SOLAR ON MULTIFAMILY AFFORDABLE HOUSING THIRD TRIENNIAL REPORT

Submitted to:
California Public Utilities Commission

Prepared by:
Verdant Associates, LLC
DNV

Verdant Associates, LLC
Berkeley, CA 94707
www.verdantassoc.com

May 29, 2026

DNV

VERDANT

VERDANT

TABLE OF CONTENTS

VERDANT

VERDANT

LIST OF FIGURES

VERDANT

LIST OF TABLES

VERDANT

LIST OF ACRONYMS

ACC	Avoided cost calculator
CAISO	California Independent System Operator
CARE	California alternate rate for energy
CBO	Community-based organization
CO_2	Carbon dioxide
CPUC	California Public Utilities Commission
DAC	Disadvantaged community
EPBB	Expected performance-based buydown (calculator)
HCO	Host customer owned
HUD	U.S. Department of Housing and Urban Development
ICP	Incentive claim package
IOU	Investor-owned utility
ITC	Federal investment tax credit
JTO	Job training organization
kW	Kilowatt
KWh	Kilowatt hour
LIHTC	Low income housing tax credit
LIWP	Low-income weatherization program
M&V	Measurement and verification
MASH	Multifamily affordable solar housing (program)
ME&O	Marketing, education, and outreach
MW	Megawatt
MWh	Megawatt hour
NLR	National Laboratory of the Rockies
NREL	National Renewable Energy Laboratory
PA	Program administrators
PG&E	Pacific Gas & Electric
PTO	Permission to operate
PV	Photovoltaic
RIM	Ratepayer impact measure (test)

SAER	Semi-annual Expense Report
SCE	Southern California Edison
SDG&E	San Diego Gas & Electric
SMARTIE	Specific, measurable, achievable, relevant, time-bound, inclusive, and equitable (objectives)
SOMAH	Solar on Multifamily Affordable Housing (program)
SCT	Societal cost test
TA	Technical assistance
TPO	Third party owned
TRC	Total resource cost (test)
VNEM	Virtual Net Energy Metering
WFD	Workforce development

VERDANT

1 EXECUTIVE SUMMARY

This report represents the third triennial evaluation of the Solar on Multifamily Affordable Housing (SOMAH) Program covering program years 2023 – 2025. The goal of this report is to provide an update on the SOMAH Program's progress towards meeting its goals via an assessment of the program's metrics, key performance indicators (KPIs), and measurement and verification (M&V) reporting requirements (as outlined in D.17-12-022, D.24-11-006, PU Code 2870(j) and 913.8). This report will also provide an assessment of the program's impacts (energy, environmental, and economic), cost-effectiveness, and progress made by the SOMAH PA and IOUs to implement the recommendations stemming from the second triennial SOMAH evaluation spanning 2020-2022.

1.1 BACKGROUND

California State Assembly Bill (AB) 693 directed the California Public Utilities Commission (CPUC) to institute a new program intended to make qualifying solar energy systems accessible to low-income and disadvantaged communities (DAC).[1] In December 2017, the CPUC issued Decision (D.) 17-12-022 creating the SOMAH Program and establishing program goals and eligibility requirements. The primary goal of this program is to install solar energy systems that have a generating capacity equivalent to at least 300 MW (CEC-AC) on qualified multifamily affordable housing properties through December 31, 2030[2] (later extended through 2032 with California State Senate Bill (SB) 355) and to increase workforce development and training activities to support economic development in underserved communities.

The SOMAH Program provides significant subsidies for the installation of solar photovoltaic (PV) systems on qualifying multifamily affordable housing properties (i.e., multifamily housing financed with low-income housing tax credits, tax-exempt mortgage revenue bonds, general obligation bonds, or local, state, or federal loans or grants). To qualify for SOMAH incentives, properties must be existing deed restricted properties, have at least five units (including manufactured and mobile home properties), and separately metered tenant units. They must also satisfy either A) 66% of their total tenant households have incomes at or below 80% of the area median income, B) Property is in a DAC as defined by the California Environmental Protection Agency (CalEPA), C) Property is owned by a California Native American Tribe, or D) Rental housing property is owned by a public housing authority or a public housing agency.

---

1 California AB 693. Multifamily Affordable Housing Solar Roofs Program. Eggman, 2015. https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160AB693

2 This program is funded by Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), San Diego Gas and Electric (SDG&E), Liberty Utilities, and PacifiCorp, collectively the investor-owned utilities or IOUs.

VERDANT

1.2 RESEARCH AREA AND EVALUATION APPROACH

Table 1-1 presents the primary areas of research for the third triennial evaluation of the SOMAH Program along with an overview of the approach employed to conduct this research. A comprehensive overview of the evaluation methods used is provided in Section 3 of this report.

TABLE 1-1: RESEARCH FOCUS AND EVALUATION APPROACH

Research Focus	Evaluation Approach
Participation Assessment to quantify and characterize SOMAH participation using metrics such as the number and size of installed projects, the location of households served/not served, eligibility pathway, contractor diversity, and program and project costs by system ownership.	Comprehensive analysis of various SOMAH data sources including application and project data stored in the PowerClerk program tracking database and the eligible contractor database maintained by the SOMAH PA.
Process Assessment to assess progress made towards minimizing identified barriers to participation, increasing the effectiveness of ME&O and workforce development activities, implementing prior evaluation recommendations, and identifying areas where continued program improvements are needed.	Extensive primary data collection and analysis including: - 48 in-depth interviews with the SOMAH PA, participating and non-participating contractors and property owners, low-income multifamily tax experts, community-based organizations (CBO), and bridge financing partners - Hundreds of surveys with SOMAH tenants and job trainees - Program data from IOUs for other programs leveraged by SOMAH properties and tenants
Program Expenditure Review to determine whether SOMAH's program spending and administrative efforts are aligned with and supportive of SOMAH's goals and objectives.	Conduct a longitudinal assessment of SOMAH's spending by entity (SOMAH PA, IOUs, CPUC), budget category (PA, ME&O, WFD, TA), and program task (CBOs, Admin, Reporting, etc.). Analysis of how program administration spending was used and an assessment of its effectiveness in increasing awareness and participation. Conduct a detailed review of SOMAH's 2020 to 2025 ME&O Plans to document the plan, goal, and SMARTIE objectives. Analysis of how well the program executed its plans and whether those plans were effective in increasing awareness and participation.
Impact Assessment to quantify SOMAH's energy (kWh and kW), environmental (greenhouse gas), and economic (tenant and common area bill savings and avoided costs) impacts.	**Energy:** PV simulation adjusted by performance ratios; calculate utility energy and demand impacts using adjusted PV production. **Environmental:** Estimate greenhouse gas reductions resulting from PV generation. **Economic:** Calculate change in customer bills resulting from PV generation; estimate program impact on CARE budgets and customer arrearages.
Cost-Effectiveness Assessment to determine the cost-effectiveness of the SOMAH Program using three California Standard Practice Manual tests.	Model cost-effectiveness of completed SOMAH projects using Verdant's cost-effectiveness model (DER-CAT), historical customer consumption, and PV simulation adjusted by performance ratios.

VERDANT

1.3 KEY EVALUATION FINDINGS

As of December 31, 2025 the SOMAH program has completed 378 projects with an installed solar capacity of 47.8 MW_{AC}, benefiting 26,436 tenants. Active SOMAH projects that are not yet complete account for an additional 71.0 MW_{AC} of solar capacity. In 2025 SOMAH projects generated 58.6 GWh of electricity. The average tenant bill was reduced by 79% ($58 per month) due to SOMAH systems.

In this section we summarize the key participation assessment, process assessment, program expenditure review, impact and cost effectiveness assessment findings presented throughout this report and offer recommendations to increase the future effectiveness of the SOMAH program. These findings and recommendations are detailed further in Section 9 of this report.

TABLE 1-2: PARTICIPATION FINDINGS AND RECOMMENDATIONS SUMMARY

Category	Description	Text Reference
Program Performance	1. The SOMAH Program continues to appear capable of achieving its 12-year goal of installing 300 MW of solar PV.	Section 4.4.3
	★ 2. Application volume has increased each year since 2022.	Figure 4-1
	↻ 3. PacifiCorp and Liberty Utilities participation remains low.	Table 4-1
	4. The average SOMAH project PV capacity is 146 kW_{AC}.	Table 4-6
Program Participation and Eligibility	1. Track A application volumes are slowly increasing with 4 projects completed as of December 31, 2025.	Section 4.1.1
	★ 2. 32% of all projects are in a DAC, falling short of 40% goal.	Section 4.3.3
	↻ 3. TPO systems are still the dominant system purchase type.	Section 4.3.1
	4. Participation continues to be dominated by multi-application property owners.	Section 4.2.1
	5. Diversity of participating contractors has increased due to increased subcontracting opportunities.	Section 4.2.2
	★ 6. Cross program participation is low for IOU administered stackable and EE programs. – **Recommendation 1**. Track non-IOU stackable program participation (when possible).	Section 4.3.7
Project Cancellations, Future Participation	1. The cancellation rate decreased from 40% (2020-2022) to 35% (2023-2025).	Section 4.1.1
	2. Primary reason for cancellation was requesting the application to be withdrawn (48% of cancellations in 2023-2025).	Section 4.1.1
	3. Program ineligibility continues to be a top cancellation driver despite the addition of the affordability pre-screen service. – **Recommendation 2**. Categorize why "program ineligible" cancellations are occurring and determine what additional actions can be taken to reduce these cancellations.	Section 4.1.1
	4. Ten projects were cancelled because of Fannie Mae issues and three were cancelled because of HUD delays.	Section 4.1.1

	– **Recommendation 3**. Identify Fannie Mae funded projects early in the application process and alert property owners of potential issues and guide towards other funding solutions. – **Recommendation 4.** Identify what is causing HUD document delays.	
Project Cost	1. 84% of completed projects and 90% of active projects are leveraging the ITC. Only 1% of completed and 1% of active projects plan to use LIHTC. – **Recommendation 5.** Verify the ITC amount claimed by projects leveraging the ITC.	Section 4.4.1
	2. Completed project costs have decreased from the previous evaluation.	Section 4.4.2
	3. Contractors report prevailing wage requirements increase labor costs (when required). – **Recommendation 6.** Explore the impact of prevailing wage requirements on overall project costs.	Section 5.1.3
Application Processing	1. Participation timelines continue to be long but are improving.	Sections 4.1, 4.3.6
	2. Project interconnection timelines are long and burdensome to contractors and property owners. – **Recommendation 7**. Create an escalation process where the SOMAH PA can flag long PTO delays to the IOUs who will investigate and support processing.	Sections 4.3.6, 5.1, 5.2.1
	3. The timeline from interconnection to bill credits is improving.	Section 4.3.6
	4. 21% of the active projects submitted since storage incentives were made available are planning to pair storage with their solar.	Section 4.3.5
Program Tracking Data	1. Program tracking data continues to improve. – **Recommendation 8**. Continue to improve tracking data with additional fields.	Section 4.3.6
	2. The eligible contractor data is missing key contractor information.	Section 3.2.6

Note: ★ represents New and Noteworthy Findings or Recommendations, and ↻ represents Re-occurring Findings or Recommendations.

