



Multi-Family Common Area Measures Initiative

Process Evaluation Memorandum - Midpoint Reporting

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Contents

1. Executive Summary	1
2. Background	5
3. IOU Logic Models	7
4. IOU Process Flow Diagrams	9
5. Perspective from Program Administrators, Single Point of Contact (SPOC) and Implementers ..	14
5.1. Challenges	14
5.1.1. Outreach and Recruitment.....	14
5.1.2. Documentation	16
5.1.3. Implementation.....	16
5.2. Best Practices and Lessons Learned.....	18
5.2.1. Outreach and Marketing	19
5.2.2. Opportunity Identification.....	21
5.2.3. Implementation.....	22
5.2.4. COVID-19.....	23
5.3. Interviewee Suggestions	24
Appendix A Logic Models.....	A-1
Appendix B Summary of Documents	B-1
Appendix C Process Flow Diagrams.....	C-1

1. Executive Summary

The Multi-family Common Area Measures (MF CAM) initiative is part of the Energy Savings Assistance (ESA) program, and provides no-cost, direct-installed weatherization, and energy efficiency measures in common areas of deed restricted multi-family properties. The initiative is directed at eligible deed restricted properties served by the California Investor-Owned Utilities (IOUs) – Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), Southern California Gas Company (SoCalGas), and San Diego Gas and Electric Company (SDG&E) – which collectively are referred to as the “IOUs.” Resource Innovations was retained by PG&E to conduct a process evaluation to assess initial implementation efforts, monitor achievement and provide useful information to maximize the success of this initiative and inform future program design.

This memorandum provides preliminary observations based on learnings to date. The mid-point observations are informed by a review of the program material provided by the IOUs and in-depth interviews (IDIs) with program administrators, single point of contact (SPOC) representatives and program implementers. This interim memo reflects observations based on interviews and reviews of PG&E, SCE and SDG&E materials only as information and observations for SoCalGas were not yet available. Observations based on interviews and reviews of SoCalGas will be included in the final report. The mid-point memorandum includes:

- A logic model for each IOU and a comparison of the logic models.
- A process flow diagram that illustrates the program processes for each IOU and a comparison of the process flows.
- Summary of the perspectives from the program administrators, SPOCs, and implementers. The summary addresses challenges, best practices and lessons learned, and suggestions for improvement.

The comparison of the logic models and process flow diagrams highlight differences in documentation and approaches used by the IOUs to deliver the MF CAM initiative. The most significant differences between the IOUs in delivering the initiative, include:

- Both PG&E and SDG&E utilized a market characterization study to inform outreach. SCE utilized a market characterization study to inform program design.
- Enrollment in Energy Star portfolio benchmarking is required to participate in MF CAM. The IOUs employ and use benchmarking in different ways:
 - PG&E uses Energy Star portfolio benchmarking and on-site assessments to identify measure opportunities. PG&E’s implementer conducts the benchmarking, interprets the results, and identifies opportunities using the results and the on-site assessment. The participant receives login information to view the results, and to use the benchmarking tool.

- SCE’s implementer directs and enrolls participants in the Energy Start benchmarking platform. The participant is responsible to conduct benchmarking and to use the results. SCE’s implementers use on-site assessments to identify measure opportunities.
 - SDG&E’s implementer benchmarks the property through the Energy Star portfolio manager and provides the results to the participant. It is the participant’s responsibility to make use of the benchmarking results. SDG&E’s implementer relies mainly on on-site assessments to identify opportunities.
- PG&E is the only IOU that indicated that they use a trade ally network (TAN) from which participants can select and hire contractors to implement projects.
 - Property representatives participating in PG&E’s MF CAM initiative are responsible to hire contractors to install energy efficiency opportunities. The participants are responsible for selecting and hiring contractors to install the measures and manage the installation to completion. For SCE and SDG&E on the other hand, their own implementers and contractors are responsible for installing the measures and managing the installation to completion in their MF CAM initiatives. Participants who participate in SCE and SDG&E initiatives do not select and hire a contractor to conduct installation of opportunities.
 - The IOUs have different sample targets to verify project implementation. PG&E’s implementer verifies 10% of the completed projects in desktop reviews and in virtual or on-site inspection. PG&E performs on-site project inspections and desktop reviews on a sample of 15% of the completed projects. SCE's third-party contractor verify type and quantity of 10% of all submitted measures. SDG&E’s internal inspection staff performs inspections on 100% of all projects.

The most significant challenges experienced by the program administrators, SPOCs and implementers are summarized in Table 1. Detailed description of the challenges is discussed in Section 5.1.

Table 1: Process Steps and Challenges

Process	Challenge
Outreach and Recruitment	<ul style="list-style-type: none"> • Connecting with the right person • Customers declined to participate • In some regions, the number of deed-restricted properties is limited. • Slow participation by portfolio companies • Customer frustration due to expectation to participate but based on screening it is determined the customer is not eligible.

Process	Challenge
Documentation	<ul style="list-style-type: none"> • Documentation required is often not easily accessible. • Some participants are apprehensive about submitting rent roll information via email.
Implementation	<ul style="list-style-type: none"> • Delays caused by various factors. • Significant level of effort required at several process steps. • Supply chain issues affecting schedule and costs. • Clarity of eligibility requirements and changes in requirements. • COVID-19 affecting several process steps.

The best practices and lessons learned by the program administrators, SPOCs and implementers are discussed in Section 5.2. Table 2 provides a summary of the process areas where best practices and lessons learned were identified by the program administrator, SPOCs, and implementer. The summary of best practices includes practices that may be applicable to a specific IOU and is specified in Section 5.2.

Table 2: Process Steps and Summary of Best Practices and Lessons Learned

Process	Summary of Best Practices and Lessons Learned
Outreach and Recruitment	<ul style="list-style-type: none"> • Strategies and sources informing outreach <ul style="list-style-type: none"> – Conduct market characterization – Leverage publicly available list of tax credit properties and list from the Housing and Urban Development (HUD) • Outreach strategies <ul style="list-style-type: none"> – IOUs exchange contacts and referrals for property managers – In-person outreach and marketing were most effective – Target regional managers with a portfolio of properties – Develop personable relationships with property managers • Marketing strategies <ul style="list-style-type: none"> – Co-branded materials with IOUs help validate implementers authenticity – Useful marketing materials included short brochure • Marketing leveraging education and support <ul style="list-style-type: none"> – To assist the application process, provide: <ul style="list-style-type: none"> ▪ Sample verification package on website ▪ Verification training modules disseminated by various marketing channels • Identification of opportunities <ul style="list-style-type: none"> – Identify opportunities early in the customer engagement process

Process	Summary of Best Practices and Lessons Learned
Opportunity Identification	<ul style="list-style-type: none"> • IOU representative involvement increases the importance of the activity in the eyes of the property representative • Property maintenance personnel involvement is an effective strategy • Energy Star portfolio manager benchmarking is an effective education tool • Mobile and software technology improves the efficiency of delivering the initiative
Implementation	<ul style="list-style-type: none"> • Strategy that minimizes the participants' level of effort is appealing to many property managers • Providing customers with a choice in selecting the installation contractor is beneficial • Having a bid review template is valuable • Knowledgeable supplier is useful when alternative options for selected technology is needed
COVID-19	<ul style="list-style-type: none"> • Virtual site visits minimize disruption to program delivery • Program schedule flexibility needed to accommodate delays

The suggestions for improvement by the program administrators, SPOCs, and implementers to improve the MF CAM initiative, are discussed in Section 5.3. The interview respondents' suggestion to improve the MF CAM initiative cover the following areas:

- Marketing and outreach
- Opportunity identification
- Optimizing efficiency and cost-effectiveness
- Expanding the scope of the initiative
- Participant satisfaction

2. Background

The Multi-family Common Area Measures (MF CAM) initiative is part of the Energy Savings Assistance (ESA) program, and provides no-cost, direct-installed weatherization, and energy efficiency measures in common areas of deed restricted multi-family properties. The initiative was introduced to achieve deeper energy savings and improved health, comfort, and safety for low-income residents residing in multifamily properties. The initiative is directed at eligible deed restricted properties served by the California Investor-Owned Utilities (IOUs) – Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), Southern California Gas Company (SoCalGas), and San Diego Gas and Electric Company (SDG&E) – which collectively are referred to as the “IOUs.” The IOUs employed different program designs and approaches to identify and provide common-area measures to eligible properties. Treatment of non-deed restricted MF properties is not part of this initiative, but also leverages other programs through the Single Point of Contact (SPOC) process.

