we begin?

Interviewee and Company Background (5 mins)

What is your title and role in your company?

- How long have you been in that role? With the company?

- On a typical workday, what do you spend most of your mental energy worrying about?

How would you describe your company?

- Is there a particular emphasis or approach that distinguishes your company or portfolio of properties?
- Do you fill a particular market niche?

Please tell me about your multifamily building portfolio.

- What share of your buildings is located in California? Southern California?
- How many buildings and units do you have in southern California?
- What kinds of buildings (size, age, class)?
- What kinds of tenants? (low income, working families, luxury-seeking, retired)
- Does your company have a dedicated sustainability manager?

(time permitting)

How much turnover or change do you have in your building portfolio?

- How much new construction?
- Acquisition or sale of existing buildings?

Energy Use (15-20 mins)

In the big scheme of things, how important is energy consumption in your buildings to your business?

- What building systems matter the most?
- Who pays for the building energy use, and does this vary across properties? What budget centers does the energy cost come out of?
- Does the energy consumption of your buildings affect vacancy, retention, or other tenant issues?
- How does the importance of energy consumption to your company compare to water consumption?

How does energy consumption factor in when you buy or specify new equipment (or designs for new construction or major renovations)?

- Who in your company recommends specific equipment and who approves the purchases?
- What criteria are used to approve purchases?
- Do you have any company policies on required efficiency levels?

Do you ever replace functional, operating equipment for the specific purpose of reducing energy consumption?

- When is it (or might it be) worth it to do retrofits or replace functional equipment to reduce energy usage?
- [if relevant and time permitting] When was the last time you did an equipment upgrade spurred by energy considerations? Tell me about that.
 - What did you do?
 - What prompted it?
 - Did you get financial incentives for the work or make use of any of the energy efficiency programs out there?

Do you review energy consumption at a portfolio level? building level? at all?

- Who reviews energy consumption?
- How do they track energy consumption, and how often?
- What are they looking for?
- How do you identify opportunities to save on energy costs?

Is there anything that hinders your ability to control energy consumption and cost?

Can you tell me a bit about the training your facility staff get or are expected to have?

- What energy management credentials or certifications are required for your building operators?
- Do they get training in house or externally (and if externally, from where)?
- How often do they need to re-certify or get more training?
- Do they get any training specific to system optimization or energy efficiency?

Energy Efficiency Programs (15-20 mins)

How well do you know the utility offerings available for energy efficiency in southern California?

What are your main information sources about the programs?

Have you participated?

(if participated)

- Which one(s)
- What have your experiences been?
- What has been good?
- What could be improved?

(if not participated)

- What do you think of these programs?

(time permitting, if respondent has a regional / national perspective)

- How do the programs compare to other parts of the country you work in?

Suggestions-unprompted

The California utilities are making some adjustments and improvements to their multifamily energy efficiency programs, and they would be interested in your input.

If you could make one suggestion for how they could better support your efforts on controlling energy consumption and cost, what would it be?

Probe as needed to understand the need the interviewee is expressing and the opportunity for utility programs to address that need.

Do you have a second suggestion you would make?

Suggestions-Prompted

Next I'd like to run some specific approaches by you that the utilities think will improve their program offerings. We'd be interested in your thoughts about that.

*First, currently, the utilities energy efficiency programs tend to involve multiple contractors and utility staff. The utilities would like to provide more of a **single point of contact** to multifamily customers for a better experienced for customers, a more relationship-based approach to their energy efficiency programs, and less duplication. [Reviewers: We are interested in any feedback you have on how to best present the goals and benefits of a single point of contact for portfolio managers.]*

How would you envision a single point of contact working with your company and portfolio?

- What do you think of the idea?
- With whom should the utility or program representatives be staying in touch at your company when there isn't a specific project in the works?
- With whom would you (your colleagues) most like to interact – an account manager at the utility, a technical expert from one of the firms that provides the program's efficiency services, or a third party technical consultant ... or someone else entirely?
- Would you want that program contact to help you identify efficiency opportunities, or do you have that fully under control internally?

Second, there may be some opportunity for utility programs to help portfolios identify their more and less efficient buildings using ENERGY STAR Portfolio Manager.

[Modify if Portfolio Manager mentioned as tracking tool earlier]

Does your company already use ENERGY STAR Portfolio Manager to benchmark buildings and track your energy consumption?

[if yes]

- Tell me more about that.
- How do you use it? Portfolio-wide or more selectively?
- For what purpose?
- How is it going?

[if no]

- Have you ever looked into it?
- How familiar are you with Portfolio Manager?
- What was your assessment of it?

In what ways, if at all, could utilities help building owners and operators like you better track the energy performance of their buildings through ENERGY STAR Portfolio Manager or some other means?

- What would that assistance look like?
- What would you most want or need to find out about building energy performance that you don't already know?

Laundry (5 mins) (if time allows)

How are common area laundry systems generally set up in your buildings?

- Do you own common area laundry equipment or use third-party leasing companies? Or some mix?
- Who ultimately pays for the equipment? maintenance? the energy costs to operate the machines? the water?

Can you tell me more about the equipment in place in your common areas?

- How old does it tend to be?
- How often does it get replaced?
- How would you characterize the energy and water efficiency of the equipment? Based on what metrics / how do you know?
- What are the main barriers to using the equipment with current top-of-the-line efficiency?

Closing

Those are all the questions I have. Do you have any other thoughts or suggestions you would like to pass along to the utilities about their energy efficiency programs?

Thank you!

Summary of Large Portfolio Interviewees

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 properties 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. 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 property services.¹ 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.²

¹ 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.

² The sample that was provided did not distinguish participants from non-participants.

MFEER Survey

Survey Instrument

Multifamily Process Evaluation 2014-15 MFEER Participant Survey Version 3

Hello, my name is [INTERVIEWER NAME] from CIC Research, and I'm calling on behalf of [FULL UTILITY NAME], your local utility. [ABBREVIATED UTILITY NAME] wants to learn about your recent experience with the Multifamily Energy Efficiency Rebate Program. Our records show that you participated in the multifamily rebate program in [MONTH, YEAR] at your property at [SERVICE ADDRESS FROM SAMPLE] May I speak with the person who made the decision to participate in the multifamily rebate program at that location?

[WHEN A SITE CONTACT NAME IS AVAILABLE] Our records show [SITE CONTACT] as having been involved in the project.

[AS NEEDED, REINTRODUCE]

Our records show that you installed [MEASURES] at your property on [SERVICE ADDRESS STREET NAME] using [CONTRACTOR NAME]. Are you the person who could answer some questions about that project and that property? This survey should take about 15 minutes of your time. Is this a good time for you? [ARRANGE CALLBACK IF NECESSARY]

I. CHARACTERISTICS OF PROPERTY/RESPONDENT

I want to start by asking you some general questions about the property at [SERVICE ADDRESS STREET NAME] where you participated in the Multifamily Energy Efficiency Rebate Program.

I.1 *First, does your company own this property, manage it, or both?

1. Owns only – does not manage
2. Manages only – does not own
3. Owns and manages this property

I.2 And what is your job title?

I.3 *How many units are there at the [SERVICE ADDRESS STREET NAME] location? Please include the entire complex even if some of the buildings have a different street address.

_____ units

I.4 *And at how many other locations do you own or manage multifamily property in California?

_____ other locations

I.5 And in total about how many units are there at those other locations?

_____ units
999. Don't know

I.6 *Would you describe the *majority* of tenants in this building as...? (READ CHOICES)

1. High Income
2. Middle Income
3. Lower Income
4. Other (SPECIFY) _____

I.7 *Who pays the electric bills for *in-unit* electricity usage at this property? Is it...? (READ CHOICES)

1. the tenants
2. you (the property owner or manager)
3. a mix of both
4. other (SPECIFY) _____

I.8 *Who pays any natural gas bills at this property? Is it ...? (READ CHOICES)

1. the tenants
2. you (the property owner or manager)
3. a mix of both
4. there is no natural gas service
5. other (SPECIFY) _____

II. HIGH LEVEL DECISION MAKING

Now I'd like to find out more about when you *typically* replace energy using equipment for the property on [SERVICE ADDRESS STREET NAME].

II.1. First, for lighting, do you typically replace equipment: (READ CHOICES)

1. When the equipment is near the end of its useful life, but is still functioning
2. When the equipment fails
3. Based on a set schedule
4. When you see an opportunity to save money by installing new equipment
5. Based on some other consideration (SPECIFY) _____

II.2. For heating and cooling equipment, do you typically replace equipment: (READ CHOICES)

1. When the equipment is near the end of its useful life, but is still functioning
2. When the equipment fails
3. Based on a set schedule
4. When you see an opportunity to save money by installing new equipment
5. Based on some other consideration (SPECIFY) _____

- II.3. For windows, door, insulation, and other parts of your building envelope, do you typically replace or upgrade building components: (READ CHOICES)
1. When they are near the end of their useful life, but still functioning
 2. When the components fail
 3. Based on a set schedule
 4. When you see an opportunity to save money by installing new building components
 5. Based on some other consideration (SPECIFY) _____

Next, I'd like to get a better understanding of how your organization decides to go ahead with equipment replacement or upgrades involving lighting, HVAC equipment, and other systems that affect the building's energy usage.

- II.4. First, who generally identifies opportunities or needs to upgrade the building or replace equipment? (READ CHOICES ALLOW MULTIPLES)
1. yourself
 2. other staff
 3. owner
 4. Contractor
 5. Utility program representative
 6. Outside consultant or auditor
 7. Building inspector
 8. Other (specify) _____
- II.5. When buying energy-using equipment, what sources of information do you consider **the most reliable and trustworthy**? [DO NOT READ. PROBE FOR "ARE THERE ANY OTHERS" UNTIL 3 RESPONSES REACHED, BUT ACCEPT LESS THAN OR UP TO 3 RESPONSES.]
1. Internal maintenance staff
 2. Our regular installation contractor
 3. An outside installation contractor we may hire or consult with occasionally
 4. Equipment distributors/ wholesalers
 5. Equipment manufacturers
 6. Equipment dealers/ retailers
 7. Apartment/trade associations (presentations and newsletters)
 8. Our electric or gas utility representative
 9. Our electric or gas utility website
 10. Our own research on the Internet
 11. Retailer salesperson referral (on floor of retail store)
 12. Other (SPECIFY) _____
- II.6. Why do you trust that source/those sources more than others?
- _____
- II.7. Is there a formal process for evaluating projects? For example, do you present a proposal to the owner, a board, or a committee for approval?