TABLE 1-3: PROCESS FINDINGS AND RECOMMENDATIONS SUMMARY

Category	Description	Text Reference
Property Owner	↻ 1. SOMAH Program awareness continues to be driven by contractor outreach.	Section 5.2.1
	2. Numerous challenges from previous evaluations continue to impact property owners during 2023-2025.	Section 5.2.1
	3. Property owners are generally satisfied with their overall SOMAH experience.	Section 5.2.1
	4. Some property owners report SOMAH benefits are insufficient.	Section 5.2.1
	5. Property owners are generally pleased with contractor relationships and experience.	Section 5.2.1
	6. Outdated SOMAH-eligible contractor lists have been shared with	Section 5.2.1

Category	Description	Text Reference
	property owners, and the online SOMAH-eligible contractor directory does not accurately reflect contractor service areas. – **Recommendation 9**. Review and update the eligible contractor list on a quarterly basis to ensure that all contact information is up to date and that all businesses are operating. – **Recommendation 10.** Update the SOMAH-eligible contractor directory to reflect contractor service areas.	
	7. One property owner reported transformative savings by successfully stacking multiple programs; this is the exception but should be the norm. – **Recommendation 11.** Conduct meetings with property owners about stackable programs after the energy efficiency compliance milestone whole-building audit so that the SOMAH PA (AEA) can help property owners decide on additional site upgrades.	Section 5.2.1
	8. Property owners who had experience with the SOMAH PA's technical assistance services reported being very pleased with it.	Section 5.2.1
	9. Property owners don't have access to their own system's performance data (for TPO). – **Recommendation 12.** Share monthly performance reports from fleet-wide monitoring with property owners.	Section 5.2.1
	10. HCO property owners report having no maintenance plans and being unprepared for the cost. – **Recommendation 13.** Include information about and a cost breakdown of cleaning and maintenance fees for HCO systems.	Section 5.2.1
Contractor	1. Contractors new to the program learn about SOMAH through peer organizations (e.g., energy efficiency contractors) rather than direct program outreach.	Section 5.1.1
	2. Non-participating contractors aren't getting onboarded effectively. – **Recommendation 14**. Offer additional contractor eligibility training sessions and continue office hours topics related to how to secure leads and find eligible projects.	Section 5.1.1
	3. Contractors receive little support from the SOMAH PA in generating leads. – **Recommendation 15**. Update the public facing eligible properties map with additional helpful information.	Section 5.1.1
	4. Contractors who do submit applications generally find the SOMAH PA responsive and supportive.	Section 5.1.1
	5. Some tribal properties can't qualify under current deed restriction documentation requirements and tribal councils would need to adopt specific legal language to participate. – **Recommendation 16.** Continue to pursue alternative documentation pathways for tribal properties to demonstrate they serve low-income tenants without requiring standard deed restriction documentation.	Section 5.1.2
	6. Battery storage interest is high among property owners, but implementation faces barriers.	Section 5.1.2

Category	Description	Text Reference
Tenant	1. Most surveyed tenants (78%) were aware that solar panels were installed at their building through SOMAH.	Section 5.3.1
	2. Tenants most often learned about SOMAH passively by seeing the panels (48%) or hearing from property managers (42%). – **Recommendation 17**. Ensure property managers are aware of and have access to accurate program information and effective communication materials to improve tenant experience.	Section 5.3.1
	3. Most tenants did not recall the SOMAH program education and outreach.	Section 5.3.1
	4. More than one-third of tenants were unaware that they would (or do) receive solar credits on their electricity bills prior to taking the survey. – **Recommendation 18**. Deliver clear, utility-specific bill-credit details customized to SOMAH tenants when credits begin.	Section 5.3.1
	5. A majority of tenants reported reduced electricity bills and expressed satisfaction with the financial benefits of solar credits.	Section 5.3.2
	6. Overall tenant satisfaction is high.	Section 5.3.2
	7. Around 20% of tenants did not recall receiving SOMAH information in their preferred language.	Section 5.3.2
	8. Tenant familiarity with other programs varies.	Section 5.3.3
	9. SOMAH tenants are prohibited from participating in the Arrearage Management Program (AMP) per AMP program rules.	Section 5.3.3
Job Trainee	1. 80% of trainees are satisfied with the job training.	Section 5.4.1
	2. Most trainees entered through workforce institutions.	Section 5.4.1
	3. Successfully places trainees into short-term solar employment, but long-term retention in the solar workforce remains low.	Section 5.4.1
CBOs	1. Three CBOs we spoke with reported that they exited the program.	Section 5.5
	2. CBO KPIs are activity-based and do not measure whether outreach actually generates applications. – **Recommendation 19**. Refine CBO KPIs to include outcome-based metrics.	Section 5.5
Financial Organizations	1. Financing partner organizations are not being engaged or integrated into the program. – **Recommendation 20**. Increase education and marketing to contractors and property owners about existing financial organization partnerships and the available financing products.	Section 5.6
	2. Contractors don't know how to connect customers with financing options. – **Recommendation 21**. Develop more streamlined financing pathways that contractors can offer property owners.	Section 5.6

Note: represents New and Noteworthy Findings or Recommendations, and represents Re-occurring Findings or Recommendations.

VERDANT

TABLE 1-4: PROGRAM EXPENDITURE REVIEW FINDINGS AND RECOMMENDATIONS SUMMARY

Category	Description	Text Reference
Overall Spending	1. Total program implementation spending through end of 2025 was just under $60M.	Section 6.1.1
	★ 2. The program has spent 67% of collected program implementation funds but only 16% of collected incentive funds. Implementation spending is not on track to stay under its 10% cap by 2032.	Section 6.1.1
	3. Program Administration, ME&O, and Workforce Development spending have been trending downward since mid-2022, while Technical Assistance spending is trending up.	Section 6.1.2
	4. Application processing costs roughly $1,041 per application.	Section 6.1.2
	5. CSE accounts for 49% of SOMAH PA member spending, mostly on administrative tasks.	Section 6.1.2
ME&O Spending	1. CBOs represent the largest single ME&O expenditure (31%) but their impact is difficult to measure. – **Recommendation 22**. Reassess the level of CBO investment.	Section 6.2.1
	★ 2. Property owner engagement receives only 9% of the ME&O budget. – **Recommendation 23**. Increase investment in property owner engagement.	Section 6.2.1
	3. Tenant engagement spending is trending upward (likely due to the increased volume of completed projects).	Section 6.2.1
	★ 4. Contractor engagement and training together receive only ~5% of the ME&O budget. – **Recommendation 24**. Increase investment in contractor support and engagement.	Section 6.2.1
	5. Administrative spending made up 23% of ME&O budget in 2025.	Section 6.2.1
	6. Current implementation setup is fragmented with disparate ownership of outreach outcomes. – **Recommendation 25**. Define outreach outcomes for each SOMAH PA organization that can serve as metrics by which their performance is evaluated.	Section 6.2.1
ME&O Effectiveness	1. Core outreach strategies were similar to previous years with some notable tweaks.	Section 6.2.2
	2. 2025 marketing efforts changed in response to D.24-11-006.	Section 6.2.2

Note: ★ represents New and Noteworthy Findings or Recommendations, and ♻ represents Re-occurring Findings or Recommendations.

TABLE 1-5: IMPACT AND COST EFFECTIVENESS FINDINGS AND RECOMMENDATIONS SUMMARY

Category	Description	Text Reference
PV Production & Energy Impact	1. Observed PV Production: 58,581 MWh in 2025.	Section 7.1
	★ 2. The observed PV realization rate has increased over time from 76% in 2023 to 88% in 2025.	Section 7.1
	3. Forecasted PV Production: 64,078 MWh annually from all completed	Section 7.1

Category	Description	Text Reference
	projects.	
Customer Electricity Consumption	1. Estimated average change in tenant monthly consumption was small relative to consumption in PG&E and SCE. SDG&E customers decreased usage, potentially in response to rate increases.	Section 7.2
Demand Impacts	1. CAISO Gross Peak: Coincident generation of 3,586 kW in 2025.	Section 7.3
	2. CAISO Net Peak: Coincident generation of 491 kW in 2025.	Section 7.3
	3. IOU Gross Peak: Coincident generation ranged from a low of 145 kW in SDG&E to a high of 3,380 kW in SCE in 2023. Coincident generation ranged from a low of 582 kW in SDG&E to a high of 3,249 kW in SCE in 2024. Coincident generation ranged from a low of 201 kW in SDG&E to a high of 3,749 kW in SCE in 2025.	Section 7.3
Environmental Impacts	1. Observed Emissions Reductions: 14,219 metric tons of CO2 in 2025.	Section 7.4
	2. Forecasted Emissions Reductions: 16,116 metric tons of CO2 per year from completed projects.	Section 7.4
Economic Impacts	1. Common Area Bill Impacts: 68% saved on average monthly bill in July 2024 – June 2025.	Section 7.5.2
	2. Tenant Bill Impacts: $58 per month, or 79% saved on average monthly bill in July 2024 – June 2025.	Section 7.5.2
	3. CARE Tenant Bill Impacts: $42 per month, or 78% saved on average monthly bill in July 2024 – June 2025.	Section 7.5.3
	4. CARE Budget: Spending reduced by over $2.75 million in July 2024 – June 2025.	Section 7.5.3
Cost-Effectiveness	1. Benefit-Cost Ratios: 0.55 TRC, 0.62 SCT, and 0.15 RIM.	Section 8
	2. NPV of Lifetime Cost Shift: -$196,156,532 for all installed projects.	Section 8.1.1
	3. NPV of Lifetime Bill Savings Per Project: $666,986.	Section 8.1.1
System Performance	1. Ongoing system performance issues were identified in over 150 projects. – **Recommendation 26.** Continue exploring underlying reasons for consistently underperforming systems. – **Recommendation 27.** Identify effective strategies (possibly incentive-based or enforcement-oriented) that promote timely system repairs and sustained expected performance levels. – **Recommendation 28.** Explore providing additional incentives for extended monitoring and maintenance contracts beyond 2032.	Section 7.1
	2. More recent versions of PVWatts have been shown to have higher generation estimates by approximately 10%, meaning SOMAH performance expectations are understated for projects using the EPBB method. – **Recommendation 29.** Research changing incentive calculations away from EPBB calculator for full SOMAH program.	Section 3.2.4

Note: ★ represents New and Noteworthy Findings or Recommendations, and ↻ represents Re-occurring Findings or Recommendations.

VERDANT

2 INTRODUCTION

The Solar on Multifamily Affordable Housing (SOMAH) Program offers incentives to applicants for the installation of solar photovoltaic (PV) energy systems on multifamily affordable housing as a means of increasing access to solar energy and bill savings among low-income households and disadvantaged communities (DACs) throughout California. The SOMAH Program also engages in workforce development and training activities to support economic development in underserved communities.

Verdant Associates (Verdant) and DNV Energy Insights (DNV) (the "evaluation team") have been contracted by San Diego Gas and Electric (SDG&E) on behalf of the California Public Utilities Commission (CPUC) to conduct the third triennial evaluation of the SOMAH Program, as directed by CPUC Decision (D.) 17-12-022. The evaluation team also conducted the first and second evaluations of the SOMAH Program (completed in 2021 and 2023). The first evaluation provided feedback on the program's evaluability, and both evaluations assessed the program's performance against a series of metrics and key performance indicators (KPIs) and provided actionable recommendations for program improvement. This report provides an update on the SOMAH Program's progress towards meeting its goals via an assessment of the program's metrics, key performance indicators (KPIs), and M&V reporting requirements (as outlined in D.17-12-022, D.24-11-006 and PU Code 2870(j) and 913.8). It also assesses the program's impacts (energy, environmental, and economic), cost-effectiveness, and progress made by the SOMAH PA and investor owned utilities (IOUs) to implement the recommendations stemming from the second SOMAH evaluation.

This report also fulfills the SOMAH reporting requirements as directed by Public Utilities (PU) Code 913.8. A matrix of the SOMAH reporting requirements and the evaluation team's fulfillment of these requirements is provided in Appendix A.