Thus far, the IOUs provided common area measures for 8 MF properties in 2019 and 110 MF properties in 2020 under this program. However, benefits of these investments remain unknown. Resource Innovations was retained by PG&E on behalf of all four IOUs, to conduct a process evaluation to assess initial implementation efforts, monitor achievement and provide useful information to maximize the success of this initiative and inform future program design.

This process evaluation has two main interrelated objectives:

- Assess the relative effectiveness of the IOUs’ current MF CAM outreach, delivery, and implementation strategies. The goal of this objective is to improve program implementation processes and maximize the benefits customers receive from the investments. These results are expected to inform future program implementation activities relevant to providing common area measures to multifamily properties housing low-income customers. While the MF CAM initiative has targeted exclusively deed-restricted properties, it is anticipated the findings will also inform the upcoming Multi-Family Whole Building (MFWB) program implementation expected to treat both in-unit and common areas of the larger multifamily market.
- Develop metrics to quantify tenants’ benefits including health and safety related impacts.
- Identify what data currently exist and/or may be needed to assess performance and success of the MF CAM initiative as defined by the core objectives. Results and/or recommended data collection are expected to be incorporated into future implementation processes to facilitate more reliable evaluations of the benefits or impacts of providing common area measures within multifamily properties.

The initiative was launched in 2019, and this evaluation will evaluate the processes and delivery of the initiative from 2019 until 2021. By December 2021, the evaluation was at the mid-point based on the anticipated project completion by June 2022. This memorandum provides preliminary observations based on learnings to date. The mid-point observations are informed by a review of the

program materials provided by the IOUs and in-depth interviews (IDIs) with program administrators, single point of contact (SPOC) representatives and program implementers. This interim memo reflects observations based on interviews and reviews of PG&E, SCE and SDG&E materials only as information and observations for SoCalGas were not yet available. The mid-point memorandum includes:

- A logic model for each IOU and a comparison of the logic models.
- A process flow diagram for each IOU and a comparison of the process flows.
- Summary of the perspectives from the program administrators, SPOCs, and implementers. The summary addresses challenges, best practices and lessons learned, and suggestions for improvement.

3. IOU Logic Models

A logic model can be defined as a plausible and sensible diagram of the sequence of causes (resources, activities, and outputs) that produce the effects (outcomes) sought by a program. The logic models for PG&E, SCE and SDG&E are provided in Appendix A. The main differences between the IOU logic models are summarized in Table 3. More details of process differences between the IOUs are provided in Section 4, which discusses the process flow diagrams.

Documents, such as marketing material, forms, letters, etc., used by PG&E, SCE and SDG&E in delivering the MF CAM initiative and referenced in this section are described in more detail in Appendix B.

Table 3: Main Differences between IOUs' Logic Models¹

Logic Model Component	Observations
Resources	<p>PG&E indicated that they use an open trade ally network (TAN).</p> <p>The SPOC in PG&E's initiative is part of the implementer's company, while the SPOC for both SCE and SDG&E initiatives are IOU staff.</p>
Activities	<p>PG&E and SDG&E each uses their own market characterization studies along with other resources to identify potential eligible properties.</p> <p>PG&E and SDG&E rely on a wider variety of publicly available sources and data to identify potential participants compared to SCE.</p>
Outputs	<p>PG&E and SDG&E leverage a wide spectrum of marketing channels compared to SCE. SCE focuses mainly on direct (targeted) recruitment activities based on the California Tax Credit Allocation Committee list.</p> <p>To initiate the enrollment process, PG&E uses potential participants informal expression of interest to initiate enrollment. Before enrollment, SCE and SDG&E conduct on-site pre-screening and assessment, to qualify and enroll properties and identify potential measures the property may receive. In addition, SDG&E uses a MF Property Questionnaire² and validates income eligibility as part of the enrollment.</p> <p>The IOUs employ and use benchmarking in different ways:</p> <ul style="list-style-type: none"> PG&E uses Energy Star portfolio benchmarking and on-site assessments to identify measure opportunities. PG&E's implementer conducts the benchmarking, interprets the results, and identifies opportunities using the results and the on-site assessment. The participant receives login information to view the results and to use the benchmarking tool. SCE's implementer directs and enrolls participants in the Energy Start benchmarking platform. The participant is responsible to conduct benchmarking and to use the results. SCE's implementers use on-site assessments to identify measure opportunities.

¹ See process flow diagrams in Section 3 for more detailed description of processes.

² The Multi Family Questionnaire includes detailed information about the property to assist with eligibility screening and enrollment, and identifies common areas to be upgraded, which are of interest to the potential participant.

- SDG&E's implementer benchmarks the property through the Energy Star portfolio manager and provides the results to the participant. It is the participant's responsibility to make use of the benchmarking results. SDG&E's implementer relies mainly on on-site assessments to identify opportunities.

4. IOU Process Flow Diagrams

A process flow diagram provides the program implementation process steps and activities in an illustrative map. The flow diagrams identify the responsibilities of the resources in implementing the process steps and activities. The process flow diagrams for PG&E, SCE and SDG&E are included in Appendix C. A comparison of the process flows of the three IOUs is summarized in Table 4. The comparative analysis was grouped by activity element for each of the five process steps:

1. Outreach and Participant Recruitment
 - Market study
 - Publicly available data sources
 - IOU support
 - Marketing material
 - Outreach
2. Eligibility Screening and Enrollment
 - Expression of interest and pre-screening
 - Documentation
 - Implementer support
3. Opportunity Identification
 - Energy assessment and benchmarking
 - Scope of work (SOW)
 - Approval of SOW
4. Installation
 - Management and oversight
5. Verification, Payment and Project Closure
 - Installation completion
 - Verification
 - Corrections
 - Incentive payment
 - Participation in other initiatives

Documents, such as marketing material, forms, letters, etc., used by PG&E, SCE and SDG&E in delivering the MF CAM initiative and referenced in this section are described in more detail in Appendix B.

Table 4: Comparison of IOUs' Process Flows

Activity Element	PG&E	SCE	SDG&E
1. Outreach and Participant Recruitment			
Market study	Outreach informed by market characterization study	Program design informed by market characterization study.	Outreach informed by market characterization study
Publicly available data sources	Lists of low-income deed-restricted properties from federal, state, and other sources.	Lists of MF tax credited properties from TCAC.	Lists from regional sources to identify deed-restricted MF properties.
IOU support	Uses existing Multifamily Upgrade Program (MUP) database of projects, open trade ally network, and customer relationship.	SPOC passes leads from SOMAH, in-person site visits and other marketing efforts via email or phone.	SPOC passes leads from SOMAH.
Marketing material	Developed by implementer	Provided by SCE	Provided by SDG&E
Outreach	Multi-channel communication	Leverages existing working relationships and word of mouth marketing	Cold-calling and emailing
2. Eligibility Screening and Enrollment			
Expression of interest and pre-screening	Interest expressed by property representative, and acknowledged and reviewed by the implementer and SPOC.	Interest confirmed by implementer. Implementer informal on-site pre-screen to identify eligible and feasible measures.	Interest expressed by property representative, and acknowledged and reviewed by the implementer.
Documentation	Forms to prove eligibility provided by property representative.	Forms to prove eligibility provided by property representative. Participant is enrolled in benchmarking.	Forms to prove eligibility provided by property representative
Implementer support	Provides technical assistance and reviews the submitted property eligibility documentation. Conducts a pre-qualification call to determine adequate common area opportunity resulting in enrollment and a scheduled assessment, if eligible.	Creates a master service agreement and uploads it into Energy Management Assistance Partnership Systems (EMAPS). SCE reviews submission.	Uploads documentation to database (EECP).