1. yes – specify: _____
2. no

II.8. Aside from yourself, who is typically involved in making the decision to go ahead with a project? (DO NOT READ; CHECK ALL THAT APPLY)

1. Owner
2. Board or committee
3. Maintenance/engineering staff
4. Building manager
5. Tenants
6. No one else
7. Other (specify) _____

III. OVERALL ROLE OF ENERGY EFFICIENCY IN PURCHASE DECISIONS

I'd like to ask a few questions about the importance of various factors in your equipment purchase decisions.

III.1. Using a scale of 0 to 10 where 0 means Not at all Important and 10 means Very Important, how important is each of the following factors in motivating you to go ahead with a project that affects energy use of your buildings?

[RANDOMIZE THE ORDER] [RECORD RATING FOR EACH]

1. Tenant satisfaction
2. Needing to replace failed or failing equipment
3. Saving energy
4. Reducing owner operating costs
5. Reducing tenant utility costs
6. Increasing the value of your property
7. Doing the right thing for the environment
8. Meeting code requirements
9. Availability of rebates

III.2. *Again, using a 0 to 10 scale where 0 means Not at all Important, and 10 means Very Important, how important is it to your tenants that you have high efficiency equipment in your: [RECORD RATING; -96= N/A for those who do not offer the equipment]

1. Common areas
2. Individual units

III.3. How often does your organization send building operations staff to third-party training in building systems and operation? Would you say this happens...? (READ CHOICES)

1. never
2. infrequently
3. sometimes
4. regularly

- III.4. [If III.3 = 3 or 4] Is there a particular training topic that would be particularly useful for you or your building staff?
1. (topic) _____
 2. no
- III.5. Earlier, you mentioned your main trusted sources of information when buying equipment. What information source would you trust most for information specifically on energy efficiency? [DO NOT READ; CHECK ALL THAT APPLY]
1. Same information sources as for equipment generally
 2. Internal maintenance staff
 3. Our regular installation contractor
 4. An outside installation contractor we may hire or consult with occasionally
 5. Equipment distributors/ wholesalers
 6. Equipment manufacturers
 7. Equipment dealers/ retailers
 8. Apartment/trade associations (presentations and newsletters)
 9. Our electric or gas utility representative
 10. Our electric or gas utility website
 11. Our own research on the Internet
 12. Retailer salesperson referral (on floor of retail store)
 13. Other (SPECIFY) _____

IV. LAUNDRY EQUIPMENT INFORMATION

Now I'd like to ask a few questions about laundry equipment for the property at [SERVICE ADDRESS STREET NAME].

- IV.1. Which of the following best describes the laundry equipment at the property? Do you...? (READ CHOICES; ONE ANSWER ONLY)
1. provide washers and dryers in a common area of the building or complex
 2. provide washers and dryers in some or all tenant units (SKIP TO SECTION V)?
 3. provide laundry equipment both in common areas and in at least some units
 4. not provide any laundry equipment at the property. (SKIP TO SECTION V)
 5. Other (SPECIFY) _____
- IV.2. [If IV.1 = 1 or 3] Which of the following best describes who owns the laundry equipment in the common area? (READ CHOICES; ONE ANSWER ONLY)
1. The equipment belongs to the building owner
 2. We lease the equipment from a company that also manages the equipment for us
 3. The equipment was brought in by a company that owns and manages the equipment.
 4. Other (SPECIFY) _____

- IV.3. [If IV.2 = 2 or 3] Which of the following best describes your influence on decisions about when to replace laundry equipment?
1. I make the ultimate decision
 2. Someone else on the ownership or management team decides
 3. We decide together with a leasing company
 4. The leasing company decides
 5. Other (SPECIFY) _____
 9. Don't know
- IV.4. [If IV.1=1 or 3] How many washers do you have in the common area?
_____(number of washers)
99. Don't know
- IV.5. [If IV.1=1 or 3] How many dryers do you have in the common area?
_____(number of dryers)
99. Don't know
- IV.6. [If IV.1=1 or 3] What is the average age of the washer(s) in the common area?
_____(age of washers)
99. Don't know
- IV.7. [If IV.1=1 or 3] What is the average age of the dryer(s) in the common area?
_____(age of dryers)
99. Don't know
- IV.8. [If IV.1 = 1 or 3] We would be interested in your sense of how efficient the laundry equipment in the common areas is. Which of the following best describes those washers and dryers?
1. They probably use more energy and water than typical new laundry equipment.
 2. They are in line with standard new laundry equipment.
 3. They are particularly energy and water efficient, bearing the Energy Star symbol or other indicators of efficiency.
 9. You don't really know.
- IV.9. [if IV.1 = 1 or 3] Does the common area laundry equipment generally get replaced only when it fails or does it get replaced earlier?
1. On failure
 2. Earlier
 3. Varies / depends
 4. Other (SPECIFY) _____
 9. Don't know
- IV.10. [If IV.9 = 1, 2, or 3 AND IV.3 = 1, 2, or 3] Would you consider replacing your equipment sooner if it meant you could save on overall operating costs and help conserve resources?

1. Yes
2. No
3. Maybe
9. Don't know

V. SPECIFIC EXPERIENCE WITH PROGRAM

My next questions are specific to your participation in the multifamily rebate program. For these questions, please focus on your participation in [MONTH/YEAR] with the property on [SERVICE ADDRESS STREET NAME].

- V.1. Had you participated in the multifamily rebate program **with this building or complex** before your participation in [MONTH/YEAR]? If so, when? (Enter "No" or year)
1. Yes (ASK:) In what year? _____
 2. No
- V.2. [IF V.1 = 2 AND I.4 > 0] Had you previously participated in the multifamily rebate program **with other buildings or complexes**? If so, when? (Enter "No" or year)
1. Yes (ASK:) In what year? _____
 2. No
- V.3. *[IF V.1 = 2 AND V.2 = 2] Do you remember **when** you first heard about the multifamily rebate program? (Enter "No" or month or year if possible, otherwise, just year)
1. Yes (ASK:) Do you remember what month and year? _____
 2. No
- V.4. Do you remember **from whom** you first heard about the multifamily rebate program? [DO NOT READ; SELECT ONE ANSWER ONLY]
1. Contractor
 2. Tenant
 3. Apartment/ landlord/professional association
 4. Other building managers/owners
 5. Utility staff
 6. Utility program information (pamphlet, ad, website, etc.)
 7. Newspaper/Periodical ad
 8. Other (SPECIFY) _____
 9. Don't recall
- V.5. Now please think of the project on [SERVICE ADDRESS STREET NAME] in [MO/YR]. Was that project mostly about replacing the equipment for which you got a [UTILITY] rebate or was it actually a bigger project that was primarily about *other* building or equipment changes that were not rebated?
1. rebated equipment was main part of the project
 2. part of a bigger set of building changes
 3. other – SPECIFY: _____

9. don't know / don't recall
- V.6. Which of the following was the main driver behind installing the rebated equipment?
Was it to...? (READ CHOICES)
1. replace equipment that was aging or failing
 2. replace equipment that was not performing well for us
 3. save operating or maintenance costs
 4. improve the space
 5. other – (SPECIFY:) _____
- V.7. Whose idea was it to participate in the multifamily rebate program for this project?
[DO NOT READ]
1. you or someone on staff
 2. the contractor who did the work
 3. a contractor other than the one who did the work
 4. a consultant
 5. a utility representative
 6. someone else – (SPECIFY:) _____
- V.8. Now I'd like to ask you about your satisfaction with various aspects of your participation in the multifamily rebate program in [MONTH/YEAR]. For each of these, please tell me how satisfied you were, using a scale of 0 to 10, with 0 meaning "not at all satisfied" and 10 meaning "extremely satisfied." Let's start with . . . [READ ITEMS]
1. program information about how the program works
 2. *contractor work quality
 3. *equipment quality and performance
 4. ease of applying for the rebate
 5. length of time to receive the rebate
 6. *the program overall
 7. overall utility support of energy efficiency in multifamily buildings
- V.8a. [IF PROGRAM OVERALL OR OVERALL UTILITY SUPPORT <5, ASK:] You gave (item) a rating of (rating). Why were you dissatisfied with that?
6. _____
7. _____
- V.9. Aside from the rebates you received through the multifamily rebate program, what other services and rebates are you aware of that utilities provide for multifamily units to support energy efficiency?
1. None
- _____
- V.10. Now I'll read a list of types of assistance that [ABBREVIATED UTILITY NAME] might be able to provide to make your properties more energy efficient. Please tell me whether

you would find each one not at all valuable, somewhat valuable or very valuable. Let's start with . . . (READ ITEMS)

1. A single point of contact, where all program and energy efficiency information is available from one source
2. Energy audits
3. Technical assistance
4. On-bill financing
5. Rebates for additional energy efficiency measures not already covered
6. Technical training on building systems and energy efficient building operation

V.11. What other program offerings or services would you find valuable in helping you manage your properties?

VI. PLANS FOR ADDITIONAL EE ACTIONS IN NEXT 3-5 YEARS

Finally, I would like to ask about your plans for future energy saving actions either on your own or with utility program support.

VI.1. Over the next 3-5 years, would you say you are not at all likely, somewhat likely, or very likely to take additional energy saving actions at the property on [SITE ADDRESS STREET NAME].