2.1 BACKGROUND

California State Assembly Bill (AB) 693 directed the CPUC to institute a new program intended to make qualifying solar energy systems more accessible to low-income and DACs.[3] The goal of this program is to install solar energy systems that have a generating capacity equivalent to at least 300 MW (CEC-AC) on qualified multifamily affordable housing properties through December 31, 2030 (later extended through 2032 with California State Senate Bill (SB) 355).[4] In accordance with AB 693, the CPUC issued D.17-12-022

[3] California AB 693. Multifamily Affordable Housing Solar Roofs Program. Eggman, 2015. https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160AB693

[4] This program is funded by Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), San Diego Gas and Electric (SDG&E), Liberty Utilities, and PacifiCorp, collectively the investor-owned utilities or IOUs.

on December 14, 2017, creating the SOMAH Program and establishing program goals and eligibility requirements. On April 23, 2020, the CPUC issued D.20-04-012 that determined that there is adequate revenue, participation and interest in the SOMAH Program. That decision continued authorization of allocation of funds to the SOMAH Program through June 30, 2026.

The SOMAH Program is jointly administered statewide by a single program administrator (PA) team made up of the Association for Energy Affordability (AEA), Center for Sustainable Energy (CSE), GRID Alternatives (GRID), and the California Housing Partnership (CHP). The program has distinct rules and eligibility requirements, including an increasing focus on serving properties in DACs. In compliance with the terms of AB 693, the SOMAH Program provides significant subsidies for the installation of solar photovoltaic (PV) systems on qualifying multifamily affordable housing properties (i.e., multifamily housing financed with low-income housing tax credits, tax-exempt mortgage revenue bonds, general obligation bonds, or local, state, or federal loans or grants). The SOMAH Program serves utility and community choice aggregator customers in the territories of PG&E, SCE, SDG&E, Liberty Utilities, and PacifiCorp. To qualify for SOMAH incentives, properties must be existing deed restricted properties, have at least five units (including manufactured and mobile home properties), and separately metered tenant units. They must also satisfy either A) 66% of their total tenant households have incomes at or below 80% of the area median income, B) property is in a DAC as defined by the California Environmental Protection Agency (CalEPA), C) property is owned by a California Native American Tribe, or D) rental housing property is owned by a public housing authority or a public housing agency.

Program Changes Over Time

Table 2-1 below summarizes important regulatory history relating to SOMAH. During the evaluation period (2023-2025), there have been several significant regulatory and policy changes affecting SOMAH rules and participation.

VERDANT

TABLE 2-1: POLICY AND REGULATORY HISTORY RELATING TO SOMAH

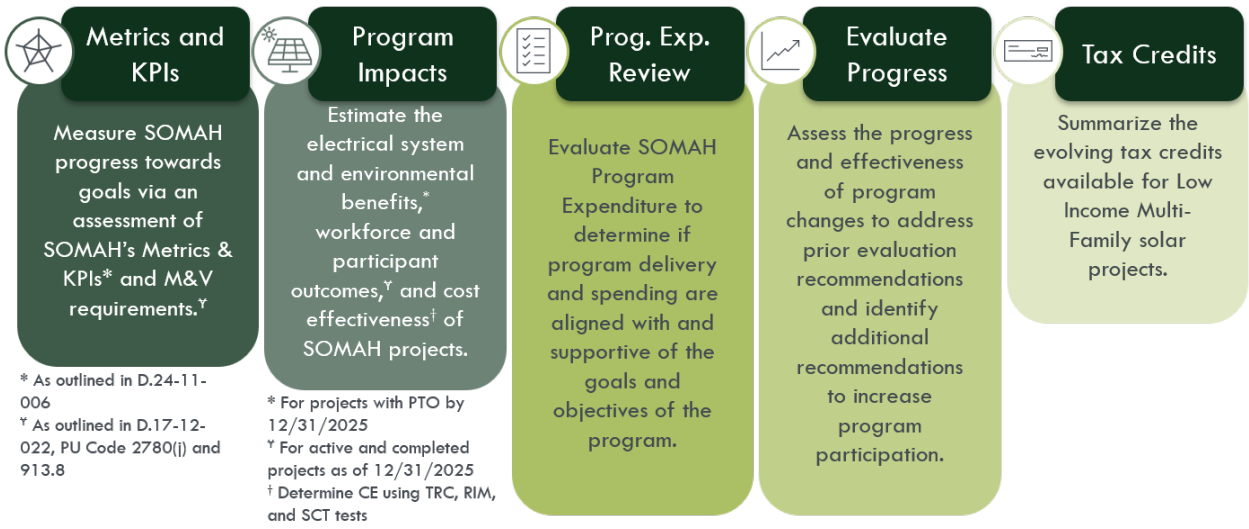
Policy and Regulatory History	Date	Key Points
CPUC D.17-12-022	12/14/2017	▪ Created the SOMAH Program and established program goals and eligibility requirements ▪ Directed the SOMAH PA to annually evaluate and decrease incentive levels in line with actual market costs
CPUC D.20-04-012	04/23/2020	▪ Determined adequate revenue, participation, and interest in SOMAH ▪ Authorized the continuation of funding for the SOMAH program through June 30th, 2026
CA AB 2143	09/29/2022	▪ Mandated prevailing wages for construction workers and apprentices on large customer-sited renewable energy facilities including solar (>15 kW) and battery storage, effective January 1, 2024 (excluding housing with fewer than three stories)
CPUC D.23-03-007	03/23/2023	▪ Eliminated the annual incentive step-down process ▪ Increased SOMAH incentive levels beyond original launch levels
CA SB 355	10/07/2023	▪ Revised income thresholds to require ≥66% of tenants earn ≤80% AMI ▪ Streamlined eligibility for Tribal entities and public housing agencies ▪ Allowed manufactured homes and mobile home properties to participate ▪ Introduced eligibility for new construction and master-metered projects to participate in SOMAH, which requires additional regulatory guidance from the CPUC before either becomes a formally available pathway to participate in SOMAH ▪ Extended SOMAH through 2032
CPUC D.23-11-068	11/16/2023	▪ Continued the SOMAH virtual net energy metering (VNEM) tariff (and does not require SOMAH projects to use the virtual net billing tariff)
CPUC D.24-11-006	11/14/2024	▪ Added SOMAH incentives for paired energy storage ▪ Made progress payment pathway the default ▪ Created early payment pathway for tribal properties ▪ Allowed roof repair costs as eligible installation expenses ▪ Required the SOMAH PA, in coordination with the IOUs, to develop a "high priority properties" list and then conduct outreach to these properties annually ▪ Removed multiple-bid requirement for Track A projects ▪ Eliminated tenant education requirements for new applicants ▪ Established minimum ME&O spending requirements for Liberty and PacifiCorp territories ▪ Required IOUs to share meter numbers with applicants if they identify a barrier collecting onsite ▪ Required IOUs to dedicate one full-time equivalent employee to SOMAH interconnection/billing support
OBBBA (H.R. 1, Pub. L. No. 119-21)	7/4/2025	▪ Accelerated the phase-out of the 30% Federal Investment Tax Credit (ITC) for solar projects: those that do not begin construction by July 4, 2026 must be placed in service by December 31, 2027 to qualify

As of December 31, 2025, the SOMAH program received 1,277 applications, of which 378 were completed (71.0 MW_{AC} of capacity) and 456 are still active (47.9 MW_{AC} of capacity). The total submitted/reserved incentive amount for these completed and active projects is $250 Million.[5]

2.2 PRIMARY RESEARCH OBJECTIVES

The primary objectives of SOMAH Program's third triennial evaluation are presented in Figure 2-1 below.

FIGURE 2-1: PRIMARY EVALUATION OBJECTIVES



Within this report we will present comprehensive findings and recommendations from the data collection and analysis conducted to meet these research objectives.

2.3 REPORT ORGANIZATION

The remaining sections of this report are organized as follows:

- **Section 3: Evaluation Data and Methods** provides an overview of the evaluation methods used to answer the primary research questions, including a summary of the data collection activities, sample sizes, and quantitative analyses completed.
- **Section 4: Participation Assessment** provides a summary of SOMAH participation to date.

[5] This total represents the reserved incentive, or the submitted incentive amount if the reserved was missing from the program tracking database.

- **Section 5: Process Assessment** presents the results of the SOMAH process assessment activities conducted as part of this evaluation.
- **Section 6: Program Expenditure Review** presents an assessment of SOMAH's program spending and administrative efforts.
- **Section 7: Impact Assessment** presents the results of the third SOMAH impact assessment, including the estimated energy, environmental, and economic impacts resulting from SOMAH projects.
- **Section 8: Cost-Effectiveness Assessment** presents the results of the SOMAH cost-effectiveness assessment.
- **Section 9: Findings and Recommendations** presents a summary of the findings and recommendations from each of the assessment areas conducted as part of this SOMAH evaluation and includes recommendations for future research.
- **Appendix A: PU Code 913.8.8 Reporting Requirements** presents a table documenting the PU Code reporting requirements for the SOMAH Program and where the reporting results are located.
- **Appendix B: SOMAH Metrics and KPI Assessment** includes an assessment of the current state of the SOMAH Program using the defined metrics and KPIs.
- **Appendix C: Data Collection Activities and Interview Guides** summarizes the data collection activities conducted for this evaluation and includes all interview guides and survey instruments.
- **Appendix D: Customer Electricity Consumption Regression Methodology** includes further details describing the methodology used for the customer electricity consumption analysis.
- **Appendix E: California Air Resources Board Greenhouse Gas Savings** includes the estimated lifetime greenhouse gas emissions reductions attributable to proceeds per the California Air Resources Board requirements.
- **Appendix F: Key Characteristics of SOMAH Projects** includes additional information on analyses and results for Section 4.
- **Appendix G: SOMAH's Marketing, Education, and Outreach (ME&O) Activities** includes a historical summary of SOMAH ME&O activities from program inception through 2024.
- **Appendix H: Strategic Shifts in the Objectives & Goals from 2025 to 2026 (SMARTIE)** gives an overview on the key changes to ME&O goals from 2025 to 2026.

VERDANT

3 EVALUATION DATA AND METHODS

3.1 DATA SOURCES AND TOOLS

The primary data sources used in this evaluation included a mix of pre-existing data sources and data collected during evaluation research activities.

Pre-existing data sources

- **SOMAH PowerClerk Project Database** (as of 1/2/2026). This dataset includes SOMAH Program tracking data from all five participating utilities service territories, including data on completed, active, and cancelled/withdrawn projects. It was used to assess program participation through December 31, 2025. An older version of the database from June 2025 was used to develop the sample frame for contractor and property owner interviews and IOU data requests. VNEM allocation forms were also obtained from the PowerClerk project database for all completed projects.

- **SOMAH Program Semi-Annual Expense Report** from SOMAH DGStats (1/31/2026). This spreadsheet contains yearly expenditures by budget category, yearly collections, and incentive payments from program inception through the end of 2025.

- **IOU Incentive Budget Data** from SOMAH DGStats (1/2/2026). Which includes the MW capacity and budget by IOU and status (waitlist, earmarked, pending reservation, reserved, completed).

- **SOMAH ME&O Plans** from SOMAH DGStats (2020–2025, Draft 2026) which describe the SOMAH PA's ME&O efforts from the past year and outlines goals and plans for the upcoming year.

- **SOMAH PA Monthly Administration Expense Reports** (2018–2025) provided by the SOMAH PA. This spreadsheet contains monthly expenditures by PA, budget category, and task from program inception through the end of 2025.

- **Contractor diversity database**. This database contains a listing of all SOMAH eligible contractors along with firmographic data for these contractors to assess their experience, size, and diversity.