Activity Element	PG&E	SCE	SDG&E
3. Opportunity Identification			
Energy assessment and benchmarking	<ul style="list-style-type: none"> • Implementer performs an energy assessment to identify energy savings opportunity. • Property benchmarking data collected by implementer and benchmarking conducted by implementer. Results from energy assessment and benchmarking are used to identify opportunities. The participant receives login information to view the results and use the benchmarking tool if desired • Recommendations based on the benchmarking and energy assessment are discussed by implementer who provides advisory support to the participant in selecting opportunities to implement. 	<ul style="list-style-type: none"> • Implementer performs an energy assessment to identify energy savings opportunity. • Participant is enrolled in benchmarking during eligibility screening and enrollment process step. Participant may or may not use results generated by the benchmarking tool. • Recommendations based on the energy assessment are discussed by implementer who provides advisory support to the participant in selecting opportunities to implement. 	<ul style="list-style-type: none"> • Implementer discusses main areas of interest for energy efficiency improvement with the participant over the phone during recruitment stage. Implementer performs an energy assessment to identify energy savings opportunity. • Property benchmarked through the Energy Star portfolio manager by the implementer who then provides the results to the participant. The participant may or may not continue using the benchmarking tool. • Recommendations based on the energy assessment are discussed by implementer who provides advisory support to the participant in selecting opportunities to implement.
Scope of work (SOW)	<ul style="list-style-type: none"> • Implementer develops a SOW with property representative. • Property representative obtains proposals, quotations, and timelines from their installation contractors. • The property representative submits the bids to the implementer for review. 	<ul style="list-style-type: none"> • Implementer develops a SOW. • Reviewed with the property representative. 	<ul style="list-style-type: none"> • Implementer develops a SOW. • Reviewed with the property representative.
Approval of SOW	<ul style="list-style-type: none"> • SOW is evaluated and approved by the implementer then submitted to PG&E for their review and approval. 	<ul style="list-style-type: none"> • SCE's SPOC checks for previous participation by submitting a Duplicate Measure Research Inquiry (DMRI). • Information is entered in EMAPS. 	<ul style="list-style-type: none"> • Minor home repair form submitted by implementer for SDG&E approval. • Information is entered in EECF.

Activity Element	PG&E	SCE	SDG&E
	<ul style="list-style-type: none"> Reviewed and accepted or partially accepted by the property representative Project Approval Letter issued by implementer 	<ul style="list-style-type: none"> Approved by property representative 	<ul style="list-style-type: none"> Audit report signed to indicate acceptance of audit results and SOW by property owner.
4. Installation			
Management and oversight	Overseen and managed by property representative.	Overseen and managed by implementer with contractors.	Overseen and managed by implementer with contractors.
5. Verification, Payment and Project Closure			
Installation completion	Project completion documentation (Verification Package) for each measure submitted by property representative.	<ul style="list-style-type: none"> Implementer follows up with property representative to confirm all measures were installed. Project packet with installation form and invoice compiled by implementer and submitted to SCE. 	<ul style="list-style-type: none"> Implementer follows up with property representative to confirm all measures were installed. Post-install form detailing measure installation drafted by implementer and submitted to property representative. Post-install form confirming all measures were installed and working properly signed by property representative Post-install form and invoice submitted by implementer to SDG&E.
Verification	<ul style="list-style-type: none"> Desktop reviews for all projects performed by implementer 10% of the completed projects in virtual or on-site inspection verified by implementer. PG&E performs on-site project inspections and desktop reviews on a sample of approximately 15% of the completed projects. 	Type and quantity of 10% of all the submitted measures verified by SCE's third-party contractor.	Inspections performed on 100% of all projects by SDG&E's internal inspections staff.

Activity Element	PG&E	SCE	SDG&E
Corrections	Implementer informs property representative to address the issues.	Third-party contractor informs SCE of items to be corrected. SCE reviews recommendations and inform implementer, and implementer addresses issues.	SDG&E informs implementer of items to be corrected, and implementer addresses issues.
Incentive payment	<ul style="list-style-type: none"> Having verified measures, implementer submits an incentive payment request to PG&E. Reviews the Verification Package then follows up with an on-site verification resulting in the approval or rejection of the incentive payment. 	Once 10% of all submitted measures are verified and issues addressed, project payments are processed.	Forms submitted to SDG&E's database (EECP) by implementer. This includes post-install form and invoice for review and approval. After all issues are addressed, project payment is processed.
Participation in other initiatives	<ul style="list-style-type: none"> During opportunity identification process step, SPOC works with property representative to evaluate if their project can achieve greater energy savings and/or additional resources. During project closure process step, SPOC works with the property owner to determine the potential participation in other programs. 	During installation process step, in-unit assessment to recruit for tenant enrollment is performed by implementer.	During recruitment process step, SDG&E SPOC reviews interested property to identify other programs for eligibility.

5. Perspective from Program Administrators, Single Point of Contact (SPOC) and Implementers

Program administrators, SPOCs and implementers were interviewed to obtain their perspective of the MF CAM initiative in terms of:

- Challenges
- Best practices and lessons learned
- Recommendations to improve the initiative

5.1. Challenges

The perceptions about challenges to deliver the initiative is presented by:

- Outreach and recruitment process step
- Documentation activity
- Installation process step

The challenges are described in detail in the sections below. Where an IOU is mentioned in brackets, this highlights that the challenge was mentioned by that, or those, IOUs only. If no IOU is mentioned specifically, the challenge was mentioned by all IOUs.

5.1.1. Outreach and Recruitment

The main challenges experienced during the outreach and recruitment stage include the following:

- Connecting with the right person
- Customers declined to participate
- Regional constraints
- Slow participation by portfolio companies
- Eligibility

These challenges are described in detail in the tables below.