1. Not at all likely
2. Somewhat likely
3. Very likely
9. DK

VI.2. [IF VI.1 = 2 or 3] And what kinds of additional energy savings actions are you most likely to take at this property? (DO NOT READ, CHECK ALL THAT APPLY)

1. Common area lighting or controls
2. Tenant unit lighting or controls
3. Building/common area HVAC or controls
4. Tenant unit HVAC or controls
5. Insulation/cool roof
6. Doors or windows
7. Common area laundry equipment
8. Tenant unit laundry equipment
9. Tenant unit appliances
10. Common area water heaters
11. Tenant unit water heaters
12. Solar
13. Energy storage/backup power
14. Usage reports/behavioral change
15. Energy audits, tune-ups, commissioning

16. Other (specify) _____

VI.3. [If I.4 > 0] Now, thinking about **all** the other properties that you manage in California, would you say you are not at all likely, somewhat likely, or very likely to undertake additional energy saving actions over the next 3-5 years,?

1. Not at all likely
2. Somewhat likely
3. Very likely
9. DK

VI.4. [IF VI.3=2 or 3] And what kinds of additional energy savings actions are you most likely to take at your other properties? (DO NOT READ, CHECK ALL THAT APPLY)

1. Common area lighting or controls
2. Tenant unit lighting or controls
3. Building/common area HVAC or controls
4. Tenant unit HVAC or controls
5. Insulation/cool roof
6. Doors or windows
7. Common area laundry equipment
8. Tenant unit laundry equipment
9. Tenant unit appliances
10. Common area water heaters
11. Tenant unit water heaters
12. Solar
13. Energy storage/backup power
14. Usage reports/behavioral change
15. Energy audits, tune-ups, commissioning
16. Other (specify) _____

VI.4. Do you have any final comments about how utilities could assist you in better managing energy use at your multifamily properties?

Thank you, those are all the questions I have. We really appreciate your time and cooperation.

Disposition Report

Table 1: 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.

Laundry Study

The laundry study component of this evaluation comprised data gathering from multiple sources, including:

- A literature review;
- Interviews with property management firms;
- Interviews with third-party laundry leasing companies;
- Analysis of MFEER participant data (methodology described in above); and
- Analysis of responses from large portfolio owners and operators (methodology also described above).

The **literature review** comprised an examination of a number of reports suggested by the Southern California IOUs and other reports found by the Evergreen team. A summary of the reports we reviewed can be found in Appendix E. This literature review informed the questions we asked and issues we explored in in-depth interviews with property management firms and laundry leasing companies.

To supplement survey and interview-based data collection for the larger study, we sought to conduct laundry-focused interviews with **property management firms** that have a large presence in the Southern California IOU territories. We identified ten interview targets

using a National Housing Council list of the 50 largest U.S. Apartment Managers (with screening for those serving Southern California) and other sources. We were only able to successfully recruit two interviews using this process, however, so the study's broader interviews of large portfolio decision-makers and survey of MFEER participants provided much of the insight we gained about the property manager perspective on laundry issues.

To understand the role and perspectives of **laundry leasing companies**, we interviewed representatives of three major laundry leasing companies that actively serve Southern California. The respondents varied in their roles within the firms and included:

- A direct sales manager with 20 years of experience (10,000 to 15,000 machines in just Northern California, 80 percent are apartments/condos)
- A company co-owner (3,000 machines nationwide, all size buildings, mostly older)
- A general manager with 20 years of experience (approximately 3,500 machines across California)

These interviews addressed the following research questions and topics:

Research Questions

- 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?
- What program design 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 companies? What incentive is necessary?

Topics

- Saturation of different equipment types
- Purchasing choices
- Opportunity for early replacement
- Efficiency levels of appliances
- Incentive needed to improve efficiency of appliances
- Interest in various program features (manufacturer or distribution rebate, appliance recycling, etc.).

Finally, we also conducted an unplanned ad hoc interview of representatives of the Stewards of Affordable Housing for the Future, who were exploring laundry opportunities concurrently.

Building Operator Training

Investigation of building operator training needs and opportunities for multifamily operators included:

- Review of Building Operator Certification (BOC) training materials and content;
- Interviews of representatives of the Northwest Energy Efficiency Council, which created and administers the BOC program;
- Interviews of Midwest Energy Efficiency Alliance program staff who ran a pilot version of the BOC training for multifamily operators; and
- A limited amount of secondary research into other training offerings for multifamily building operations with a focus on energy efficiency.

Appendix D: Laundry Equipment Efficiency

Equipment Efficiency

This section describes the various efficiency levels of commercial and residential washers and dryers that exist in multifamily buildings in order to understand what opportunities exist for increasing efficiency. In order to do this, this section outlines:

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

Efficiency Estimates by Market Actors for Machines Currently in Use

In this section, we focus on the efficiency estimates of existing washers and dryers found in our interviews with laundry leasing firms, large portfolio managers, and MFEER participant owner/operator survey respondents. There was a large range in the estimates among these market actors with regards to the efficiency levels of the washers and dryers in common area laundry spaces.

MFEER participants reported the lowest efficiency levels, estimating an average of 23 percent of their equipment to be energy efficient while leasing firms rated their equipment at 4.5 out of 5 on a scale of 'not at all' to 'very efficient'. A 2013 report estimated that 32 percent of commercial clothes washer units shipped in 2011 were ENERGY STAR qualified.³ Assuming that the actual efficiency levels are somewhere in this range, there is more room for energy efficient equipment in this sector. We explore these estimates in more detail as reported by each group of market actors.

Laundry Leasing Firm Efficiency Estimates

Both laundry leasing firms who were able to rate the energy efficiency of their clothes washers and dryers in our in-depth interviews reported that both were at the top of the energy efficiency scale (giving ratings of 4.5 out of 5 with 5 being the most efficient). For washers, energy efficiency was generally thought of in terms of front versus top loading.⁴ Two of the three laundry leasing respondents reported that dryers do not vary as much in

³ ENERGY STAR Unit Shipment and Market Penetration Report Calendar year 2011 Summary.

https://www.energystar.gov/ia/partners/downloads/unit_shipment_data/2011_USD_Summary_Report.pdf

⁴ In our literature review, we found that the multifamily sector (more so than laundromats) is most likely to have top loading washers (74%) according to the 2012 Bamezai study, although these results are four years old and many of these machines have likely been replaced.

their range of efficiency levels as do washers. Only one laundry leasing firm mentioned, unprompted, that they look for ENERGY STAR machines.

The laundry leasing companies we spoke with have greatly different experiences of how often their clients ask about laundry equipment efficiency. One respondent reported that about half of their customers inquire; the other said that very few do. The larger laundry leasing firm considers energy efficiency to be part of their corporate mission and regularly receives unsolicited bids from manufacturers for energy efficient equipment due to the large size of the company. According to one respondent, “cheap (building) owners” often buy non-efficient equipment from big box stores or from sellers on Craigslist, and thus the company focuses on purchasing more efficient equipment to use as a selling point to customers.

Laundry leasing companies reported having a hard time giving accurate estimates of cost savings to their clients. Without access to a client’s electric and gas bills, they are unaware of current spending levels, and how their spending could change. Despite challenges, the respondent from the larger laundry leasing firm said they do give a savings estimate and that providing it is a strong selling point. One of the smaller firms reported giving a choice between two or three machines when working on a lease agreement along with a rough estimate of the water savings for each unit. This was confirmed in one of the large portfolio manager interviews where they reported that they get options from the leasing companies between a lesser and more efficient option for machines.

Large Portfolio Manager Estimates

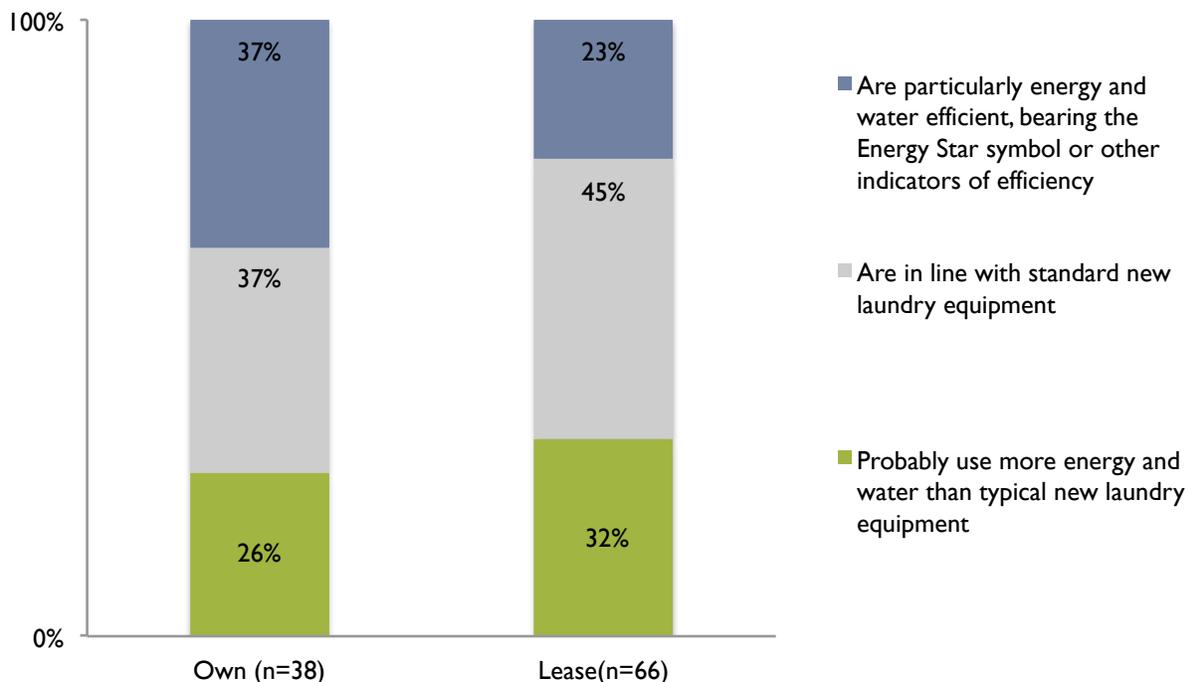
In the large portfolio manager interviews, we heard from six of the nine managers that they lease or buy energy efficient equipment most or all of the time. In a couple of cases, external motivators determined this. One portfolio manager clarified that they meet Title 24 specifications, and another noted that they are moving towards more efficient equipment because they pay for the utilities.