- **Salesforce property owner database.** This database contains recent contact information for property management companies and housing authorities located within California. Theis data was used to contact non-participating property owners for interviews on SOMAH program awareness.

- **Job Trainee Tracking Data,** including contact information for all completed job training opportunities, provided by the SOMAH PA.

- **Fleet monitoring data** from the SOMAH PA's Sunspot software, which consists of monthly percent of estimate (PoE) for every project connected to their system.

- **California Measurement Advisory Council (CALMAC) weather data**[6] This weather data includes both typical (most representative of a span of years) and historical (single year) weather data files for 133 California weather stations.

- **IOU and California Independent System Operator (CAISO) 2023 through 2025 hourly load** from the CAISO Open Access Same-time Information System (OASIS) website.[7]

- **Marginal greenhouse gas (GHG) emissions** signal developed by WattTime.[8] The real-time marginal carbon dioxide (CO_2) emissions signal represents the compliance signal used for CPUC's Self-Generation Incentive Program (SGIP). The WattTime data are considered a reliable approximation of actual conditions during a particular year.

- **The 2024 CPUC Avoided Cost Calculator v1b**[9] which includes hourly utility avoided costs by climate zone.

Data provided through request from utilities

- **SOMAH PV generation data.** The lifetime net generation output meter (NGOM) PV interval generation data for a sample of completed SOMAH projects was collected through September 30, 2025 from all utilities.

- **Utility AMI usage and billing data** for SOMAH project common area and tenant beneficiaries. This data was collected from utilities for a sample of completed SOMAH projects starting from one-year prior to the system's PTO date through June 30, 2025. Additional billing information was collected, including rate selections over time and California alternate rate for energy (CARE) participation status. We also requested tenant contact information for all tenant beneficiaries residing in SOMAH completed projects in support of our tenant survey.

- **Arrearage Data** for a subset of tenant beneficiaries living in SOMAH projects that were installed in Q4 2024 through Q1 2025. Arrearage data was collected for tenants during Q1 2025 and Q1 2026 and included the current outstanding balance.

- **Cross Program Participation Data** for SOMAH tenants and property owners. This data includes monthly program participation data from other programs that tenants and property owners participated in, starting from the date of reservation request form approval for each project (when referrals are sent to the IOUs).

---

6 https://www.calmac.org/weather.asp

7 http://oasis.caiso.com

8 http://sgipsignal.com

9 A copy of the 2024 Avoided Cost Calculator and documentation can be found here: https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/demand-side-management/energy-efficiency/idsm

In-depth Interviews (IDIs) and surveys with program stakeholders, administrators, and participants

- **4 IDIs** with SOMAH program administrators,
- **7 IDIs** with Community Based Organizations (CBO) program partners,
- **3 IDIs** with partner financing organizations,
- **1 IDI** with program partner tax expert,
- **14 IDIs** with participating and non-participating SOMAH contractors,
- **19 IDIs** with participating and non-participating SOMAH affordable housing property owners,
- **28 Surveys** completed with job trainees, and
- **293 Surveys** completed by SOMAH tenants.

Additional descriptions and details related to interview and survey sample development can be found in Appendix C.

Additional Tools

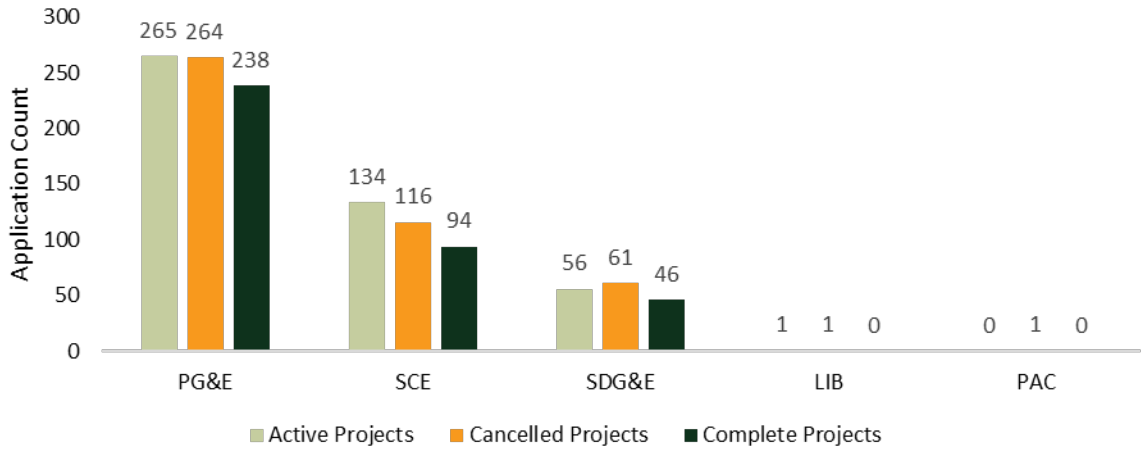
Verdant's Distributed Energy Resource Cost-Effectiveness Analysis Tool (DER-CAT). Verdant's model for evaluating the cost-effectiveness of PV systems using CPUC Standard Practice Manual (SPM) tests. The model also includes a bill savings module that calculates customers' total bill payments under various NEM 2.0, NBT, and VNEM tariffs.

3.2 EVALUATION METHODOLOGY

3.2.1 Participation Assessment Methods

The participation assessment included a comprehensive analysis of SOMAH application and project data stored in the PowerClerk program tracking database (www.calsomah.powerclerk.com). The analysis was performed on all submitted SOMAH applications (active, completed, and cancelled/withdrawn) from the program's inception (July 2019) through December 31st, 2025. The figure below summarizes the status of the 1,277 applications included in the analysis by IOU.

FIGURE 3-1: SOMAH PROJECT STATUS BY UTILITY (AS OF 12/31/2025)



LIB = 1 Active Project, 1 Cancelled Project, PAC = 1 Cancelled Project

Progress on Prior Recommendations Addressing Tracking Data Issues

The previous SOMAH evaluation provided recommendations for SOMAH program tracking data improvements. Below we present these recommendations and the progress made to address them.

TABLE 3-1: PRIOR RECOMMENDATIONS ON PROGRAM TRACKING DATA AND PROGRESS TO ADDRESS

Prior Recommendation	Progress Made to Address Recommendation
Improve tracking data by including: • Date construction was complete or interconnection was requested, • Data on whether an application has been resubmitted or has switched from Track A to Track B, • Date bill credits were set up by the utility Also review and update data fields that are incomplete or invalid. (15)	The tracking data now includes the following fields in response to these recommendations: • 'Mechanical Completion' that indicates when construction has been completed for a system • 'When Did the Solar Bill Credits Begin' which records the date that bill credits started at a property • 'Track A/B Switch' has been added as a field in the tracking data and we can confirm that 14 projects have switched from Track A to Track B

3.2.2 Process Assessment Methods

The process assessment relied on extensive primary data collection, including in-depth interviews (IDIs) and surveys with a broad range of SOMAH program stakeholders, including the PAs, participating and non-participating contractors and property owners, community-based organizations (CBOs), financing partners, tax experts, tenants, and job trainees. The evaluation team designed data collection instruments to ensure consistency across respondent groups while allowing for targeted probes to capture

stakeholder-specific experiences. These data collection activities supported the team's assessment of program implementation in practice, with a focus on the effectiveness of marketing, education, and outreach (ME&O) and workforce development (WFD) activities, progress in addressing participation barriers, and implementation of prior evaluation recommendations. The team also examined organizational structures, technical assistance, and cross-program participation to understand how these elements influenced stakeholder experiences and program operations.

3.2.3 Program Expenditure Review Methods

The Program Expenditure Review evaluates the implementation costs, ME&O activities, and overall effectiveness of the SOMAH Program. The primary objectives are to evaluate whether SOMAH's Program Administration efforts are in alignment with the goals[10] of the SOMAH Program, assess whether program administration and ME&O efforts have successfully increased customer participation, determine whether SOMAH is on track to remain below the 10% administrative spending cap, and evaluate progress on prior evaluation recommendations related to spending, ME&O, and CBO activities. The assessment is organized into three components, each with distinct methods.

Administrative Spending Assessment

Program spending data from the SOMAH PA and Semi-Annual Expense Reports were reviewed and analyzed longitudinally from program inception through end of 2025. Spending data were cross-referenced with program tracking data to estimate average application processing costs and project whether the 10% administrative cap will be met by program close in 2032.

Marketing, Education, and Outreach Activities

SOMAH ME&O plans from 2020–2025 were reviewed. In-depth interviews (IDIs) and web surveys were conducted with participating and non-participating contractors, property owners, the SOMAH PA, and CBOs. The assessment documents ME&O trends and challenges, evaluates effectiveness in building a project pipeline and increasing program awareness, and examines the diversity and performance of CBO activities.

3.2.4 Impact Assessment Methods

As of December 31, 2025, 378 SOMAH projects have been completed and have received incentive payments. The key objectives of the impact assessment are to estimate the energy, environmental, and

[10] The primary goals of this program are to install solar energy systems that have a generating capacity equivalent to at least 300 MW (CEC-AC) on qualified multifamily affordable housing properties through December 31, 2030 (the program was extended through December 31, 2032, by SB 355) and to promote local economic development through job training requirements and hiring practices.

economic impacts of these completed SOMAH projects. The impact assessment also evaluated the impact of completed SOMAH projects on the CARE subsidy.[11]

To develop these impacts, we first estimated the SOMAH system's PV production, analyzed the potential change in customer energy consumption, and estimated the change in utility load after system installation.

PV Production and Energy Impacts

PV production was determined using several methods; Simulations, Observed Metered Data, and Forecasted Data. Forecasted data was developed using both typical weather meteorologic year (TMY) files and actual weather meteorologic year (AMY) weather files. Each of these methods are described in more detail below.

Simulated PV Production

We simulated hourly PV generation for all active and completed SOMAH projects; these simulations were used to develop forecasted PV production estimates. We created two types of simulations: typical weather simulations for all active and completed SOMAH projects, and actual weather simulations using 2023, 2024, and 2025 weather data. The actual weather simulations were only developed for completed projects.

PV generation simulations were created using the python package, *pvlib-python*. This package is open-source software, initially developed by Sandia National Laboratories.[12] *Pvlib-python* uses different simulation models to estimate electricity production of grid-connected PV systems based on various inputs. We chose to use the PVWatts simulation model to best align with the expected performance-based buydown (EPBB) calculator used to calculate incentives.[13] P*vlib-python* requires, at a minimum, the following inputs to simulate hour-by-hour output over a period of one year for any PV system: nameplate capacity (DC), tilt, azimuth, latitude, longitude, elevation, efficiency, and associated weather data. Table 3-2 shows the list of Inputs required for the p*vlib-python* simulation along with the value or source of value used for this evaluation. SOMAH projects in PowerClerk generally contained modules with different models, tilts, and/or azimuths. For this reason, each set of modules were simulated individually with *pvlib-python*, and the hourly generation for a given project was calculated as the sum of each module's output within the hour.

---

11 Due to the timing of bill credit setup, we did not evaluate the impact of SOMAH on customer arrearages.

12 William F. Holmgren, Clifford W. Hansen, and Mark A. Mikofski. "pvlib python: a python package for modeling solar energy systems." Journal of Open Source Software, 3(29), 884, (2018). https://doi.org/10.21105/joss.00884

13 CSI EPBB Calculator - Documentation (csi-epbb.com)

TABLE 3-2: PVLIB-PYTHON REQUIRED INPUTS WITH SOURCE OR ASSUMPTION USED

Pvlib-Python Input	Value/Source
Nameplate Capacity (DC)	[PowerClerk Program Tracking Data]
Tilt	
Azimuth	
Inverter Efficiency	
Weather Data	[CALMAC Weather]
▪ Latitude, Longitude, Elevation	
▪ Dry Bulb Temperature	
▪ Direct Normal Irradiance (DNI)	
▪ Global Horizontal Irradiance (GHI)	
▪ Wind Speed	
▪ Diffuse Horizontal Irradiance (DHI)	
▪ Solar Altitude Angle	
Array Type	Fixed – Roof Mounted
Module Type	Standard
DC – AC Ratio	1.2

We used CALMAC weather data to develop simulated PV production. CALMAC provides both typical year weather files (most representative of a span of years) and historical weather data for 127 weather stations throughout California. For typical simulations, we used the typical weather dataset known as CALEE2024, which represents typical weather from years spanning from 2013-2023.