Challenges

Connecting with the right person

- One of the biggest challenges is identifying and connecting with the right person during recruitment. This challenge is often due to:
 - Lack of contact information.
 - Reaching the contact person via phone or email is often almost impossible due to a lack of response to voice messages or emails. [SCE, SDG&E]
 - The first point of contact is often with a gatekeeper, a receptionist, or an assistant, who may not recognize the value as clearly as the person managing energy and sustainability. [SDG&E]
 - As more potential participants work from home, obtaining accurate contact information becomes increasingly difficult (especially telephone numbers). [SCE]
 - The manager or decision-maker is too occupied with other priorities to devote time to this initiative. [SDG&E]
 - Staff turnover makes it difficult to find the correct point of contact. [SDG&E]
 - In the case of large portfolios, the decision-maker is often the portfolio or asset manager, who is not located at a specific property at the corporate office. Finding the portfolio or asset manager is often a challenging task. [SDG&E]

Customer declined to participate

- Some potential participants refused to participate in the initiative due to financing and timing constraints. For instance:
 - The incentive payment is structured to provide the full incentive upon complete installation of all measures. This indicates that before receiving the incentive payment, participants may need to obtain a method of financing to pay for the construction as it progresses. As a result, customers did not participate if they couldn't secure private financing. [PG&E]
 - MF CAM has strict deadlines. When it comes to retrofitting, deed-restricted properties are often overseen by government regulations in terms of when they can conduct retrofits and obtain funding. In some cases, the funding from, or timelines of their activities for the government regarding financing and taxes did not line up with the timeline to participate in MF CAM. [SCE, PG&E]
 - Some properties have other upgrades in progress and refused to participate until the upgrades were completed. [SDG&E]
- Some potential participants refused to participate due to bad customer experience with past programs. [SCE]
- In some instances, potential participants refused to participate because there were not enough multifamily common area opportunities to justify the level of effort required to participate. [PG&E]

Challenges	
Regional constraints	<ul style="list-style-type: none"> In some regions, the number of deed-restricted properties is limited and recruiting participants can be challenging. [SDG&E]
Slow participation by portfolio companies	<ul style="list-style-type: none"> Some companies with large property portfolios prefer to upgrade only one property at a time rather than the entire portfolio. This approach is inefficient, more costly for the implementer, and significantly increases the number of touchpoints between the implementer and the participant. The number of companies adopting this approach has risen during COVID. [SDG&E]
Eligibility	<ul style="list-style-type: none"> During recruitment, various participants indicated they had not participated in the initiative, but upon screening, the implementer determined that they have. This increases the additional tasks to the implementer’s workload and leads to unmet expectations among participants who believe they can participate. [SDG&E] A broad marketing campaign tends to include properties that are eager to participate but are deemed ineligible after screening. As a result, customers were frustrated and dissatisfied. [SDG&E]

5.1.2. Documentation

The main challenges experienced with documentation includes:

- Documentation required to participate in the initiative is often not easily accessible, especially for older and less organized properties and companies. Deed-restricted documentation is often the most challenging to obtain.
- Some participants are apprehensive about submitting rent roll information via email and would prefer submission via a secure online portal.

5.1.3. Implementation

The main challenges experienced during the implementation stage includes:

- Delays
- Level of effort
- Supply chain
- Eligibility

- COVID-19

These challenges are described in additional detail in the table below.

Challenges	
Delays	<ul style="list-style-type: none"> • Recruited participants hesitancy to proceed with project due to disruption, particularly for tenants. [SDG&E] • Properties express an interest in participating, but it might take three to four months to communicate their desire to move forward after the energy assessment is completed. This slow time frame and lack of communication make it challenging to progress the project efficiently and on schedule. [SDG&E] • The lack of availability of the appropriate decision maker at various phases of the process that require approvals can create delays and increase frustration for both the participant and implementer. • Participants' other priorities can impact their availability at different points in the process. [SDG&E] • The original property representative may no longer be with the business if there are significant delays between the final inspections. The new representatives who are less familiar make it more difficult to acquire accurate information about the process of conducting the installation and general participation in the initiative. [SDG&E] • Some projects are delayed if required permits are not obtained early in the project implementation process. [PG&E]
Level of effort	<ul style="list-style-type: none"> • The effort required to review diverse bids from contractors for measure installation can be a challenge for the implementer. Bids were often reworked to ensure compliance. [PG&E] • The effort to compile and process the material required to ensure clarity and details to fulfill review requirements throughout the initiative can be a challenge for the implementer. [SDG&E]
Supply chain	<ul style="list-style-type: none"> • Supply chain issues lead to delays in receiving and delivering equipment. These delays make project installation less efficient and lead to longer times for completing and closing projects. Since the equipment is custom designed and cannot be acquired in bulk, supply chain restrictions have a greater impact on custom projects. [SCE, SDG&E] • Larger equipment, such as boilers, experience greater supply chain delays than more common and smaller equipment, such as lighting. Only when all the equipment has been installed can projects be invoiced. When a project includes both large and small equipment, the more common equipment may be installed quickly, but installation costs are not paid until the large equipment is received and installed. These types of delays can often be months. [SDG&E] • Suppliers have increased the cost of products. [SDG&E]

Challenges	
Eligibility	<ul style="list-style-type: none"> As MF CAM was a new initiative it required additional time to clarify which policies and procedures apply to traditional ESA initiatives compared to common area. In addition to clarification, confirmation was needed for measure eligibility, product eligibility, and region eligibility further extending project timelines. [PG&E] When program or policy changes occur, it is often challenging to communicate the changes to participants, especially if they eliminate some of the participants' benefits. The challenges could be addressed by clearly communicating the reason for the change, how it would impact customers, and then ensuring that customers are still able to engage with the program after that policy change has been made. [PG&E]
COVID-19	<ul style="list-style-type: none"> Virtual site assessments aid in identifying opportunities, but they depend on the on-site person and their screen sharing or connectivity capabilities. The challenges were addressed by obtaining follow-up photos and documentation. This additional follow-up requires more time and may affect project schedules. [PG&E] Due to COVID-19 creating staffing resource constraints, some customers with large portfolios are only participating with one property at a time rather than multiple properties at once. This slow approach creates inefficiencies and significantly increases the number of touchpoints. [SDG&E] Collecting signatures and documents is a considerable effort for implementers at properties where employees work remotely, and there isn't a large staff in the office. [SDG&E] Local jurisdictions experiencing resource and staff shortages because of COVID-19, make it more difficult to obtain closed permits. When permits are not obtained Incentives for some key measures may not be provided [PG&E]

5.2. Best Practices and Lessons Learned

The program delivery best practices and lessons learned identified by the program administrators, SPOCs and implementers are presented by:

- Outreach and marketing process step
- Opportunity identification process step
- Implementation process step
- COVID-19 pandemic

The best practices and lessons learned are summarized in the sections below. Where an IOU is mentioned in brackets, this highlights that the best practice or lesson learned is relevant to that, or those, IOUs only. If no IOU is mentioned specifically, the best practice or lesson learned is applicable to all IOUs

5.2.1. Outreach and Marketing

The main outreach and marketing best practices and lessons learned in delivering the MF CAM initiative cover the following areas:

- Strategies and sources informing outreach
- Outreach strategies
- Marketing strategies
- Marketing leveraging education and support
- Early identification of opportunities

The best practices and lessons learned are summarized in the table below.

Best Practices and Lessons Learned	
Strategies and sources informing outreach	<ul style="list-style-type: none">• A market characterization or assessment study in which potential deed-restricted properties are identified can be useful to guide the outreach strategy and assist with prioritizing and targeting. For example, larger property owners with portfolios of low-income deed-restricted properties across the service territory may be targeted first as they have the potential to benefit the most from the initiative [SDG&E, PG&E]• A large list of multifamily housing in the state of California that are tax credit properties is an important dataset that can be used to inform outreach. The list is available on the website: treasurer.ca.gov/CTCAC/projects.• Publicly available property lists from the US Department of Housing and Urban Development (HUD) and the US Department of Agriculture are also valuable resources. Contacts obtained during recruitment for other ESA initiatives can also be very useful. [SCE, PG&E]• A strategy for good uptake is to identify and target properties in climate zones where HVAC is feasible. HVAC replacement is allowed in certain climate zones. If the existing HVAC system in the common area building is over ten years old, it qualifies for replacement with a higher efficiency seasonal energy efficiency ratio (SEER) unit. The energy savings are usually relatively significant. [SCE]