MFEER Participant Owner/Operator Estimates

The MFEER participant survey indicates that property owners and operators perceive the laundry equipment currently in multifamily building common areas to be of mixed efficiency levels, with substantial opportunity for improvement. These results differ from the large portfolio manager interviews and suggest that the equipment may not be as efficient as the large portfolio managers reported to be the case.

Our MFEER participant survey results show no statistically significant differences in self-reported energy efficiency levels of equipment by building size or ownership structure of the equipment (i.e., leased vs. owned laundry equipment), as shown in Figure 1.

Figure 1: Efficiency of Owned or Leased Laundry Equipment – MFEER Participant Owner/Operator Survey Respondents*



*NOTE: Of those who have Common Area Laundry, excludes don't know

Code Requirements for Washers and Dryers over the Past 10 Years

In this section, we review the past, current, and future efficiency standards for new purchases of commercial and residential washers and dryers in multifamily settings. Based on the results our market actor interviews, MFEER survey, and literature review, the majority of multifamily laundry leasing companies rely on commercial equipment, although smaller or higher-end multifamily complexes may include residential equipment in tenant units or in common area laundry rooms.

Beginning in 1980, the California Energy Commission (CEC) created efficiency standards for household appliances under Title 20. In response to recent Title 20 and federal standard updates, California adopted statewide efficiency regulations that are essentially equivalent to federal efficiency standards for multifamily laundry equipment.

Since 2007, the Department of Energy (DOE) has regulated the energy efficiency levels of commercial clothes washers and has continually provided updated efficiency standards for clothes washers and dryers to which manufacturers must comply. The latest federal standards were amended in 2013 and again in 2016 to outline future standards for commercial clothes washers manufactured in 2018.

Commercial Clothes Washers

The regulatory changes that have occurred at the federal level for commercial clothes washers are shown in Table 1 (energy factor) and Table 3 (water factor) and focus on increasing the modified energy factor while lowering the integrated water factor.⁵ Modified energy factor is a calculation in cubic feet per kWh, per cycle. As machines become more efficient, this number increases. The water factor is gallons, per cubic feet, per cycle. As machines become more water efficient, this number decreases. The DOE defines commercial clothes washers as soft-mounted front or top load clothes washers that do not exceed 3.5 cubic feet for horizontal-axis models or 4 cubic feet for vertical-axis models. The clothes washers must also be designed for “applications in which the occupants of more than one household will be using the clothes washer, such as multi-family housing common areas and coin laundries”.⁶

Table 1: Pre and Post 2013 Energy Factor Conservation Standards for Commercial Clothes Washers

Federal Standards (DOE)			
Product Class	Energy Factor January 1, 2007 to January 8, 2013 (ft³/kWh/cycle)	Energy Factor January 8, 2013 to January 2018 (ft³/kWh/cycle)	Energy Factor January 1, 2018 (ft³/kWh/cycle)
Top-Loading	1.26	1.60	1.35
Front-Loading		2.00	2.00

At first glance, Table 1 appears to show a loosening of – or no change in – minimum energy factors between the 2013 and the 2018 standards, but that direct comparison is misleading because test procedures for both residential and commercial clothes washers changed in 2015. In order to compare the energy factors over time, in Table 2 we present the 2018 energy factor using the J1 test procedure. The same information is shown in the form of a chart in Figure 2.

⁵ The modified energy factor is calculated by dividing the clothes washer capacity (ft³) by the total power consumption of the clothes washer (kWh/cycle). The water factor is calculated by dividing the gallons of water per cycle by the clothes washer capacity (ft³)

⁶

https://www1.eere.energy.gov/buildings/appliance_standards/standards.aspx?productid=9&action=view-current

Table 2: Pre and Post 2013 Energy Factor Conservation Standards for Commercial Clothes Washers - Using J1 Test Procedure

Federal Standards (DOE)			
Product Class	Energy Factor January 1, 2007 to January 8, 2013 (ft ³ /kWh/cycle)	Energy Factor January 8, 2013 to January 2018 (ft ³ /kWh/cycle)	Energy Factor January 1, 2018 (ft ³ /kWh/cycle)
Top-Loading	1.26	1.60	1.70
Front-Loading		2.00	2.4

Figure 2: Pre and Post 2013 Energy Factor Conservation Standards for Commercial Clothes Washers Using J1 Test Procedure

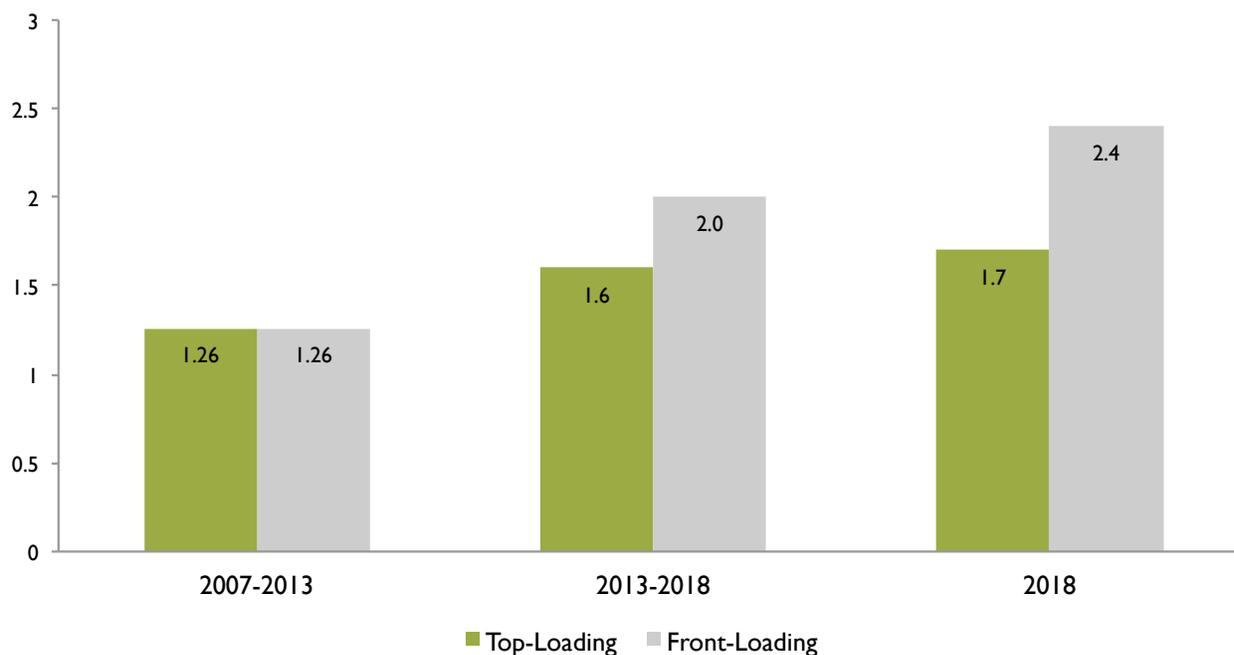


Table 3: Pre and Post 2013 Water Factor Conservation Standards for Commercial Clothes Washers

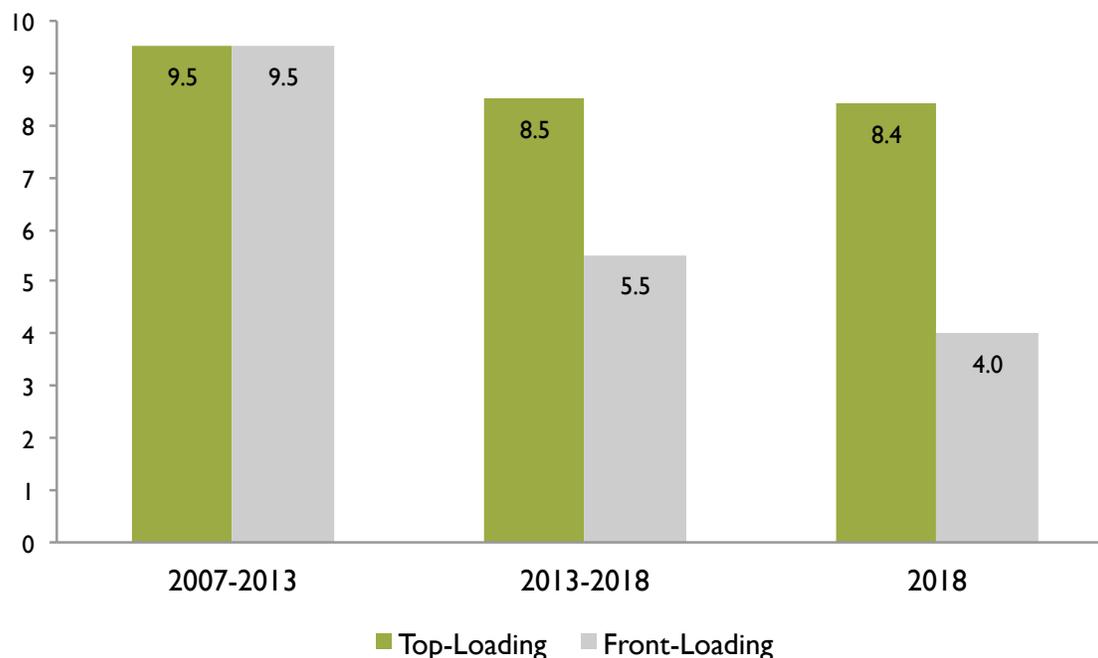
Federal Standards (DOE)			
Product Class	Water Factor January 1, 2007 to January 8, 2013 (gal/cycle/ft³)	Maximum Water Factor January 8, 2013 to January 2018 (gal/cycle/ft³)	Water Factor January 1, 2018 (gal/cycle/ft³)
Top-Loading	9.5	8.5	8.8
Front-Loading		5.5	4.1

Similarly, a change in test procedures provide for misleading comparisons of minimum water efficiency standards in Table 3. In order to compare the water factors over time, in Table 4, we present the 2018 water factor using the J1 test procedure. This is also presented as a bar chart in Figure 3.