To select the appropriate weather stations for each SOMAH project, we geospatially mapped each SOMAH project to find its closest station. We then reviewed the quality of the CALMAC weather data at the station, determining the percentage of weather data (for both typical and actual weather data) that was interpolated due to missing or poor-quality data. If the closest weather station had interpolated more than 20% of either their actual or typical-year data, the next closest station was selected. Over 80% of the completed projects used weather station files within 25 miles of the project's location, and over 40% used weather station files within 10 miles of the project's location.[14]

[14] The greater distances between a CALMAC weather station and a given project location may introduce some variation in results. CALMAC data was used because it is frequently updated, allowing the evaluation team to incorporate actual 2025 weather data.

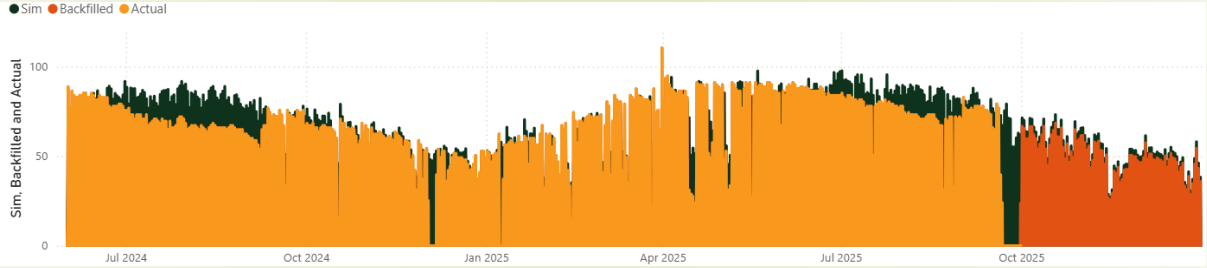
Observed PV Production

Observed PV production represents the observed PV generation from the 378 completed SOMAH projects. The evaluation team received interval (15-minute or hourly) PV generation data for 347 of the 378 completed SOMAH projects from each utility.[15] In 2023 there were 128 completed projects, while in 2024 there were 275 and in 2025 there were 378 total projects. We conducted thorough quality control (QC) and validation of the PV production data. The QC process utilized a Power BI dashboard to bring in the simulated PV generation as well as the different sources of metered generation to visualize and compare the data.

Quality Control Dashboards

The screenshot below highlights the approach taken to manually review the data collected for every project to ensure quality data. While the text is too small to read, the figure is provided to demonstrate the benefits of a graphical representation of metered data, overlaying different streams of PV generation data (**dark green is simulated**, **red is estimated data**, and **orange is utility data**) to see the differences. The QC dashboard is filterable by project number and highlights details about the PV system.

In this example, the **utility data** matches quite well with the **simulated**, during much of the year except for several months in the late summer 2024 and 2025 where the **utility data** drops off a bit, likely indicating soiling on the panels. The **utility data** we received goes through September 2025, where the data was then **estimated**.



The team looked for anomalies in the data, including abnormally high readings,[16] instances where the different data sources did not agree, and instances where metered data differed significantly from simulated. We flagged cases of abnormal operations, such as where the meter data indicated possible failed inverters or where metered data was poorly performing for unknown reasons. We also identified cases where certain time periods should be removed from analysis or where the entire metered dataset

[15] We only requested data for completed projects with a PTO date prior to August 2025.

[16] Readings that are significantly higher than the rated capacity of the system and therefore not physically capable of being generated.

for a project was considered unreliable and therefore unusable. Based on our QC processes, the meter data for three projects was unreliable, and therefore not used in the analysis.[17]

Forecasted (Expected) PV Production

The evaluation team forecasted the expected hourly and annual PV generation for all SOMAH projects that were completed or are active in PowerClerk based on typical weather. There were 812 active (excluding cancelled, withdrawn, waitlisted, or unsubmitted) SOMAH projects in PowerClerk that included system specification data. Forecasted results were used in two ways; 1) to fill in missing or bad observed data, using simulated data with actual weather files, adjusted for actual site performance, and 2) to develop a typical year forecast using simulated data with typical weather, and adjusted for actual site performance. Because we don't always expect that installed systems will behave as ideally as simulations would expect, we adjusted these forecasted results using a year-month-hour-age of system PV ratio to simulated PV generation, which accounted for differences in observed and simulated data.

These ratios represent an adjustment to allow conversion from simulated PV data to generation levels that are more closely aligned with actual PV generation. For customers missing less than 20% of their actual generation data in each month, project-specific year-month-hour PV ratios were applied to actual-weather based simulated generation to generate estimated Observed PV production. For customers missing more than 20% of their actual generation, utility specific year-month-hour-age of system PV ratios (24 hours x 12 months = 288 ratios per year per system age, in years) were developed and applied. The utility specific PV ratios are disaggregated by the age of the system to account for any impacts of age-related performance degradation which will naturally be captured in the site-specific year-month-hour ratios.[18]

PV Realization Rate

As a measure of system performance, we used the annual PV production tracked in PowerClerk as the basis to calculate a PV realization rate for SOMAH projects. Two different SOMAH program realization rates were calculated:

- The **forecasted realization rate** reflects the forecasted (expected) PV production using typical weather divided by the estimated annual PV production tracked in PowerClerk.

[17] The core reasons meter data was deemed unreliable included: metered data that consistently showed non-zero generation in overnight hours, data with identical generation shapes every day, and data where generation consistently exceeded system capacity.

[18] The 2021 CSI reported an average of 1.35% per year degradation in performance of solar PV systems. calmac.org/publications/CSI_Evaluation_Report-2.pdf

- The **observed realization rate** reflects the observed PV production using actual weather for each year divided by the estimated annual PV production tracked in PowerClerk.

The PowerClerk annual PV production estimates match the value used to calculate the SOMAH incentive. This PV production estimate is developed using the California Solar Initiative (CSI) EPBB calculator, driven by the National Laboratory of the Rockies' (NLR) PVWatts v2 Calculator.[19] Note that the EPBB calculator has not been updated since 2014, and the current version of NLR's PVWatts calculator is now v8.6.1 (released in February 2026). The more recent versions of PVWatts, starting with v.5, increase performance estimates by approximately 10%.[20]

Capacity Factor

The PV Production and Energy Impacts Results section also includes estimates of capacity factor. Capacity factor is a metric of system utilization and is defined as the amount of energy generated during a given period divided by the maximum possible amount of energy that could have been generated during that period. Annual capacity factors are useful when comparing utilization across technology types or project sizes. The annual DC capacity factor was calculated as the annual PV generation during all 8,760 hours of a typical year divided by the product of the project's DC nameplate capacity and 8,760.

Customer Electricity Consumption

The evaluation team analyzed whether SOMAH beneficiaries changed their energy consumption following the installation of solar. Other studies have found that many customers in single-family homes increase their energy consumption after PV systems were installed. However, SOMAH beneficiaries might not behave similarly to single-family PV customers. SOMAH beneficiaries receive their benefits through the VNEM structure; therefore, they are less directly involved in the project's development and their economic situation likely differs from those of the typical single-family PV owner. In addition, educational material that is often left behind at SOMAH properties encourages tenants to reduce their consumption of electricity. On the other hand, SOMAH does provide PV bill credits that could lead beneficiaries to increase their energy consumption.

We used historical AMI consumption data provided by utilities at 15-minute or hourly intervals to analyze potential changes in customer's energy consumption. We requested data starting from one-year prior to the SOMAH project's permission to operate (PTO) date. Customers that did not have a full year of consumption data in both the pre-installation and post-installation were excluded from analysis.

[19] CSI & MASH Calculator. Developed by AESC Inc. https://csi-epbb.com/

[20] Dobos, A. P. *PVWatts Version 5 Manual*. United States. https://doi.org/10.2172/1158421

For this analysis, we defined the beginning of the post-installation period as the earliest date that beneficiaries received SOMAH PV credits on their bills. Those dates were provided directly by each utility.

The consumption analysis focused exclusively on tenant usage. Usage patterns are impacted by weather, rates, etc. To account for weather differences, we used a two staged regression approach where the first stage normalizes consumption to a typical meteorological year (TMY), and the second stage estimates consumption impacts. Additionally, results are presented in annual cohorts to control for year-specific factors such as changes in rate structures or economic conditions that could otherwise bias estimates of treatment effects on energy consumption. Further details on the two staged regression approach can be found in Appendix D.

Demand Impacts

Coincident peak demand impacts are defined as generation from SOMAH PV systems during hours of CAISO or IOU peak demands. The single largest annual CAISO or IOU peak hours provide brief snapshots of program coincident demand impacts. However, analyzing peak demand over the top 100 peak hours can provide a greater insight into how SOMAH projects impact the grid during the hours of highest load. By coincidentally generating during CAISO or IOU peak hours, participating SOMAH customers allow their electric utility to avoid the purchase of high-cost wholesale energy. At the same time, the electric utility reduces its transmission and distribution losses during hours of high system congestion. It should be noted, however, that these hours are not necessarily when SOMAH PV systems have their highest output.

IOU and CAISO load data were obtained from the CAISO OASIS website. Coincident peak demand impacts were estimated at the utility and CAISO system level based on observed PV generation in 2023 through 2025.

Environmental Impacts

Greenhouse gas (GHG) impacts were estimated using marginal carbon dioxide (CO_2) emissions data developed by WattTime as part of the Self-Generation Incentive Program (SGIP) GHG signal.[21] The WattTime data are considered a reliable approximation of actual conditions during a particular year. Carbon dioxide emission impacts were calculated as the avoided emissions that would have occurred in the absence of the program. The hourly marginal emissions rates and the hourly PV generation were combined to estimate avoided emissions in metrics tons of CO_2.

The monetary value of the change in emissions was calculated by applying the value of GHGs from the 2024 Distributed Energy Resources Avoided Cost Calculator to hourly PV generation. The total avoided value of GHG emissions reductions was based on four factors, the cost of the GHG adder, the cost of the

[21] http://sgipsignal.com/

added cap and trade, the cost of the GHG rebalancing, and the cost of methane. The GHG adder and the cap-and-trade price reflect the annual economy wide value of GHG emissions reductions. The GHG rebalancing accounts for how utilities move production around, reducing GHG emissions as demand declines. And finally, the methane portion accounts for the leakage in methane due to transport to the electric production power plants.

Finally, the estimated lifetime GHG emissions reductions attributable to auction proceeds use were calculated per California Air Resources Board (CARB) reporting requirements. Methods and results of this calculation can be found in Appendix E.

Economic Impacts

Two approaches were used to estimate the program's bill impacts. The first method used a panel level model to determine the change in customer bills in the post period, compared to their bills prior to installation. The second method directly estimated the bill credits received in July 1, 2024 through June 30, 2025 (2024-2025) from SOMAH PV generation. The evaluation team also estimated the CARE budget impact from SOMAH systems in 2024-2025.