Best Practices and Lessons Learned

Outreach strategies

- IOUs exchange contacts and referrals for property management groups in their respective regions. [SCE, SCG]
- In-person outreach, networking, and presence at conferences were the most effective outreach strategies. A combination of a phone call with voice messages and a follow-up email is another successful outreach and recruiting strategy. Mailing campaigns were the least effective.
- Recruiting regional managers with a portfolio of properties is more efficient and cost-effective than recruiting individual properties one at a time.
- Creating a personable relationship with a property manager is one of the key strategies to recruit and enroll properties. Well-versed outreach and intake staff create and maintain the relationships at the property.
- Recruiting participants to receive common area measures is easier than recruiting participants to receive in-unit measures. The MF CAM initiative targets the property manager, while the in-unit measures are available to individual low-income households. Gaining access to and recruiting individual households for in-unit measures via ESA presents challenges and barriers as permission from property managers needs to be granted before program staff can start knocking on doors. [SDG&E]

Marketing strategies

- Marketing materials that are co-branded with both the utility and the implementer helps validate the implementer’s authenticity for the property representative.
- Brief Marketing materials such as 5 – 6 page brochure explaining what is with examples of potential energy savings, and case studies attract potential participants

Marketing leveraging education and support

- To assist potential property representatives with the application process, provide a sample verification package on the implementer’s website. This would serve as an example of what is considered a complete verification package. The property representative can then use it as a template to provide all the necessary documentation. [PG&E]
- To assist potential customers with the application process, provide verification training modules on the website and disseminate them through various marketing channels (such as newsletters and other virtual remote mediums). The modules are short videos explaining each step in the verification process. [PG&E]
- During the enrollment and screening process, when the implementer fills in the Multi-Family Property Questionnaire with as much information as possible, the property manager’s workload and risk of not participating are reduced. [SDG&E]

Best Practices and Lessons Learned

Early identification of opportunities

- Identifying potential measures early in the process facilitates timely implementation. Prescreening properties for eligibility and opportunities, for example, reduces time spent gathering documents and enrolling properties that are not or cannot receive the measures available via the initiative.

5.2.2. Opportunity Identification

Best practices and lessons learned identified as part of the opportunity identification process in delivering the MF CAM initiative cover the following areas and are summarized in the table below.

- IOU representative involvement
- Property maintenance personnel involvement
- Energy Star portfolio manager benchmarking
- Mobile and software technology

Opportunity Identification

IOU representative

- Involvement of the IOU’s representative during the opportunity identification stage increases the credibility of the implementer and importance of the program activities as perceived by the property representative. [SCE]

Property maintenance personnel

- Working with property maintenance personnel to identify opportunities is an effective strategy since they are generally knowledgeable about energy end-uses and technology. [SCE]

Opportunity Identification	
Energy Star portfolio manager benchmarking	<ul style="list-style-type: none"> The Energy Star portfolio manager benchmarking is an effective education tool and helps the participant understand energy use at the property. The benchmarking report is a helpful addition as an appendix to the energy assessment report. [PG&E]
Mobile and software technology	<ul style="list-style-type: none"> The integration of mobile and software technology improves efficiency by streamlining processes and data collection. There are efficiencies when data collected on-site can be used while identifying measures to install as well as generating assessment reports. [PG&E]

5.2.3. Implementation

The main implementation best practices and lessons learned in delivering the MF CAM initiative cover the following areas, and are summarized in the table below:

- Minimize participant’s level of effort
- Choice of installation contractor
- Bid review template
- Knowledgeable supplier

Implementation	
Minimize participants level of effort	<ul style="list-style-type: none"> A strategy that minimizes the participants’ level of effort is appealing to many property managers. An example of such a strategy is a turn-key solution from the audit, to procurement, to installation and then to project closeout. Having a single point of contact for the implementation of the initiative is very attractive, especially for properties with resource constraints or a lack of expertise. [PG&E, SDG&E]

Implementation	
Choice of installation contractor	<ul style="list-style-type: none"> Providing customers with a choice in selecting the installation contractor and equipment aid in providing the customer with a product that better matches their property, which is ultimately beneficial for the recruitment and increases customer satisfaction. One strategy that supported this approach used an open contractor network where the customer can choose the licensed contractor they want to use, and the customer selected the equipment. The implementer then evaluated the equipment against the program’s eligibility criteria. [PG&E]
Bid review template	<ul style="list-style-type: none"> For implementers that need to review bids from potential contractors to be hired by property representatives, it is best to have a bid review template that is categorically organized based on defined values. This minimizes the need to subjectively analyze bids and make judgement calls on specific values. [PG&E]
Knowledgeable supplier	<ul style="list-style-type: none"> It is beneficial for an implementer to have a knowledgeable supplier who recommends alternative options when a selected technology option is not available. [SCE]

5.2.4. COVID-19

The main best practices and lessons learned in delivering the MF CAM initiative during the COVID-19 are summarized in the table below.

COVID - 19	
Virtual site visits	<ul style="list-style-type: none"> Replacing on-site visits with virtual site visits and audits minimized disruption to the program delivery. [PG&E]
Flexible program schedule	<ul style="list-style-type: none"> Flexibility built in as part of the program schedule accommodated delays caused by the COVID-19 pandemic. [PG&E, SDG&E]

5.3. Interviewee Suggestions

Program administrators, SPOCs and implementers were interviewed to provide preliminary suggestions for improving the MF CAM initiative. This section summarizes interviewees' suggestions and does not reflect the final recommendations from the evaluator. The suggestions cover the following areas, and are summarized in the table below:

- Marketing and outreach
- Opportunity identification
- Optimizing efficiency and cost-effectiveness
- Expanding the scope of the initiative
- Participant satisfaction

Suggestions made by particular IOU representatives are identified in brackets. Suggestions may or may not be applicable to all IOUs

Suggested Recommendations	
Marketing and outreach	<ul style="list-style-type: none"> • To be successful, a strong marketing strategy for the MF CAM initiative is required. • Well-developed marketing strategies are useful to facilitate Potential participants' understanding of the program • Consider using implementers with knowledge and/or ability to market and recruit participants to enroll them in the initiative. • Make visually compelling marketing material to increase the likelihood of capturing the attention of potential program participants. [SCE] • Broader marketing to property owners/managers to raise awareness of the program. This will assist property owners/managers to plan to work with the initiative before older equipment fails. [PG&E, SDG&E] • A central application portal for multifamily programs would enable participants in other initiatives to indicate their interest in the MF CAM initiative. Implementers will then have a direct lead and the correct contact information of the potential participant. [SDG&E] • Identify strategies to better target and enroll smaller properties. Smaller properties tend to have limited human resource capacity to manage these types of projects and they tend to get information on programs from a small number of sources. [PG&E, SDG&E]

Suggested Recommendations	
Opportunity identification	<ul style="list-style-type: none"> • It would be helpful to have an energy tracking system for the implementer that provides insight into measures and opportunities that result in the greatest energy savings so that the most impactful measures will be selected to address challenges that the grid faces. [PG&E] • Assess how the initiative can leverage Normalized Metered Energy Consumption (NMEC) for actual reported savings to better understand how measures influence savings. [PG&E]
Optimizing efficiency and cost-effectiveness ³	<ul style="list-style-type: none"> • Streamline and optimize the level of involvement, number of touchpoints, and the amount of paperwork to be completed by the property manager, especially for smaller properties. This will assist with recruiting and retaining participants. A participant portal can be an effective tool within this optimization and can provide a secure way to transfer documents. [PG&E, SDG&E] • Standard service requirements, such as timelines for completion of process steps by participant and implementer, can assist in increasing the attention and urgency to get projects installed and completed. [SDG&E] • Review and improve process efficiency of installation contractor bids and verification of installed projects. [PG&E] • An incentive for the property manager can assist in ensuring dedicated attention from property managers and make the process more efficient. [SDG&E] • Cost-effectiveness may be improved by lower installation costs generated from the use of a bulk supplier or purchasing system, or through competitive bidding. [PG&E]
Expanding the scope of the initiative	<ul style="list-style-type: none"> • Flexibility in terms of replacement equipment to be installed, such as right-sizing the equipment or installing electric equipment if the property has surplus solar-generated electricity, will create more opportunities, and better address customers' needs. [SDG&E] • Revise eligibility criteria to consider current efficiency in addition to the age of the equipment. For example, a boiler needs to be older than 15 years to qualify for replacement, yet some boilers are inefficient despite not being 15 years old. Similarly, some 15-year-old boilers remain efficient and may not warrant replacement. [SCE, SDG&E] • Determine how to better leverage other multifamily programs, such as layering incentives from other programs to promote a broader scope of energy savings. [PG&E]

³ The suggested recommendations from Program Administrators, SPOCs and implementers need to be weighed against the cost implications, and the increased risk of poor installs, unnecessary costly measures, and not providing the right measures.