Table 4: Pre and Post 2013 Water Factor Conservation Standards for Commercial Clothes Washers - Using J1 Test Procedure

Federal Standards (DOE)			
Product Class	Water Factor January 1, 2007 to January 8, 2013 (gal/cycle/ft³)	Maximum Water Factor January 8, 2013 to January 2018 (gal/cycle/ft³)	Water Factor January 1, 2018 (gal/cycle/ft³)
Top-Loading	9.5	8.5	8.4
Front-Loading		5.5	4.0

Figure 3: Pre and Post 2013 Water Factor Conservation Standards for Commercial Clothes Washers



As shown, both top-loading and front-loading washers in the commercial sector have increased energy efficiency standards for models manufactured in 2013. As a result, third-party laundry services are presented with more efficient washers to present to their customers currently, over the machines they may be replacing if they were installed before 2013.

Going forward, it is important to note that the standards and testing methods change in 2018. Future standards for commercial top-load clothes washers manufactured in 2018 actually have lower energy factor standards than 2013 through 2018 models, while front-load clothes washers will retain the 2013 standards. However, as shown above, using the J1 testing method, the 2018 standards are effectively higher than the 2013 standards.

Commercial Clothes Dryers

In contrast to clothes washers, there are currently no federal standards specifically for commercial clothes dryers; rather, the standards are for "clothes dryers manufactured and distributed in commerce." Title 20 in California uses this same language to refer to the same standards. A recent set of recommendations prepared for the California IOUs as part

of the Codes and Standards Enhancement Initiative for Title 20 Standards Development⁷ recommended that this language be changed to add “and commercial clothes dryers” to clarify that this includes both residential and commercial machines. Table 5 shows the federal efficiency standards for clothes dryers manufactured either between May of 1994 and January 1, 2015, or after January 1, 2015. Overall, efficiency standards for 2015 models were updated to reflect the differing types of clothes dryers entering the market along with the specific standards for vented versus ventless dryer options. On average, the energy factor increased 16 percent between the previous standards and the updated 2015 standards.

Table 5: Federal Standards for Clothes Dryers

Appliance	Minimum Energy Factor (lbs/kWh) After May 1994 and Before January 2015	Minimum Combined Energy Factor (lbs/kWh) on or After January 2015	
		Vented	Ventless
Electric, standard clothes dryers	3.01	3.73	-
Electric, compact, 120 volt clothes dryers	3.13	3.61	-
Electric, compact, 240 volt clothes dryers	2.90	3.27	2.55
Electric, combination washer-dryer	N/A	-	2.08
Gas clothes dryers	2.67	3.30	-

Comparison of Efficiency Levels of DOE Standards to ENERGY STAR Standards

High-efficiency commercial washers and dryers are also available on the market with energy factors and water factors greater than the federal codes described above. For example, current high-efficiency commercial clothes washers – such as ENERGY STAR approved models – may have Modified Energy Factors⁸ of 2.2 or greater with water factors

⁷ http://www.energy.ca.gov/appliances/2014-AAER-01/prulemaking/documents/comments_water_topics/Refinement_to_Commercial_Clothes_Dryer_CASE_Study_2015-01-21_TN-74379.pdf

⁸ ENERGY STAR uses Modified Energy Factor and Water Factor for commercial machines rather than Integrated Modified Energy Factor (IMEF) and Integrated Water Factor (IWF) which are used for residential equipment.

of 4.5 or less.⁹ Overall, these high-efficiency clothes washers may have energy factors that are 10 to 38 percent higher than traditional, code-compliant models.¹⁰

Table 6 and Table 7 below summarize the minimally code-compliant and high-efficiency clothes washer models from previous standards (models that may exist currently in multifamily applications), current standards (models that are currently offered to customers) and future standards based on J2 testing methods (models that may be purchased over the next five years).^{11,12} Note that for our analysis in this section we are comparing DOE codes from a certain year to ENERGY STAR codes in the same year, so we use the testing method designated for each year (J1 in the 2013 to 2018 period, and J2 for the 2018 and beyond period).

Table 6: Commercial Clothes Washers Energy Factor Standards and ENERGY STAR Specifications by Year and Product Type

Year	Top-Loading			Front-Loading		
	Code	ENERGY STAR Specifications	Percent Difference	Code	ENERGY STAR Specifications	Percent Difference
2007-2013	1.26	1.7	37%	1.26	1.7	37%
2013-2018 (J1)	1.6	2.2	38%	2.0	2.2	10%
2018 (J2)	1.4	2.2	63%	2.0	2.2	10%

⁹ <https://www.sce.com/wps/wcm/connect/84aee96f-68aa-457f-9250-6e32aebad252/SCE+MFEER+Rebate+Product+Specs+07.16+update-AA.pdf?MOD=AJPERES&attachment=false&id=1470679024762>

¹⁰ https://www.energystar.gov/products/appliances/commercial_clothes_washers

¹¹ 2013 ENERGY STAR criteria were estimated based on ENERGY STAR’s online specification information (https://www.energystar.gov/products/appliances/commercial_clothes_washers) while 2018 ENERGY STAR Specifications were sourced from:

<https://www.energystar.gov/sites/default/files/asset/document/ENERGY%20STAR%20Draft%201%20Clothes%20Washers%20Version%208.0%20Program%20Requirements.pdf>

¹² As outlined above, while the 2018 code values appear to be decreasing, the values presented in Tables 6 and 7 – both the standards and the ENERGY STAR specifications – are based on J2 testing methods that go into effect in January of 2018.

Table 7: Commercial Clothes Washers Water Factor Standards and ENERGY STAR Specifications by Year and Product Type

Year	Top-Loading			Front-Loading		
	Code	ENERGY STAR Specifications	Percent Difference	Code	ENERGY STAR Specifications	Percent Difference
2007-2013	9.5	6.0	-37%	9.5	6.0	-37%
2013-2018 (J1)	8.5	4.5	-47%	5.5	4.5	-18%
2018 (J2)	8.8	4.0	-55%	4.1	4.0	-2%

Table 28 in Volume 1 shows that 2018 brings a much more significant gap between energy factor requirements between DOE code and ENERGY STAR specifications for top loading washer machines. The EPA noted that one of the primary reasons the 2018 specifications are proportionally higher than current specifications is because they want to further differentiate high-efficiency clothes washers in the commercial market.¹³

The most recent EPA ENERGY STAR Clothes Washer Product Specification (Version 8) also provided energy savings estimates for commercial clothes washers. Currently, the EPA estimates that 30 percent of all commercial clothes washers already meet the proposed 2018 specifications. Using these parameters, the EPA estimates that ENERGY STAR commercial clothes washers in multifamily applications could save \$121 annually, or over \$1,300 over the clothes washer’s projected lifetime of 11 years.¹⁴ Comparatively, the EPA estimates that coin-operated commercial washers would save on average \$147 annually and \$1,000 total over the estimated lifetime of seven years.

Beginning in 2015, residential dryers also have ENERGY STAR specifications that include energy factors greater than the current standards. For example, Table 8 below shows the current ENERGY STAR specifications for residential dryers, including those used in multifamily applications. Compared to the current federal regulatory standards, the energy-efficient ENERGY STAR dryers show a 5 percent improvement in the energy factor across the various types of dryers.

¹³

<https://www.energystar.gov/sites/default/files/asset/document/ENERGY%20STAR%20Draft%201%20Clothes%20Washers%20Version%208.0%20Program%20Requirements.pdf>

¹⁴

<https://www.energystar.gov/sites/default/files/asset/document/ENERGY%20STAR%20Draft%201%20Clothes%20Washers%20Version%208.0%20Program%20Requirements.pdf>

Table 8: ENERGY STAR Specifications for Residential Clothes Dryers

Appliance	Minimum Combined Energy Factor (lbs/kWh) on or After January 2015	
	Vented	Ventless
Electric, standard clothes dryers	3.93	3.93
Electric, compact, 120 volt clothes dryers	3.80	3.80
Electric, compact, 240 volt clothes dryers	3.45	2.68
Gas clothes dryers	3.48	-

Literature Review Savings Potential Estimations Related to Multifamily Laundry Spaces

In addition to the codes and standards presented above, we also utilized the literature review to better understand the potential for program efforts in this area, based on the efficiency of washers and dryers and the multifamily market. In this section, we present findings related to:

- Equipment Beyond Washers and Dryers;
- Water Savings;
- Interactions Between Washers and Dryers; and
- Savings Estimations Incorporating Market Research.

Importance of the Water Heating Fuel for Cost Effectiveness

One barrier to efforts in this sector in the past is the low prevalence of clothes washers that utilize electric water heaters in multifamily common areas. Operating costs for electric water heating are greater than those for natural gas water heating, so efficiency measures that save hot water are cost effective sooner for buildings that rely on electric water heaters than those that use natural gas. The Cadmus evaluation of a clothes washer program that was focused on the multifamily sector concluded that electric savings would be low unless lighting or other measures are installed.

Water Savings

Another study, written for the California Urban Water Conservation Council, that focused on water savings potential concluded that their “cost-effectiveness analyses show that given the avoided cost of water and the level of expected savings, water and energy

utilities can justify offering significant financial incentives to current coin-op users if they would switch out their pre-2007 top loaders and replace them with either 18 or 25 pound front loaders designed to the latest federal standards that will take effect in 2013.”¹⁵ Their research focused mainly on water savings and was written in 2012 and should therefore be reevaluated for current standards. Another caveat to this research is that if we assume machines are replaced every five years or so, it is likely that the pre-2007 top loaders they refer to likely have been replaced already with newer equipment.

Research conducted in 2013 by ACEEE and the NRDC also attempted to identify potential water savings from ENERGY STAR clothes washer replacements in residential and commercial applications throughout the Great Lakes states. On the commercial side, the research estimated that 160,000 commercial clothes washers are shipped annually within the United States. By transitioning 100 percent of these units to ENERGY STAR qualified clothes washers, the study team estimated 971,000,000 gallons a year in total water savings across the eight Great Lake states, or 21,000 gallons per unit.¹⁶

Interactions Between Washers and Dryers

A paper from ACEEE’s 2016 Summer Study¹⁷ emphasized the way in which washer and dryer savings can work together. The report found that across eight households, heat pump clothes dryers delivered a median of 312kWh/year or 34 percent energy savings. This was partly attributed (35% of savings) to washers which worked to remove additional moisture before clothing was transferred to the dryer, suggesting there are benefits to upgrading both appliances at the same time.