Year-over-Year Utility Bill Impacts

The evaluation team calculated year-over-year (YoY) bill impacts for customers with completed SOMAH projects. We used monthly customer utility billing data to analyze potential changes in charges.

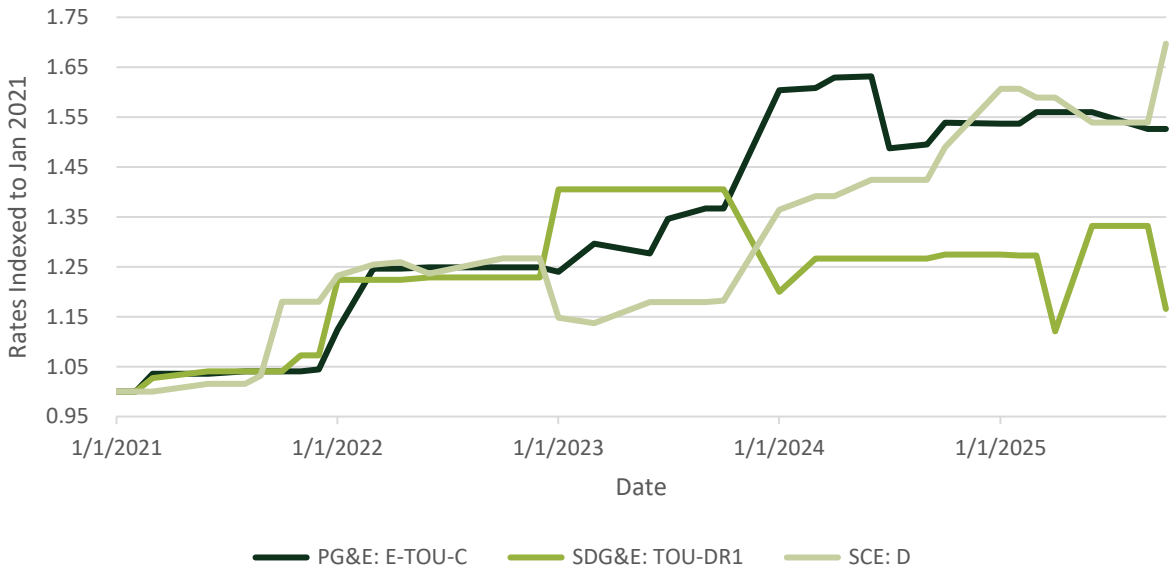
Like consumption analysis, we used a two-stage regression approach to determine average monthly bill estimates for each customer in the 12-month period before and after bill credits began. The bill credit start date was provided by each of the three utilities in this evaluation. Similar to the consumption analysis, results are presented in annual cohorts determined by the first credit date to control for year-specific factors.

Utility bill periods typically start and end on different dates for different customers. Therefore, the utility bill amounts were first apportioned by billing-days to standard monthly periods. Customer bills were included in the analysis if they had at least 12 months of pre and post period data. Overall, 66 of the 98 SOMAH projects with billing data and reported first credit dates were included in this analysis due to the timeframe requirements.

There are many causes of customer bill changes between pre- and post-installation aside from bill credits from SOMAH systems. Changes in weather across years, customer behavior, and utility rate amounts all contribute to bill differences year-over-year. The billing analysis incorporates rate changes through a utility rate index applied to customer bills, and controls for weather differences through the first stage regression and typical meteorological year (TMY) data applied at the individual project level.

Electricity rates can increase over time due to inflation, demand, fuel costs, and energy generation shifts. We determined the most common rate for SOMAH customers in each utility and tracked rate changes over time from 2021 through 2025 to index rates to 2021 levels. The utility rate index measures how much rates have changed over time relative to a baseline starting point, expressed as a ratio where the baseline in 2021 is equal to one and any increases or decrease reflects the proportional change from the starting rate. YoY rate increases were analyzed based on the effective rate levels as of January 1, 2021, and adjusted when there were new tariff filings for that rate. This results in an index that changes at intermittent periods throughout the study time frame and facilitates a bill comparison normalized for rate changes across the study period. Figure 3-2 below presents the utility rate index determined for each utility's customers. Prior to weather normalization, customer monthly bills were divided by the utility rate index to represent values in January 2021 rates.

FIGURE 3-2: RATE INDEX USED FOR BILLING ANALYSIS



Bill Credit Estimation

The evaluation team estimated the bill credits customers would have received from SOMAH completed projects using Verdant's Distributed Energy Resource Cost-Effectiveness Analysis Tool (DER-CAT). To calculate bill credits, we estimated the difference between customer bills with and without PV benefits from July 1, 2024 through June 30, 2025. Inputs required for the bill calculation included hourly PV system generation, hourly customer load, and customer tariff selections. Common area and tenant bill credits were estimated for a sample of completed SOMAH projects. Accounts without a full year of historical usage from July 1, 2024 through June 30, 2025 were excluded from analysis. The VNEM allocation forms found on PowerClerk were used to apportion the observed PV hourly generation to each individual

metered account. Table 3-3 presents a summary of the proportion of tenants and common areas in properties with projects completed before July 1, 2024 that were included in the analysis. The table also includes the achieved relative precision of the bill saving estimates (at 90% confidence). The tenant bill credit estimation achieved a high level of relative precision for tenant bills (below 5% for all utilities). However, due to the smaller sample size (a single property consists of many more tenant units compared to common areas) and higher variability in bill amounts, the achieved relative precision for common area bill estimation is poor (between 26% and 91% depending on the utility).

TABLE 3-3: TENANT AND COMMON AREA REPRESENTATION IN BILL CREDIT ANALYSIS

Utility	% of Tenants Included	% of Common Areas Included	% of Projects Included	Tenant Achieved Relative Precision	Common Area Achieved Relative Precision
PG&E	34%	17%	37%	2.4%	26.4%
SCE	30%	41%	39%	2.9%	53.7%
SDG&E	37%	37%	37%	4.3%	91.5%
Total	**33%**	**29%**	**37%**	**2.8%**	**59.0%**

CARE Budget Impact

Results from the bill credit estimation (described above) were used to estimate the SOMAH Program's impact on the CARE budget from July 1, 2024 through June 30, 2025. Customers participating in CARE receive a 30% to 35% reduction applied to their electrical bill. The average per-tenant impact on the CARE budget was calculated from the average per-tenant bill savings for CARE customers as follows:

$$avg\_CARE\_budget\_impact\_per\_tenant = avg\_annual\_CARE\_bill\_saving\_per\_tenant * \frac{pct\_CARE\_reduction}{1 - pct\_CARE\_reduction}$$

The total CARE budget impact was then determined by multiplying the total number of SOMAH customers with completed projects that participate in CARE by the average per-tenant CARE budget impact.

3.2.5 Cost Effectiveness Methods

The evaluation team calculated cost-effectiveness of SOMAH systems using Verdant's DER-CAT. The DER-CAT evaluates cost-effectiveness of SOMAH PV systems using the format and content requirements of the 2001 CPUC California Standard Practice Manual (SPM) for performing Economic Analysis of Demand-Side Programs and Projects. We quantified cost-effectiveness using the total resource cost (TRC) test, the ratepayer impact measure (RIM) test, and the societal cost test (SCT).

TRC: The TRC measures the net costs of a program as a resource option based on the total costs of the program, including both the participant's and the utility's costs. The benefits in the TRC test are the

electric avoided costs due to the operation the SOMAH system. Participant benefits received from outside California such as the federal ITC are also included as benefits. The costs include all participant acquisition costs, ongoing operations and maintenance costs, partial equipment replacement costs, and insurance costs. The costs also include program administration costs and utility-specific interconnection costs.

SCT: The SCT is a variant of the TRC test. In addition to the TRC benefits listed above, the SCT test accounts for other societal, environmental, and health benefits. The SCT was adopted in D.24-07-015 with the following four required inputs: 1) two values for the Social Cost of Carbon (base and high), 2) social discount rate of 3% (real), 3) base value of methane leakage, and 4) a statewide air quality adder of $14 per MWh.

RIM: The RIM test measures what happens to customer rates due to changes in utility revenues and costs caused by the SOMAH program. The benefits in the RIM test are the electric avoided costs due to the operation of a SOMAH system. The costs are the reduction in revenue received by the utility when participating customer bills decline due to the operation of the SOMAH system.

We examined cost-effectiveness by utility and system ownership type. The model calculates the bill impacts of SOMAH PV systems throughout the 20-year life of the systems and the associated acquisition costs including financing, insurance, and tax costs (or credits). Looking from the utility perspective, the model quantifies the changes in the utility's marginal operating costs and considers incentive payments and program administration/interconnection costs. The model quantifies the present value of all cost and benefit streams for the entire life of the system, accounting for changes in retail rates, technology operating costs, and changes in utility marginal costs.

The inputs used and assumptions used in the cost-effectiveness modeling are described below.

Load Shapes

We developed two representative load shapes for each completed project, one to represent the common area and one to represent the typical tenant. Average load shapes (i.e., hourly percent of annual usage) were created from customers' historical July 2024-June 2025 AMI usage data. For tenants, load shapes were then scaled by the tenant average annual usage between July 2024 and June 2025, as calculated from the historical usage data. For common areas, the load shape was scaled by the Common Area Annual kWh found in the tracking data.

For some projects there was not sufficient data available to create project-specific load shapes. In these cases, aggregated typical load shapes from other projects were applied. Aggregate load shapes were applied first if available by utility, climate zone, and fuel mix combination. If that was not possible, the load shape was aggregated by the utility and climate zone, and finally by the utility. The aggregated typical

load shapes were scaled for each project that did not have sufficient available data by using the common area and tenant annualized kWh usage reported in PowerClerk.

PV Generation

Simulated PV generation data using July 2024 – June 2025 TMY weather was used for this analysis. The PV simulations were adjusted by utility specific month-hour PV Ratios, as described in the PV Production and Energy Impacts methods section above. Tenant and common VNEM allocations were used to apportion the PV. The allocated tenant PV generation was equally divided across the total number of tenant units to estimate the average tenant PV allocation for each project.

Rates

For each completed project, we chose the most common utility rate for common area and tenants as of July 1, 2025. Retail rates were assumed to escalate at 4% per year.[22]

Model Inputs by Ownership Type

Model inputs varied depending on whether the SOMAH PV system was owned by the host customer (HCO) or a third party (TPO). For TPO systems, we applied the power purchase agreement (PPA) rate ($/kWh) as reported in PowerClerk. We assumed a 2% cost escalator on the PPA rate. For HCO systems, the system's total cost, upfront incentive amount, and ITC or Low-income Housing Tax Credit (LIHTC) (as reported in PowerClerk) were applied. We assumed that HCO systems did not take advantage of any additional financing to cover the cost of the systems. The modeling for HCO systems also included the costs of a one-time inverter replacement and ongoing operations and maintenance costs of $20/kW/year.[23] For TPO systems, these costs were assumed to be the responsibility of the third-party owner.

Program Administrative Costs

The total program administrative costs to-date of $59,724,622 were apportioned equally to each active or completed SOMAH project (834 projects). The cost-effectiveness modeling was only conducted on completed projects. For modeling, the program administrative costs per project were further apportioned between tenant and common areas by their VNEM allocation. The RIM test does not include program administration costs since SOMAH is funded through greenhouse gas allowance proceeds from California's Cap-and-Trade Program and is not funded directly by ratepayers.

---

[22] As shown in Figure 3-2, observed rate increases from 2021 to 2025 were substantially higher than 4% per year. This assumption may be conservative.