Suggested Recommendations

Participant
satisfaction

- A post-completion participant survey would provide information on participant satisfaction and assist in improving the initiative. [SCE]

Appendix A Logic Models

A logic model can be defined as a plausible and sensible diagram of the sequence of causes (resources, activities, and outputs) that produce the effects (outcomes) sought by a program. The logic models for PG&E, SCE and SDG&E are provided in in this Appendix. The main differences between the IOU logic models are discussed in Section 3. More details of process differences between the IOUs are provided in Section 4, which discusses the process flow diagrams.

Legend

The following legend is applicable to the logic models.

Logic Model Component	Component Color code	Description
Activities		Processes, events, and actions used to bring about the intended results or changes.
Outputs		Direct products of the activities.
Outcomes		Expected changes that happen as a result of the activities that show how the program is progressing and recognize when goals are realized.
Goal		What the program intends to accomplish.

External Factors

The following are external factors or influences on the program beyond the programs control and the applicable impacts each factor had.

Factors	
COVID-19	<ul style="list-style-type: none"> • Halted infield work and restricted in-person contact, requiring new processes. • Extended project timelines. • Difficulty obtaining closing permits due to COVID 19 resource and staff backlogs. • Supply chain back log
Deed restricted market	<ul style="list-style-type: none"> • Properties are governed by government regulation, which can dictate when retrofits can be conducted, and government financial support is provided. • Limited financial resources to pay for construction in progress, resulting in non-participation as incentives are paid at 100% project completion. • Some properties do not have enough multifamily common area opportunities to make it economical to address the opportunities through the initiative.
New Program	<ul style="list-style-type: none"> • Customers are risk adverse to participate in a new program and require education. • Customers wary of program due to a bad customer experience with past programs.

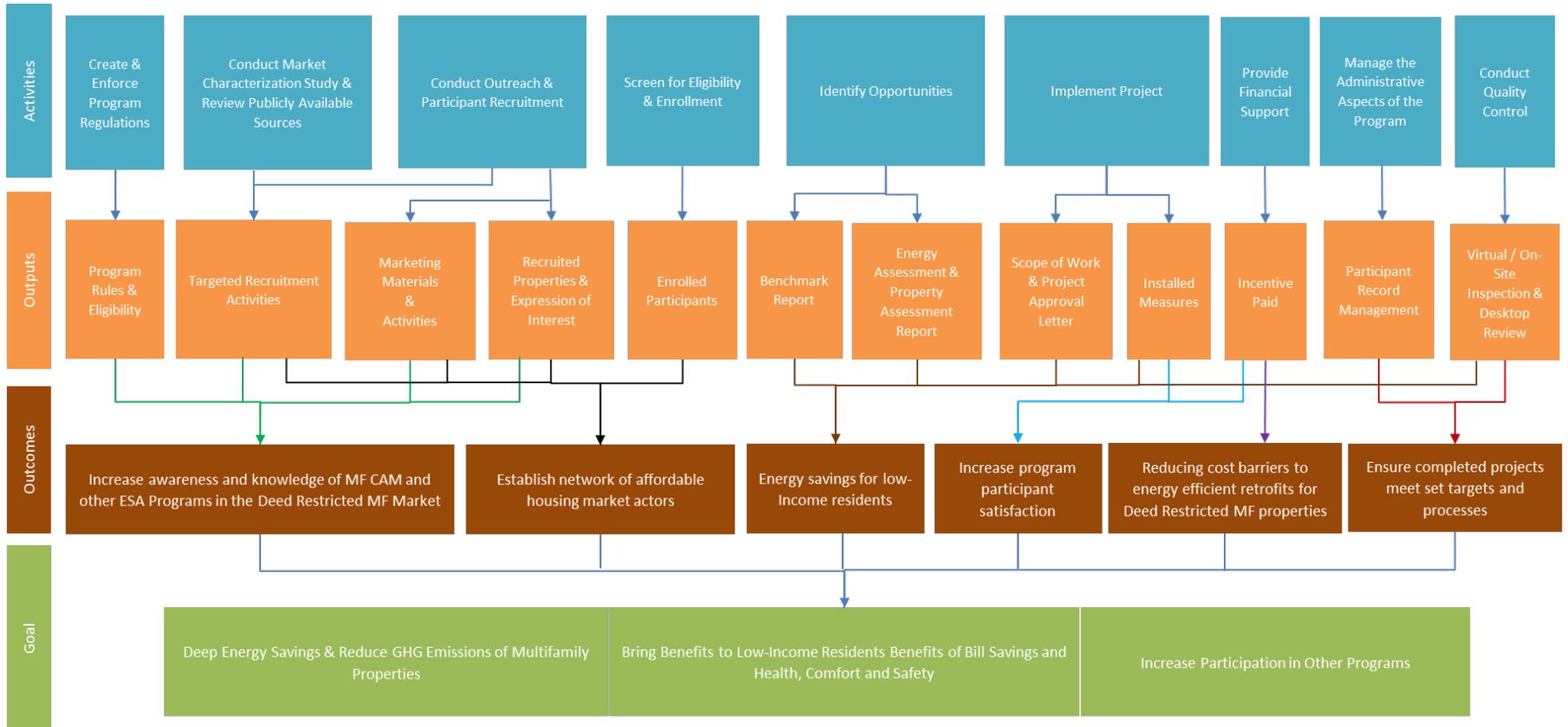
PG&E Logic Model

The table below outlines the various resources our inputs that are invested in the MF CAM initiative delivered by PG&E.

Resources	
Human Expertise	<ul style="list-style-type: none"> • PG&E staff – manage the program • TRC staff - manage the implementation of the program and offer technical assistance • TRC SPOC - manage the intake of potential participants and build awareness of other programs • Low Income Deed Restricted Property Owners/Property Management – participation in program processes utilizing knowledge of their property • Trade Ally Network – Utilized to implement projects
Funding	<ul style="list-style-type: none"> • Funding for up to 100% of project cost

The PG&E logic model is presented in the figure on the next page.