Savings Estimates Incorporating Market Research

A study done by Battelle in 2008 looked at both commercial laundromats and multifamily properties in order to track usage and report on cost. This study only looked at multifamily buildings where the common area units were owned by the property manager (rather than leased).

As a baseline, the study metered the existing clothes washers, consisting primarily of Maytag and Speed Queen top load washers that were between seven and nine years old, in each of the properties. For the post period, the study measured the usage of the newly installed efficient clothes washers that consisted of Tier 2 front-loading Maytag and Speed Queen models. The numbers shown in Table 9 show the savings values between the

¹⁵ Coin-Operated Clothes Washers in Laundromats and Multifamily Buildings: Assessment of Water Conservation Potential, Anil Bamezai, August 21, 2012

¹⁶ <http://aceee.org/sites/default/files/pdf/white-paper/great-lakes-clothes-washers.pdf>

¹⁷ Measured Performance of Heat Pump Clothes Dryers, Eric Martin, Karen Sutherland and Danny Parker at the Florida Solar Energy Center, ACEEE Summer Study, 2016

existing clothes washers and the newly installed efficient washers. The IOUs should review these savings when considering further program activity in this area.

Table 9: Clothes Washer Usage in Multifamily Buildings¹⁸

Characteristic	SoCalGas and SDG&E (n=32)	PG&E (n=52)
Average water savings per cycle	2.0-6.6 gallons/cycle	5.9-6.8 gallons/cycle *
Average annual gas savings	24.6-72.8 therms/unit	53.8-59.8 therms/unit* 21.3-59.3 therms/unit**
Hot water temperature	129-137 F	127-129 F*
Cold water temperature	57-70 F	60-63 F*

* These values are based on a subsample of the total units in the PG&E service territory; these 12 clothes washers were located in two of the buildings.

** This value was estimated for all units in the PG&E territory based on pre and post modified energy factor (MEF)¹⁹ values as reported by CEE; they were not calculated from the actual metered water usage.

Research conducted by the CEC estimated savings for commercial clothes dryers as a result of Title 20 efficiency updates. The study team estimated that approximately 239,800 gas multifamily dryers and 12,600 electric multifamily dryers current exist in the California market. Additionally, based on updated Title 20 tests and standards, along with utility incentive program support, the study estimated a 15 percent increase in efficient clothes dryer market share. Using this market penetration estimate, the study estimated 0.07 GWh/year in annual electricity savings and 0.009 MMT/year in annual national gas savings with an additional stock turnover savings of 0.98 GWh/year and 0.12 MMT/year.²⁰

The ACEEE research conducted for the Great Lakes States also estimated annual energy and gas savings for ENERGY STAR clothes washer replacements across laundromats and multifamily common rooms. Using a conventional front-loading commercial washer as the

¹⁸ Cal-UCONS Commercial Laundry Program Measurement and Evaluation – Southern California Gas Company and San Diego Gas and Electric Company, Battelle – Pacific Northwest Division, January 2008 and Cal-UCONS Commercial Laundry Program Measurement and Evaluation – Pacific Gas and Electric, Battelle – Pacific Northwest Division, July 2008

¹⁹ ENERGY STAR uses MEF and WF for commercial machines rather than IMEF and IWF which are used for residential equipment.

²⁰ http://www.energy.ca.gov/appliances/2014-AAER-01/prerulemaking/documents/comments_water_topics/Refinement_to_Commercial_Clothes_Dryer_CASE_Study_2015-01-21_TN-74379.pdf

baseline, the study estimated annual electric savings of 565 kWh/unit and annual gas savings of 4.8 MMBTU/unit for multifamily clothes washer replacements.²¹ Additionally, the study explored the potential savings associated with incremental pricing programs in multifamily applications. The study sites an example in Washington D.C. where a property manager introduced an incremental pricing model for multifamily tenants with costs ranging from \$1.25/load for cold washes to \$1.75 for hot washes. As a result of the pricing scheme, the multifamily building's energy usage (gas) was reduced by 25 to 30 percent.²²

A report was also completed in 2000 specifically for Southern California Edison that reviewed commercial clothes washer savings potential in multifamily buildings. Because the DOE standards have been upgraded twice since the time this report was published, we have not included it in our analysis.²³

²¹ <http://aceee.org/sites/default/files/pdf/white-paper/great-lakes-clothes-washers.pdf>

²² <http://aceee.org/sites/default/files/pdf/white-paper/great-lakes-clothes-washers.pdf>

²³ http://www.eceee.org/library/conference_proceedings/ACEEE_buildings/2002/Panel_10/p10_23

Appendix E: Laundry Study Literature Review

In this appendix, we summarize prior reports that we found to be relevant to this research. Relevant details have been pulled into the main report section but are also included here for continuity of summarization.

Resources Suggested by IOUs

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

The Cal UCONS Coin-Operated Laundry Program Concept Paper outlines expected barriers to participation and strategies that were developed to reduce these barriers. The main barriers are that clothes washers are not replaced at the end of a lease with ENERGY STAR equipment, rebates are too low to motivate property managers to change their lease agreement, there is a lack of education about the benefits of early replacement for both the leasing companies and the property managers, and a large variety of lease agreements exist (even for new leases on new equipment).

The Laundry Team, a similar program administered in Oregon in 2001 by UCONS and RMC, demonstrated that the following strategies were effective at overcoming these barriers: educating and fostering collaboration between equipment leasers and property managers/owners, development of new lease terms, monitoring bill savings for all parties, and direct installation of related measures (e.g. pipe wrap, water heater temperature setback, lighting upgrades). Water agencies can be valuable partners in this type of program offering because they can identify potential participants with high use laundry facilities for targeted marketing and partner utilities may offer supplemental measures.

Southern California Gas Company Energy Efficiency Program Annual Report 2006 Results, SoCalGas, November 2007

The 2006 SoCalGas Annual Report included a short summary of the Laundry Coin-Op program. One of their main findings was that manufacturers are greatly discounting the inefficient top-load clothes washers, creating a large price gap between these and the clothes washers that meet ENERGY STAR equivalent standards. Distributors and leasing companies are motivated by these low prices and have flooded their inventory with these inefficient products, further motivating them to sell inefficient units to their customers. Additionally, they found that some of the hard-to-reach dry cleaners and coin laundry customers are reluctant to insulate the piping at their facilities.

Cal-UCONS Commercial Laundry Program Measurement and Evaluation - Southern California Gas Company and San Diego Gas and Electric Company, Battelle - Pacific Northwest Division, January 2008

Cal-UCONS Commercial Laundry Program Measurement and Evaluation - Pacific Gas

and Electric, Battelle - Pacific Northwest Division, July 2008

Battelle conducted two measurement and evaluation studies of the Commercial Laundry Program in 2008, the first was for SoCalGas and SDG&E and the second was for PG&E. The studies were designed to estimate energy and water usage of 120 existing and replacement clothes washers in participating buildings, both multifamily properties (n=84) and commercial coin-operated Laundromats (n=36). Selection criteria for the buildings in the study required that the property manager own the clothes washers (i.e. does not lease them), they have at least four standard top-loading washers in the laundry room, they have access to dedicated phone lines for the metering equipment, and the associated water heater(s) are fueled by gas or electricity. The selection criteria was designed to account for a variety of properties that was representative of the estimated final mix of properties in the Commercial Laundry Program for PG&E.

The researchers installed meters to track electricity and water usage for the baseline (pre) and efficient (post) equipment, and then recorded the rated thermal efficiency of the gas water heater for use in estimating therm savings. The water usage, temperature, and heating efficiency were recorded for all of the multifamily clothes washers in the SoCalGas and SDG&E study (n=32), but only a subsample in the PG&E study (n=12). Variation in usage for the existing equipment was primarily determined by the age of the unit, while variation in the new efficient equipment in each service territory was determined by the user selected settings - all multifamily buildings installed the same Maytag front-load Tier 2 units. The findings from this research are summarized in the table below.

Table 2: Clothes Washer Usage in Multifamily Buildings

Characteristic	SoCalGas and SDG&E (n=32)	PG&E (n=52)
Cost per cycle	\$0.75-2.00 per cycle	\$1.00-2.00 per cycle
Average daily cycles per unit	3.3-5.0 cycles/day	1.1-3.9 cycles/day
Average water savings per cycle	2.0-6.6 gallons/cycle	5.9-6.8 gallons/cycle *
Average annual gas savings	24.6-72.8 therms/unit	53.8-59.8 therms/unit* 21.3-59.3 therms/unit**
Hot water temperature	129-137 F	127-129 F*
Cold water temperature	57-70 F	60-63 F*

* These values are based on a subsample of the total units in the PG&E service territory; these 12 clothes washers were located in two of the buildings.

** This value was estimated for all units in the PG&E territory based on pre and post modified energy factor (MEF) values as reported by CEE; they were not calculated from the actual metered water usage.

Process Evaluation of the Southern California Gas 2006-2008 Residential Customer Program, ECONorthwest, February 15, 2008

This report includes a process evaluation of the SoCalGas Multi-Family Energy Efficiency Rebate program. The evaluators conducted 12 in-depth interviews and 70 surveys with multifamily property managers/owners, with surveys evenly split between participants and non-participants (n=35 each). While the program did not offer cash incentives for clothes washers or dryers in 2006-2008, some information was collected about their interest in these measures.

Over 50 percent of participants and 70 percent of non-participants said they were interested in incentives for clothes washer replacements. However, when non-participants were asked specifically about gas-related measures, 9 percent said they were interested in ENERGY STAR clothes washers for tenant units (\$75 incentive/unit) and 0 percent were interested in coin-operated clothes washers for common areas (\$150/unit). For energy efficiency measures in general, participants said that the main decision makers for energy efficiency installations in common areas were the property owner (43%), property manager (18%), supervisor at the property management company (18%), and board of directors or homeowners' association (18%). The main factors in their decision were repair/maintenance issues (50%), installation costs (48%), and product quality (21%).