[23] The National Renewable Energy Laboratory "Best Practices for Operation and Maintenance of Photovoltaic and Energy Storage Systems; 3rd Edition" mentions O&M costs for grid-tied distributed generation-scale systems varying from $19 to $21 per kW per year. https://www.nrel.gov/docs/fy19osti/73822.pdf

Discount Rates

We used utility specific weighted average cost of capital (WACC) rates to determine the net present value (NPV) of all costs and benefits in the TRC and RIM tests (PG&E 7.34%, SCE 7.87% and SDG&E 7.55%).[24] The SCT test used a nominal discount rate of 5.03% (3% real).

Avoided Costs

Climate zone specific 20-year TRC and SCT avoided cost values were pulled directly from the 2024 CPUC Avoided Cost Calculator v1b. For the SCT, we used the Base Social Cost of Carbon. The TRC avoided cost values were also used for the RIM test.

[24] Utility WACC was taken from https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-costs/historical-electric-cost-data/rate-of-return

3.2.6 Tracking Data Limitations

There were some gaps in available data which limit the evaluation. We detail these limitations and provide recommendations for updating data collection to help support future evaluations.

Program Tracking Data

Detailed Information on Withdrawn Application Request: The current evaluation found that the biggest cancellation reason was a withdraw request. When the evaluation team tried to review the drivers for requesting an application be withdrawn, we found that many of the projects had no additional information on why the applicant was leaving the program. Collecting detailed information on what is driving applicants to remove themselves from the SOMAH program could be critical to future program retention and design.

Battery Storage Cost Data: The SOMAH program added storage and solar paired incentives into the program May 11, 2025. While there is a field in the data to track storage costs (Total Project Cost Storage), it is only populated for one record. As storage systems become more prevalent in the SOMAH program it will be important to quantify costs for different project components and incentives. We recommend ensuring that this field is populated for all storage paired projects and that all storage costs can be clearly disentangled from solar costs for future evaluations.

Prevailing Wage Data: One of the analyses the team planned for this evaluation was to explore how the new prevailing wage impacted SOMAH projects and incentive levels. However, there was no reliable way to identify which projects would be impacted by prevailing wage (e.g., buildings less than or equal to two stories) in the data. We heard from contractors that prevailing wage is making many SOMAH projects cost prohibitive and it is critical that this is evaluated in the next evaluation to confirm the impacts. We recommend that a field be added to clearly track whether a project is impacted by prevailing wage and to ensure that all projects are recording the number of stories for the building.

Housing Authority Data: There are three fields withing the program tracking data that indicate if a property is a city or county housing authority. However, there is no agreement between these fields. The 'Housing Authority' field reports 103 projects, but only 91 of those are distinctly labeled as housing authorities in the 'Umbrella Company' field. Similarly, the 'Property Eligibility Public Housing Authority' field reports 12 records as a housing authority, but the 'Umbrella Company' field indicates at least 91 records.

Eligible Contractor Data

The evaluation team found that 179 SOMAH applications have N/A or blank information collected for solar experience, number of employees, and diversity status. As expanding workforce development diversity is important to the program and a core part of evaluation activities, it would be beneficial for the SOMAH

PA to collect this information whenever possible. The team notes here that one of the main SOMAH contractors (GRID) does not have information for any of these metrics recorded in the eligible contractor data.

Eligible Property Data

The eligible property data includes properties which are not truly eligible for SOMAH. It does not exclude properties that are master metered or flag which already have existing solar. As ordered in D.24-11-006, the SOMAH PA is working with IOUs to establish high priority property lists. The IOUs are updating SOMAH property contact information and flagging whether properties are master-metered, whether they have existing solar, and whether any existing solar benefits tenants or not. Beginning in April 2025, each IOU updates 100 properties per month; as information is vetted the SOMAH PA cleans up internal property datasets and the public facing SOMAH eligible properties map (at this rate the update process should be complete in a little over a year).

CBO Outcomes

The CBO KPIs are activity-based and do not reveal whether CBO efforts are actually generating applications or reaching the right people. Without this data, it is impossible to assess the return on what is the largest expenditure task in the ME&O budget category.

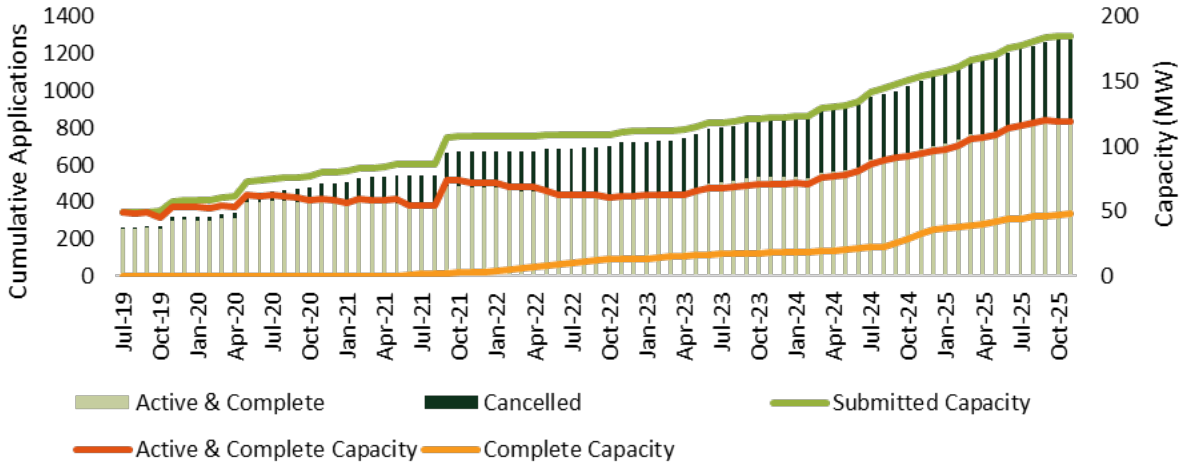
4 PARTICIPATION ASSESSMENT

The participation assessment served to independently verify participation levels as of December 31st, 2025[25] and identified notable changes in participation since the last evaluation.

4.1 CURRENT APPLICATION STATUS

The SOMAH Program has received 1,277 applications to date (Figure 4-1**)**. [26] The number of applications submitted in 2025 was the second highest number of applications received in a program year; second only to 2019 when the program was launched. In addition to application submission increases, over 300 additional projects were completed, and the cancellation rates saw an overall decline.

FIGURE 4-1: CUMULATIVE SOMAH APPLICATIONS AND CAPACITY* SINCE PROGRAM INCEPTION



*CEC-AC MW

Table 4-1 presents the number of active and completed SOMAH applications and project capacity (kW_{AC}) by IOU. PG&E continues to have the largest share of projects and capacity while PacifiCorp and Liberty maintain limited program presence.

[25] All evaluation results presented in this report are as of December 31, 2025, unless otherwise noted.

[26] The July 2021 step-down was delayed until October 29th, 2021, in response to a SOMAH PA request issued as a result of a delay of the NLR (formerly NREL) cost analysis report.

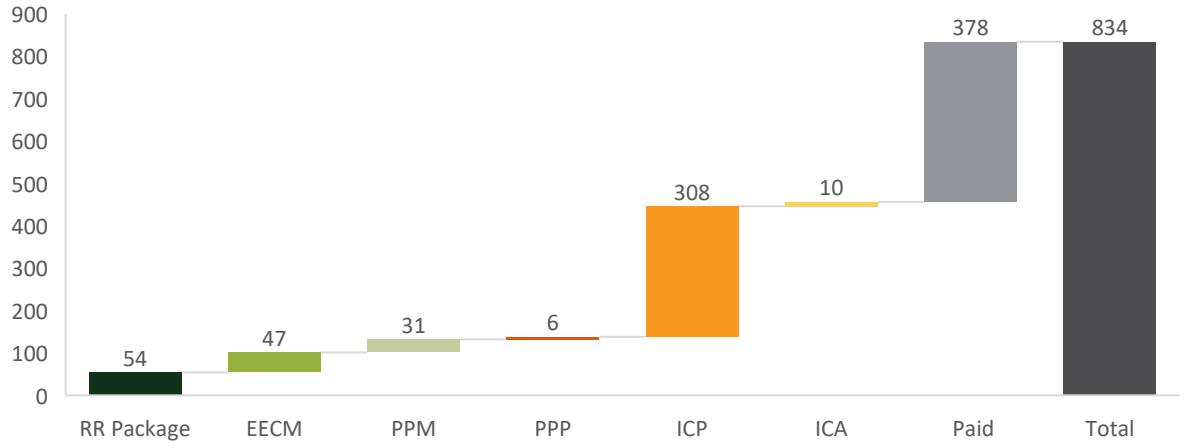
TABLE 4-1: SOMAH PROGRAM APPLICATIONS BY UTILITY AS OF DECEMBER 31, 2025

Utility	Total Number of Applications (Including Cancelled)	Active & Completed Applications				PV System Capacity (kW_{AC})[27]		
		Active	Active %	Completed	Completed %	Total Active Capacity	Total Completed Capacity	Total Active & Complete Capacity
PG&E	767	265	35%	238	31%	38,105	26,000	64,105
SCE	344	134	39%	94	27%	25,296	15,659	40,955
SDG&E	163	56	34%	46	28%	7,543	6,215	13,758
Liberty	2	1	50%	0	0%	55	0	55
PacifiCorp	1	0	0%	0	0%	0	0	0
Total	**1,277**	**456**	**36%**	**378**	**30%**	**70,999**	**47,874**	**118,873**

*Total average active & complete capacity is for 811 applications (23 Track A applications do not yet have capacity data in PowerClerk).

The SOMAH application process consists of a series of discrete steps that each application must go through to participate in the program and claim the SOMAH incentive. Figure 4-2 shows the status of the 834 active and completed applications as of 12/31/2025. There has been significant growth in the number of projects that have been completed since the last evaluation (71 to 378 paid projects) with an additional 318 projects in the Incentive Claim Package (ICP) step indicating they are close to completion.

FIGURE 4-2: CUMULATIVE SOMAH ACTIVE AND COMPLETED APPLICATIONS BY PROGRAM STATUS



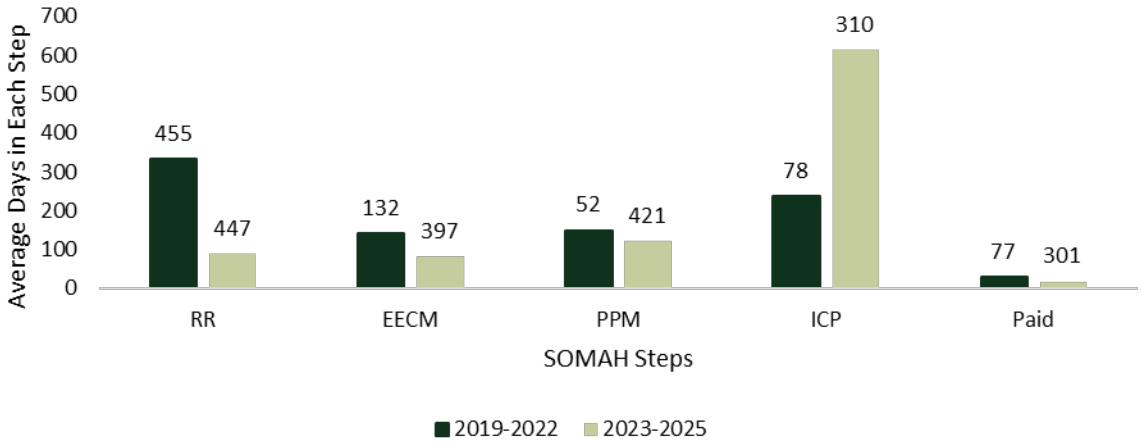
RR = Reservation Request. EECM = Energy Efficiency Compliance. PPM = Proof of Project. PPP = Progress Payment Pathway, ICP = Incentive Claim Package. ICA = Incentive Claim Approved.