Figure 1: PG&E Logic Model



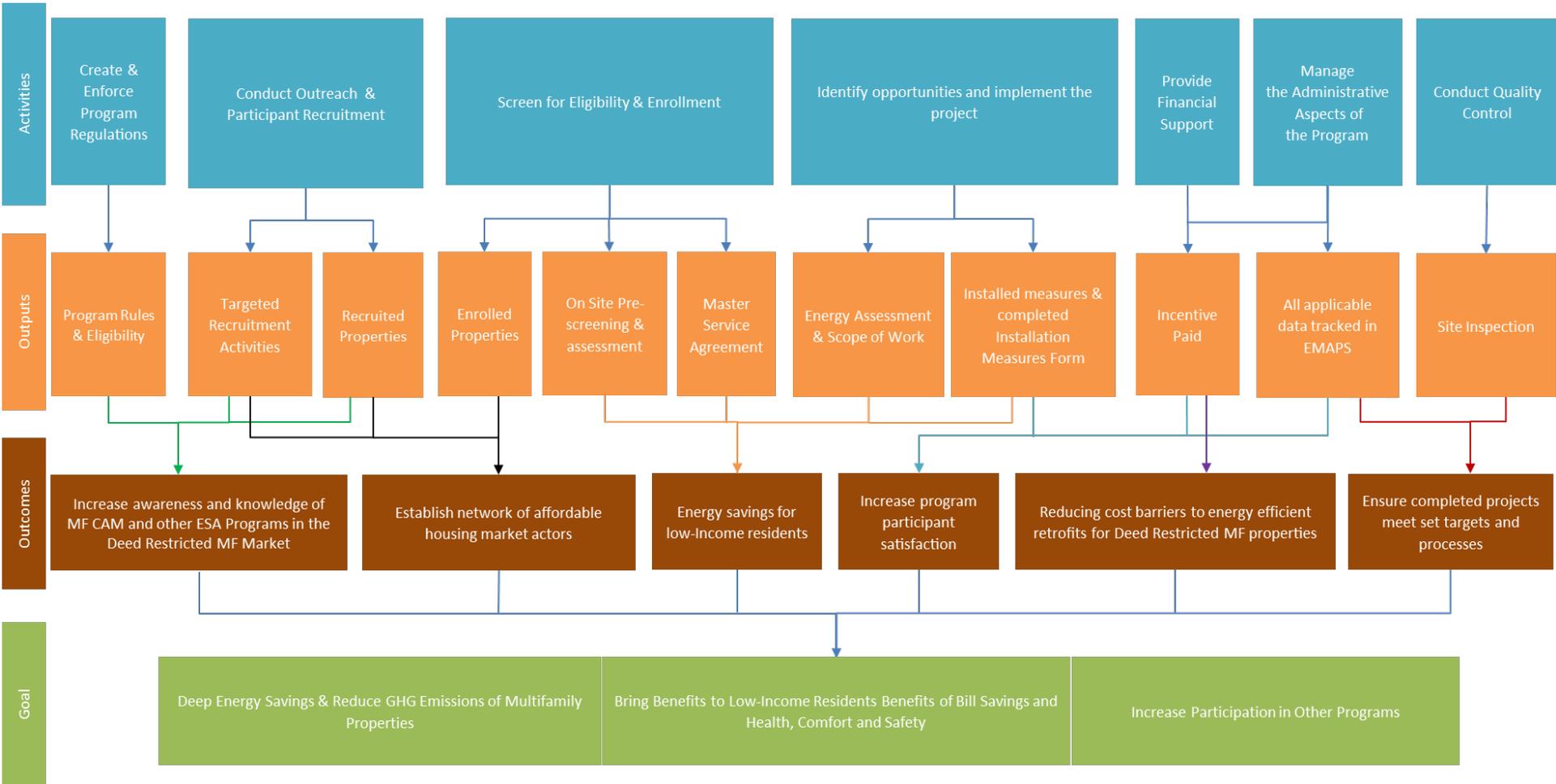
SCE Logic Model

The table below outlines the various resources our inputs that are invested in the MF CAM initiative, delivered by SCE.

Resources	
Human Expertise	<ul style="list-style-type: none">• SCE staff – manage the program• SCE SPOC staff – manage the program & offer support to the implementer Synergy Companies• Synergy Companies – manage the implementation of the project from marketing to installation• Low Income Deed Restricted Property Owners/Property Management – participation in program processes utilizing knowledge of their property
Funding	<ul style="list-style-type: none">• Funding for up to 100% of project cost

The SCE logic model is presented in the figure on the next page.

Figure 2: SCE Logic Model



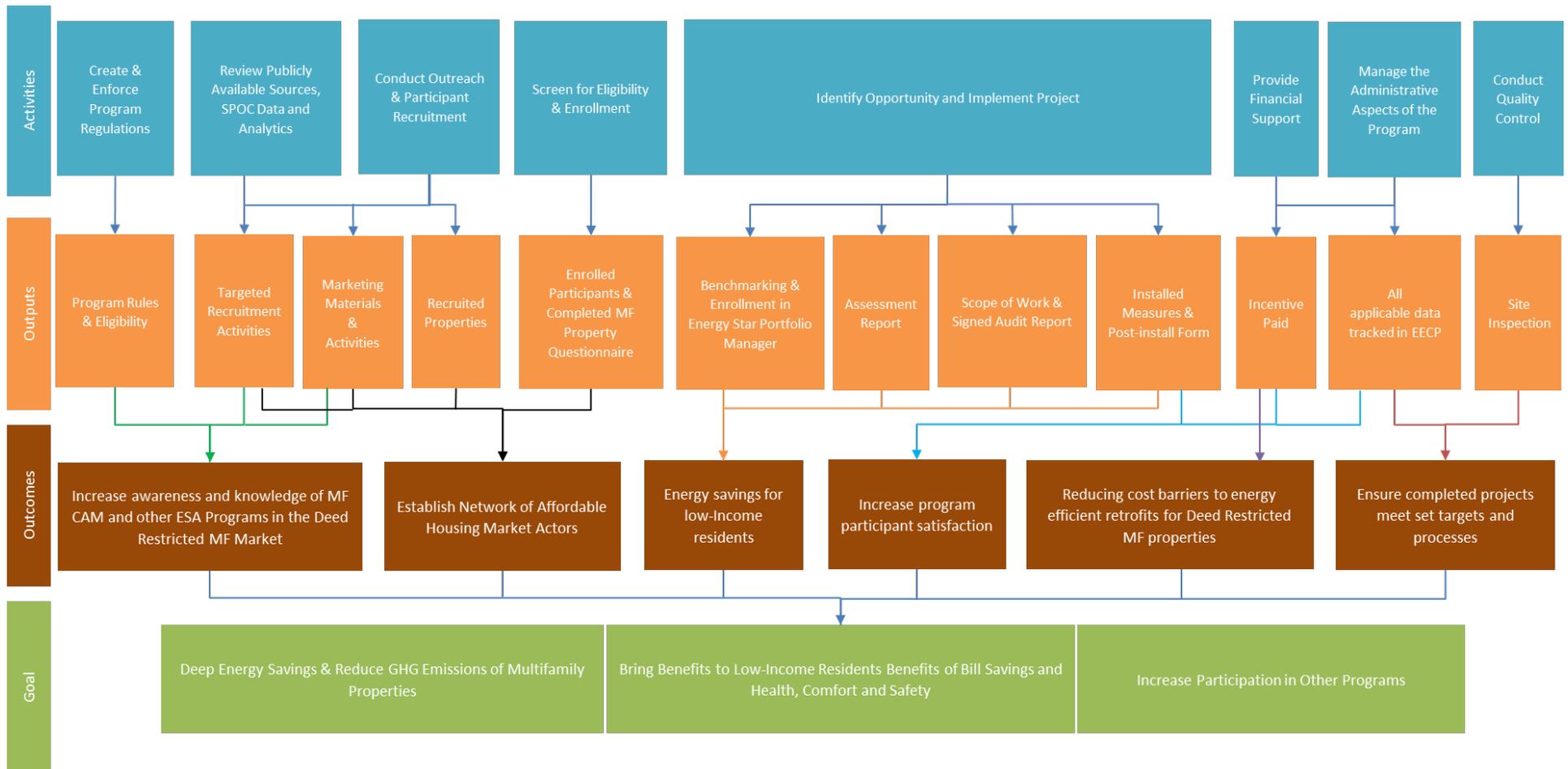
SDG&E Logic Model

The table below outlines the various resources our inputs that are invested in the MF CAM initiative, delivered by SDG&E.