Process Evaluation of 2006-2008 IDEEA & InDEE Program with Lessons for 2009-2011 Programs - Volume 1, Research Into Action, September 9, 2009

Volume 1 describes the results of Research Into Actions' review of 25 IDEEA and InDEE program process evaluations. Their process involved identifying recommendations and lessons learned from the 2006-2008 evaluations and determining whether or not these are reflected in the 2009-2011 program implementation plans (PIPs), including SCE's Coin-Operated Laundry Program.

The Coin-Operated Laundry Program startup was slower than expected due to joint-utility program negotiations and the implementers had inadequate knowledge of the saturation of electric water heaters (versus gas), retailer inventory, degree of energy savings opportunities, and adequacy of the rebate from the perspective of the participant. Additional complications in program management and reporting were caused by utility staff turnover, limited participant data recordkeeping, and a problematic database for uploading reports from subcontractors.

Coin-Operated Clothes Washers in Laundromats and Multifamily Buildings: Assessment of Water Conservation Potential, Anil Bamezai, August 21, 2012

This study assesses the water savings potential from coin-operated clothes washers found in Laundromats and shared multifamily facilities across California. Overall, the study found that 74 percent of multifamily buildings with laundry facilities have top-loading

equipment that is generally less efficient than front-loading equipment. Additionally, the study found that in smaller multifamily buildings – where the property owner is responsible for operating the common laundry facility – property owners are “only partially incentivized to invest in water and energy efficiency because he does not see his common wash room utility bill separately from that of the overall complex.” As a result, the additional upfront cost of more efficient laundry equipment may deter some property owners from purchasing efficient equipment, especially if there is not an increased effort for outreach, education, and financial incentives for property owners.

For multifamily buildings that use a route operator to help coordinate their shared laundry facilities, the study found that some property owners are wary of purchasing more efficient equipment because the “revenue share for the owner is reduced when the route operator installs efficient, but also more expensive machines.” However, because the largest route operators in California (WASH and Coinmach) are partners in the ENERGY STAR program, the study argues that route operators could potentially help increase the market share of efficient laundry equipment in the coin-operated market segment.

Reources Found Through Independent Research

Process Evaluation of 2006-2008 IDEEA & InDEE Program – Volume 3 of 5, Cadmus, November 2008 <http://www.calmac.org/publications/PE_2006-08_IDEEA__InDEE_Programs_V3_Cadmus_100809.pdf>

In 2008, Cadmus evaluated six programs within the suite of SCE’s 2006-2008 InDEE/IDEEA programs. Among the six SCE programs was the Coin-Operated Laundry Program, which “sought to increase the number of commercial, energy efficient washing machines by offering rebates to commercial and multifamily facilities.” Additionally, the program incentivizes early replacement prior to termination of lease, as well as replacement at the end of their lease for Energy State or CEE qualified commercial washers.

For the evaluation, Cadmus conducted surveys with six program staff/implementers, two participant market actors (route operators and distributes), and five participant site managers.

The researchers observed that because there are very few commercial washers with electric water heating, electric savings will be low unless lighting or other measures are installed. Additionally, the study found that Laundromat operators typically lease commercial washers, replacing them with less expensive and less efficient washers when the lease expires. Implementers suggested that a key part of the Coin-Operated Laundry Program understood the business needs of both the property owners and the laundry leasing companies. As one implementer acknowledged:

“The process requires repeated one-on-one discussions amongst the primary decision makers to develop terms which mutually benefit all parties: leasing

companies wish to increase length of lease period and thus have some incentives to discount newer machines in exchange for extended lease arrangements; users of coin-operated laundry machines typically pay all utility bills (including electricity, gas, sewer and water). Current rebate incentives have not substantially moved this market because incentives alone are not the market barriers.”

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

In 2000, the National Research Center monitored water consumption in 191 in-unit washing machines and 50 common area washing machines in eight apartment buildings across the U.S., in an effort to compare laundry water usage between common area laundry rooms and in-unit laundry equipment. Overall, the study found that residents with in-unit laundry facilities used five times more energy than multifamily residents with common area laundry facilities. Additionally, 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 common area facilities. However, the study found that multifamily units in Oregon, which had more residents per unit in the multifamily building with common area laundry equipment, reported higher consumption in common area laundry facilities and less consumption with in-unit complexes.

Massachusetts Multifamily Market Characterization and Potential Study Volume 1, Cadmus, May 2012

This study evaluated potential energy-efficiency savings available in Massachusetts's multifamily buildings, focusing their research specifically on buildings with five or more units. The study focused on characterizing the size, in-unit building specifications, and property decision-making processes, for multifamily buildings across Massachusetts.

With regards to laundry equipment, the study found that 55 percent of multifamily buildings included common area laundry facilities, compared to only 21 percent that included in-unit laundry facilities. Overall, the study does not highlight any electrical savings potential for laundry equipment, although the evaluation team found a 6 percent potential for gas savings within common area laundry facilities.

Appliance Recycling Program Process Evaluation and Market Characterization Volume 1, Cadmus, September 18, 2013

Through the Appliance Recycling Program (ARP), customers within the California IOUs were offered a cash incentive to allow the IOUs to pick up qualified appliances – including laundry equipment – and subsequently recycle the appliances in an “environmentally sound manner.” Cadmus conducted a process evaluation of the ARP for SCE and PG&E to

benchmark processes and opportunities for improvements against existing program design and costs.

During the evaluated program cycle (2010-2012), the study found that none of the IOUs' ARPs included clothes washer recycling. However, using their Normalized Benefits Indicator, which takes into account the saturation rates and energy consumption rates for each type of appliance, Cadmus found that there may be potential in including clothes washers in future ARPs. Conversely, Cadmus found that it would not be cost-effective for electric clothes dryers to be included in the ARP for SCE given the lower market saturation (19 percent in SCE territory). However, the study does conclude that there may be some potential in the PG&E territory given the relatively higher saturation rate of 46 percent.

Residential On-site Study: California Lighting and Appliance Saturation Study (CLASS), KEMA Inc., November 24, 2014

In an effort to gather information about residential building characteristics – including the energy usage and efficiency – the 2012 CLASS included 2000 on-site surveys of single-family, multifamily, and mobile home residences across the service territories of the California IOUs. The goal of the on-site surveys was to develop a residential building database to identify “appliance and lighting saturations and efficiency levels by merging the information obtained from the on-site surveys with information from other sources and expanding the sample to represent the residential individually-metered population.”

With regards to laundry equipment, the CLASS study found that about half (49 percent) of apartment complexes with less than five units had in-unit clothes washers, compared to only 34 percent of apartment complexes with five or more units. Dryer saturation rates were found to be very similar at 44 percent for smaller multifamily units and 33 percent for larger multifamily complexes. These saturation rates are significantly lower than single-family detached homes (96%) primarily attributable to central laundry facilities in multifamily complexes. Additionally, the study found that more than 20 percent of larger apartment complexes had stacked laundry equipment in unit.

Appendix F: Insights about Building Benchmarking and ENERGY STAR Portfolio Manager

Program managers see building benchmarking as a potential fundamental service with great value for multifamily building operators. Building benchmarking using the ENERGY STAR Portfolio Manager is included in the core program plans outlined in Section 2, but has not been incorporated into the program offerings at any scale due to barriers in combining data from varied accounts for larger properties, challenges in linking addresses and accounts that belong to the same complex, and concerns for account holder privacy. Because SCE is already exploring ways of overcoming the challenges inherent in offering ENERGY STAR Portfolio Manager to multifamily (or multi-tenant) property operators, investigation of benchmarking solutions was not part of this study's research objectives.

Nevertheless, benchmarking came up in two different contexts in this study. As noted in Section 4, large portfolio managers discussed their approaches to tracking energy performance and offered thoughts on what benchmarking as a service would need to offer. They also identified an alternative to ENERGY STAR Portfolio Manager with which they were more familiar and that could serve their needs. More information about property managers was presented in Section 4.

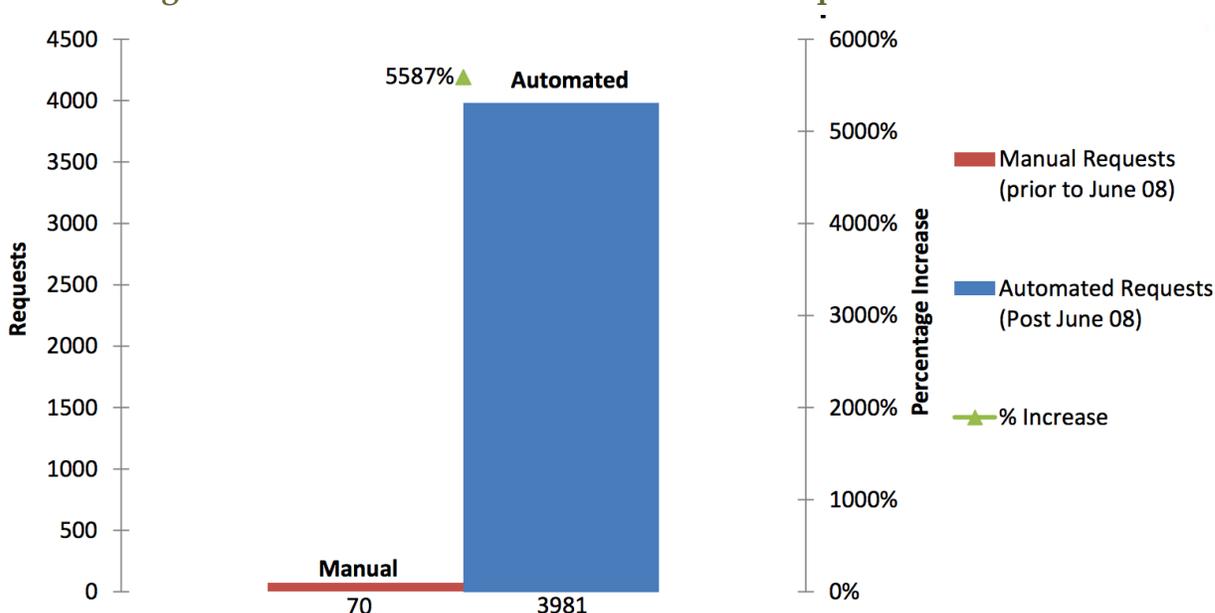
Furthermore, an interview with staff of the Midwest Energy Efficiency Alliance about training revealed the development of a tool by ComEd for its multi-tenant customers in Chicago, who are now required under a city ordinance to benchmark their buildings using ENERGY STAR Portfolio. We describe this tool below, as this information might offer some value to the California IOUs about ways to overcome the challenges that multi-tenant buildings pose for benchmarking activity.