Resources	
Human Expertise	<ul style="list-style-type: none">• SDG&E staff – manage the program• SDG&E SPOC staff – manage the program & offer support to the implementer Synergy Companies• Wildan – manage the implementation of the project from marketing to installation• Low Income Deed Restricted Property Owners/Property Management – participation in program processes utilizing knowledge of their property
Funding	<ul style="list-style-type: none">• Funding for up to 100% of project cost

The SDG&E logic model is presented in the figure on the next page.

Figure 3: SDG&E Logic Model



Appendix B Summary of Documents

The appendix provides a summary of the documents, such as marketing material, forms, letters, etc., used by PG&E, SCE and SDG&E in delivering the MF CAM initiative. These documents are referred to in the logic models (Section 3) and process flow diagrams (Section 4).

Table 5: PG&E Documents for ESA MF CAM Initiative

Document Title	Description
Online Interest Form	<p><i>Includes the following elements:</i></p> <ul style="list-style-type: none"> • Multi-family Property Owner Affidavit: ESA CAM-provided document where the property owner/representative signs and certifies the property's income eligibility meets PG&E ESA CAM and in-unit requirements. • ESA CAM Application Agreement: ESA CAM-provided document, signed by the property owner/representative, confirming commitment to the ESA CAM program and all requirements. Records owner/representative point-of-contact, contractor name, general property information, and utility service agreement ID. • Benchmarking Authorization Form: ESA CAM-provided document completed by the owner/representative providing property and energy meter information necessary to conduct property-level benchmarking using ENERGY STAR Portfolio Manager. • Affordability Documentation/Regulatory Agreement: Deed restriction documentation, often in the form of a regulatory agreement, from a local, state, or federal government agency or other agency that demonstrates a requirement to maintain long-term affordability. • Household Income Data: Annual household incomes for each occupied unit to verify that 65% of the residents at the property are at or below 200% up-to-date FPL. • PG&E Bills: Participants must be PG&E customers and provide a recent bill showing the property address and public purpose program (PPP) charge. Properties that only receive one commodity service (i.e., gas or electricity-only) from PG&E are still eligible for ESA CAM. • Contractor Information: Company name, company contact name and information (if not provided in the Application Agreement). • W-9 Attachment to the Application Agreement: Tax ID form, filled out by the owner/representative or their contractor (if the project incentive is assigned to them as stated in the Application Agreement).
Outreach lists	Publicly available, and procured, lists of low-income deed-restricted properties through federal, state, and regional sources.
Marketing Materials	Newsletters, webinars, industry event sponsorship and attendance with SPOC support, industry partnerships, direct outreach
Benchmark Report	The owner/representative must provide the property's building information and metered energy usage data using the PG&E Building Benchmarking Portal platform. ESA CAM staff will input the property usage data into the Environmental Protection Agency's software tool, ENERGY STAR Portfolio Manager. ESA CAM staff will analyze this data and

Document Title	Description
	provide a report summarizing findings. This report provides insight about current and historic energy usage patterns and assists in identifying beneficial ESA CAM measures.
Property Assessment Report	Include a list of recommended ESA CAM measures with measure specification requirements for the project Scope of Work (SOW).
Scope of Work (SOW) Proposal and Project Timeline	Document that outlines what the program will deliver to the customer, and the timeline for completing the work.
Property Owner Sign-off	Property owner signs off on the scope of work and project timeline.
Project Approval Letter	A letter sent by ESA CAM staff to the owner/representative approving the project SOW which includes the measure specifications, project timelines, and project incentive amounts.
Project Completion Documentation	<p><i>Documentation includes:</i></p> <ul style="list-style-type: none"> • Cut Sheets: Documents obtained from the product manufacturer that summarizes the performance and other technical characteristics of each measure installed. • Photos: Photos of equipment installed, including nameplates. • Invoices: Detailed bill of materials and labor identifying quantities purchased and model numbers. • Code Compliance Documentation (e.g., permits): Documentation demonstrating compliance with code requirements, such as closed permits and HERS certificates of compliance. • W-9 Form: Completed to whom (owner/representative or contractor) the incentive is being paid. • Project Certification Forms: Owner/representative certifying any required permits were obtained, project contractor had the appropriate license, and HVAC measures proof of permit closure (if applicable).
Verification Package	Includes desktop review and virtual/on-site inspections, as well as a form for the property owner to sign once the program upgrades have been installed. This includes information on the requirements for submitting project invoices, and outlines requirements for additional documentation.

Table 6: SCE Documents for ESA MF CAM Initiative

Document Title	Description
Property Owners Authorization & Affidavit (POAA)	Serves as an affidavit, requiring the owner/manager to certify the eligibility of the property based on the eligibility requirements of the MF CAM initiative.
Common Area Assessment Form	Form that accompanies the site assessment that outlines the service, description of existing measures, location, and estimated quantity and type.
Regulatory Agreement	Outlines deed-restricted status of the property.
Sitemap	Referenced the spec or layout of the property.
Master Service Agreement	Package of signed POAA, enrollment in Portfolio Manager Benchmarking, and Sitemap.
Scope of Work (SOW)	Document that outlines what the program will deliver to the customer, and the timeline for completing the work.
Property Owner Sign-Off	Property owner acknowledges that the project was completed, and all measures were installed and are working.
Installation Measures Form	Form that outlines location of measure installation, quantity of equipment, and types of equipment being installed.
Project Packet	Packet of all the forms submitted for the MF CAM project.

Table 7: SDG&E Documents for ESA MF CAM Initiative

Document Title	Description
Marketing Material	Marketing material provided by SDG&E. SDG&E uses program flyers and case studies as marketing material.
Recruitment Data Sets	Outreach uses lists from regional sources to identify deed-restricted MF properties.
Eligibility Documentation	Documentation proving the property's deed restricted status and level of tenants qualifying at or below 200% of the Federal Poverty Guideline.
Rent Roll	Properties must submit a rent roll highlighting rental income from their properties.
Property Owner Authorization (POA) Form	Serves as an affidavit, requiring the owner/manager to certify the eligibility of the property based on the eligibility requirements of the MF CAM initiative.
Multi-family Property Questionnaire	Brief questionnaire that allows participants to provide details about their property. The responses from this questionnaire are used by SDG&E to determine what programs the participant qualifies for.
Letter of Authorization (LOA) for Benchmarking	Letter highlighting agreement from the property owner for the program contractor to benchmark the property.
Benchmark Report	Implementer benchmarks the property through the Energy Star portfolio manager and provides the results to the participant.
Energy Assessment Report	Report that provides property owner with a list of program measures that the customer may qualify for, and no-cost energy savings opportunities, as well as additional observations and recommendations.
Scope of Work (SOW)	Document that outlines what the program will deliver to the customer, and the timeline for completing the work.
Minor Home Repair Report	Discusses any minor home repair changes that need to be made at the property to install the program measures (e.g., piping needs to be moved to be able to install the boiler).
Post-Install Form	Details which measures were installed. This form is signed by the property manager to signify that all measures that they were interested in were installed and are working properly.

Appendix C Process Flow Diagrams

A process flow diagram provides the program implementation process steps and activities in an illustrative map. The flow diagrams identify the responsibilities of the resources in implementing the process steps and activities. The process flow diagrams for PG&E, SCE and SDG&E are provided in this Appendix, starting on the following page. The process flow diagram of each IOU includes the following five process steps:

1. Outreach and Participant Recruitment
2. Eligibility Screening and Enrollment
3. Opportunity Identification
4. Installation
5. Verification, Payment and Project Closure

The main differences between the IOU process flows are discussed in Section 4.