ComEd remains one of the largest electric utilities in the country, including more than 350,000 commercial customers. In 2008, in an effort to improve building-level energy usage tracking and help drive energy efficiency in commercial applications, ComEd integrated Calico Energy Service's Green Certification software into their existing Energy Usage Data System (EUDS).²⁴ The Green Certification software helped automate the energy usage data submission process for commercial customers, by connecting the existing back-end utility data systems with ComEd's energy management system, allowing building managers to evaluate and benchmark their building's energy usage through ComEd's simplified online portal. The software was also designed to automate with ComEd's ENERGY STAR Portfolio Manager system, which further allows commercial customers to identify energy efficiency investment opportunities and strategize towards ENERGY STAR Certification.

²⁴ http://www.electricenergyonline.com/show_article.php?mag=&article=537

While the manual process ComEd offered prior to Green Certification was costly and time consuming for themselves and their commercial customers, the new automated tool allowed customer requests to be completed in one to two days at no cost to the customer.²⁵ The Green Certification software also includes enterprise-class data security and data aggregation, keeping the customer data safe and eliminating privacy concerns from individual tenants. As shown in in Figure 1 below, by automating the process of collecting, submitting and validating commercial customer energy usage data, ComEd dramatically increased the number of building managers using their EUDS system.

Figure 1: Number of Commercial Customer Requests for EUDS²⁶

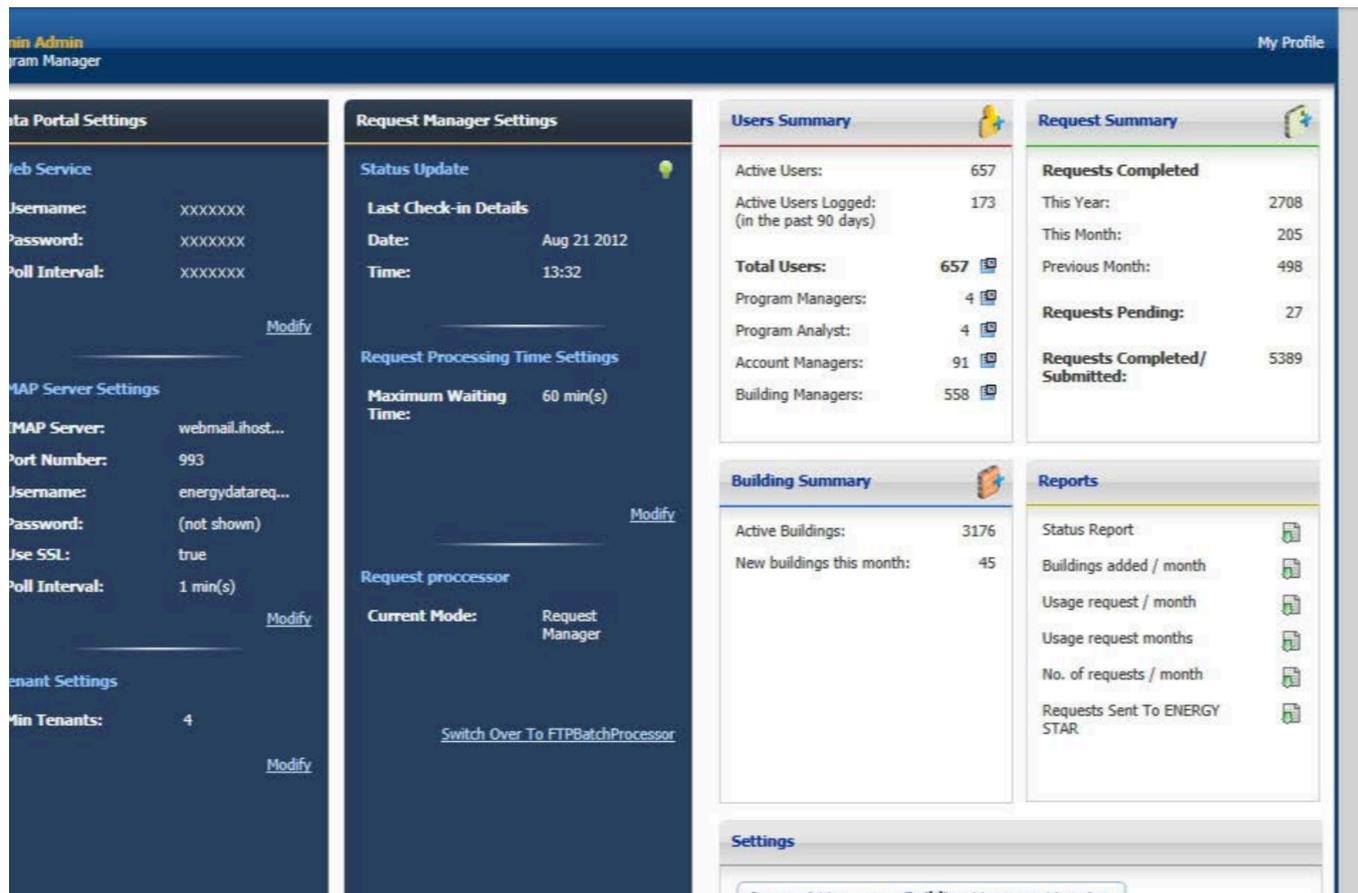


The software itself was designed to be customer-focused, with a simplified interface that allows building managers to not only quickly complete an enrollment request but also to verify their tenants, add new buildings into their portfolio, and export their monthly energy usage through the ENERGY STAR Portfolio Manager. Figure 2 below shows an example of the administrative portal for ComEd commercial customers using the Green Certification software. As shown, customers can easily access various summaries for their portfolio.

²⁵ https://mn.gov/puc-stat/documents/pdf_files/privacy_workshop_euds_data_solutions_2-13-2015.pdf

²⁶ https://mn.gov/puc-stat/documents/pdf_files/privacy_workshop_euds_data_solutions_2-13-2015.pdf

Figure 2: Energy Usage Data System Program Manager Homescreen Example²⁷



²⁷ https://mn.gov/puc-stat/documents/pdf_files/privacy_workshop_euds_data_solutions_2-13-2015.pdf

Appendix G: Common Laundry Data Tables

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

Equipment Location	High Income Count	Middle Income Count	Low Income Count
Washers and dryers in the common area	4	38	59
Washers and dryers in all units	3	6	3
Both in common areas and in at least some units	1	8	1
Do not provide laundry equipment at the property	0	23	41
Total	8	75	104

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

Washers

Building Unit Size	1	2 - 3	4 - 9	10 - 19	20+
1-11 units	22	11	2	1	0
12+ units	0	27	28	12	11
Total	22	38	30	13	11

Dryers

Building Unit Size	1	2 - 3	4 - 9	10 - 19	20+
1-11 units	24	8	4	0	0
12+ units	0	27	28	14	9
Total	24	35	32	14	9

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

Equipment Type	Own (n=34)	Lease (n=61)	Total (n=95)
Clothes Washer	4.7	4.2	4
Dryer	5.2	4.2	4.6

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

Equipment Type	Own (n=38)	Lease (n=75)	Total (n=113)
Clothes Washer	3.4	8.5	6.8
Dryer	3.5	9.1	7.2

**Willingness for Early Replacement by Type of Machine Ownership - MFEER
Participant Owner/Operator Survey Respondents**

Time of Replacement	Own (n=38)	Lease (n=74)
On failure	33	45
Earlier	2	19
Varies/depends	3	10

Appendix H: Response to Recommendations

Response to Recommendations (RTR) in Impact, Process, and Market Assessment Studies

Study Title: Southern California Multifamily Program Process Evaluation
Program: Multifamily
Author: Evergreen Economics
Calmac ID: SCE0399.01 (Volume 1) and SCE0399.02 (Volume 2)
ED WO: TBD
Link to Report: TBD

Item #	Page #	Findings	Best Practice / Recommendations (Verbatim from Final Report)	Recommendation Recipient	Disposition	Disposition Notes
				If incorrect, please indicate and redirect in notes.	Choose: Accepted, Rejected, or Other	Examples: Describe specific program change, give reason for rejection, or indicate that it's under further review.
1	127	<p>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:</p> <ul style="list-style-type: none"> 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; 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 	<p>We recommend that the Southern California IOU multifamily programs and the California Public Utilities Commission (CPUC) maintain consistency and predictability in program offerings. Specifically:</p> <ul style="list-style-type: none"> 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 	IOUs and CPUC		

		<p>focusing on the portfolio as a whole; and</p> <ul style="list-style-type: none"> 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.) 	<p>they are aligned as much as practical (within the constraints of unique program design needs).</p>			
2	128	<p>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.</p>	<p>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.</p>			
3	129	<p>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</p>	<p>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:</p> <ul style="list-style-type: none"> 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 	IOUs		

		<p>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.</p>	<p>efficiency opportunities for properties and past interactions with decision-makers about those opportunities;</p> <ul style="list-style-type: none"> • 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). 			
4	130	<p>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. Potential offerings include:</p> <ul style="list-style-type: none"> - Laundry initiative to promote greater equipment efficiency among common area laundry equipment - Enhanced multifamily-specific building operator training for facility staff 	<p>Further, we recommend that the IOUs continue to seek out and offer new (and cost-effective) measures.</p>	IOUs		
5	130	<p>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</p>	<p>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.</p>	IOUs		

		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.	<p>This campaign could comprise two components:</p> <ul style="list-style-type: none"> • 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.) 			
6	131	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.	We recommend the use of a shared customer relationship management (CRM) system to facilitate information sharing across program, functional, and utility lines.			