SOMAH projects take, on average, around 1,249 days (around 3 ½ years) to complete. While this is a long time for a project to be completed, there is evidence that timelines are getting shorter. For example, the

[27] The accuracy of the active system capacity has not been verified by the evaluation team. It is the capacity submitted by the applicant.

evaluation team calculated how long, on average, SOMAH applications take to complete each of the application steps (calculated from approval day in one step to the approval in the next step), and found that timing is improving for all almost all steps but the ICP step (Figure 4-3).

FIGURE 4-3: NUMBER OF APPLICATIONS IN EACH STEP* AND AVERAGE TIME TO COMPLETE EACH APPLICATION STEP



*The numbers over each bar represent how many applications were in the step while the bars represent the average days spent in each step

4.1.1 Application Cancellations

Since SOMAH Program inception, a total of 443 applications have been cancelled or withdrawn (35% of all submitted). These cancellations represent 66MW of lost solar capacity. As the SOMAH program has matured, cancellation drivers have changed (Table 4-2). In the current evaluation, an applicant asking for their application to be withdrawn has become the main cancellation driver. The tracking data currently does not record detailed information for why the application is being withdrawn for every record (e.g., the data records values like 'withdraw requested' or 'applicants request') which is an important factor to identify patterns that could help with project retention or barrier identification. Given the high number of withdraw requests, the SOMAH PA should consider collecting detailed notes on why an application is being withdrawn for every project and review the entries that are currently filled in to understand what is driving project withdrawals. This would allow the SOMAH PA to identify projects that could potentially be saved and/or Program changes that could reduce withdrawal.

Program ineligibility also continues to be a top driver (25 projects) despite the program adding an affordability pre-screen service to reduce cancellations.[28] While the most recent semi-annual progress report (SAPR) affirms that the pre-screen service identified 11 eligible properties and screened out one ineligible prior to applications, we found that six of the projects[29] in the tracking data were recorded as ineligible because of deed restriction or regulatory agreement issues (which should have been captured by the pre-screen). The team also found that five projects were ineligible because the property was in a non-participating utility territory.

Two additional cancellation reasons arose in the last evaluation period; ten projects were cancelled due to Fannie Mae issues (two in 2025) and three were cancelled because of HUD delays. The prior report recommended the SOMAH PA engage with Fannie Mae to develop a solution to allow Fannie Mae funded properties to install TPO systems. The SOMAH PA reported meeting with Fannie Mae representatives in May of 2024 on this topic and found that "Fannie Mae was not amenable to implementing a blanket exemption for SOMAH projects given this would only apply to a narrow market (i.e. California only)". The PA also reported "subsequent attempts to revisit the conversation (that) have been unsuccessful… making the likelihood of identifying a solution challenging,". The last report documented issues with U.S. Department of Housing and Urban Development (HUD) utility bill allowance calculations, however cancellations due to HUD documentation is a new cancellation reason and should be explored further to understand what is happening.

[28] In December of 2022, the SOMAH program added an affordability pre-screen service with the goal of reducing cancellations by helping properties determine if they meet the SOMAH's deed restriction or regulatory agreement eligibility requirements.

[29] Three of these projects are Track A.

TABLE 4-2: DETAILED CANCELLATION REASONS BY CANCELLATION YEAR

Cancellation Reason	2019-2022		2023-2025		Total	
	N	%	N	%	N	%
Withdraw requested	17	6%	74	48%	91	21%
Does not meet eligibility criteria	50	17%	25	16%	75	17%
Deadline not met	51	18%	18	12%	69	16%
Not interested in the program at this time	52	18%	3	2%	55	12%
Project not feasible - other	40	14%	6	4%	46	10%
MASH stacking	39	13%	5	1%	44	10%
Project not feasible - financial challenges	15	5%	2	3%	17	4%
Project not feasible - site conditions	8	3%	7	5%	15	3%
Duplicate application	13	4%	0	0%	13	3%
Fannie Mae issues	0	0%	10	1%	10	2%
Future Track B Submission	4	1%	1	2%	5	1%
Waiting for HUD documents	0	0%	3	6%	3	1%
Total	289	100%*	154	100%	443	100%

*Numbers do not add up to 100% because of rounding

Analysis of PowerClerk tracking data found cancellation rates varied by participation Track (A vs. B).[30] Table 4-3 below shows the cancellation rate for Track A was almost double that of Track B but has decreased from the last evaluation (it was 76% in last evaluation). The most common reason Track A applications are cancelled is not meeting the eligibility criteria (35% of Track A cancellations), compared to Track B applications which are most often withdrawn (23% of Track B cancellations).

TABLE 4-3: CANCELLATION RATES ACROSS PARTICIPATION TRACKS

Participation Track	Applications	Cancelled	Cancellation %	Completed	Completion %
Track A	94	57	61%	4	4%
Track B	1,183	386	32%	374	32%
Total	1,277	443	35%	378	30%

Previous evaluations found that HCO projects were cancelled at a higher rate than TPO projects (Table 4-4). A review of project cancellations in the current evaluation period found that rates are now very similar for TPO and HCO projects and have decreased with time.

[30] The SOMAH website states, 'Track A is for property owners who want technical assistance and support services to help assess their property's solar potential and/or identify eligible contractors. The project bidding process to identify an eligible contractor is also an available option for Track A applications. Track B is designed for property owners who do not require technical assistance to submit a project reservation and have identified an eligible contractor.' The majority of SOMAH projects follow the Track B pathway.

TABLE 4-4: CANCELLATION RATES BY SYSTEM PURCHASE TYPE

Purchase Type	2019-2022			2023-2025		
	Applications	Cancellations	% Cancellations	Applications	Cancellations*	% Cancellations
HCO	172	116	67%	34	11	25%
TPO	504	140	28%	436	105	24%

*This includes all cancellations during this time period, regardless of when the project applied (i.e., there are projects that applied during 2019-2022 and were cancelled in 2023-2025 and those are included in this count)

4.2 KEY CHARACTERISTICS OF SOMAH PARTICIPANTS

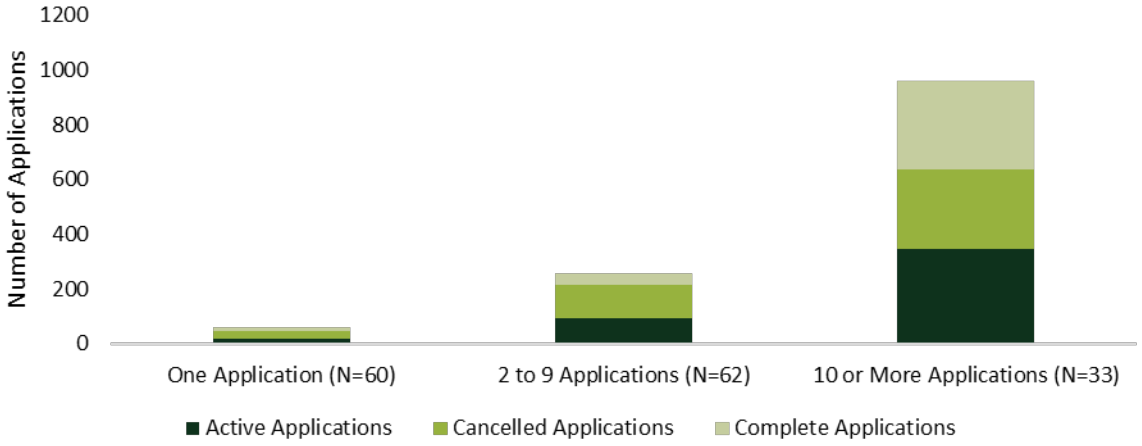
4.2.1 Property Owner Characteristics

The SOMAH Program is dominated by property owners with large portfolios (Figure 4-4). Thirty-three of the 155 unique property owners[31] who have submitted a SOMAH application are responsible for 75% of all the applications in the program. A review of program tracking data shows that cancellation and completion rates can vary depending on how many applications a property owner puts in:

- Cancellation rates by number of applications submitted:
  - 1 application: 20%
  - 2–9 applications: 4%
  - 10+ applications: 32% *(up from 29% in the previous evaluation, after 149 additional cancellations)*
- Completion rates by number of applications submitted:
  - 1 application: 45%
  - 2–9 applications: 46%
  - 10+ applications: 57%

[31] A full list of property owners and how many applications they have submitted can be found in Appendix F

FIGURE 4-4: DISTRIBUTION OF APPLICATIONS SUBMITTED BY PROPERTY OWNERS



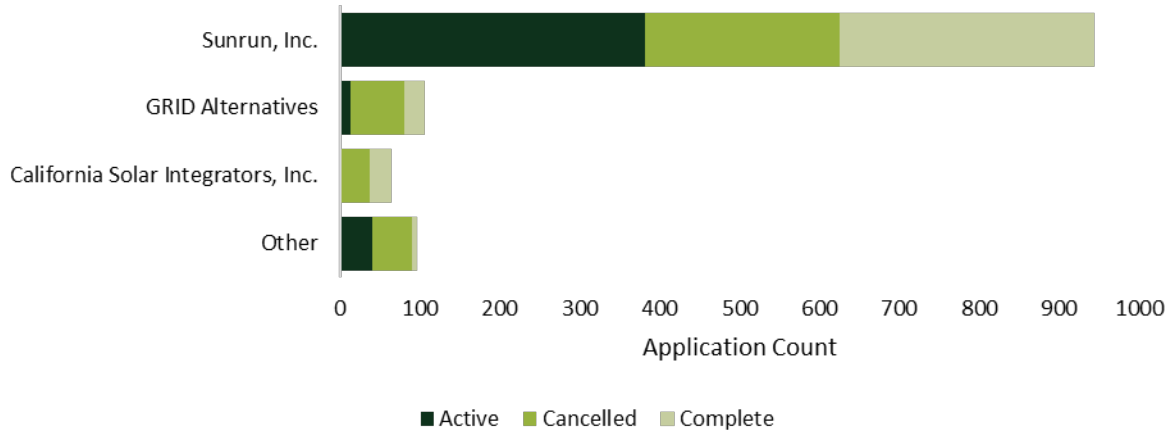
The PowerClerk tracking database includes an "Ownership Type" variable that takes the values: For-Profit, Non-Profit, or Hybrid. Most property owners are non-profit (74%). We found no difference in cancellation rate between non-profit and for-profit ownership types (34% and 37% respectively), though non-profits do appear to be completed at a slightly higher rate (33% completion vs. 20% for for-profit property owners).

4.2.2 Participating Contractor Characteristics

The distribution of active, cancelled, and completed SOMAH projects by the top three solar contractors and the remaining 19 participating contractors ("Other"[32]) is shown in Figure 4-5. Sunrun remains the main contractor for the SOMAH program (78% of applications submitted).

[32] The "Other" category represents all other contractors with less than 50 applications submitted.

FIGURE 4-5: DISTRIBUTION OF SOLAR CONTRACTING COMPANIES



The SOMAH PA provided the evaluation team a list of contractor data for all SOMAH-eligible contractors and subcontractors. This list contains contractor reported information on the total number of solar installations completed by the contractor, the number of staff employed, and the company's diversity status (owned by a woman or underrepresented group[33]). In alignment with previous evaluations, we still find that prime contractors are neither representative of the eligible contractor list nor diverse businesses.[34]

Subcontractors, however, greatly increase the diversity of all contractors participating in SOMAH. As of 12/31/25, 81% of projects installed by a subcontractor are underrepresented owned and 35% of projects woman owned. We also found that 65% of subcontracted projects are done by newer companies (25 or less installations) and small firms (73% have 25 or less employees).

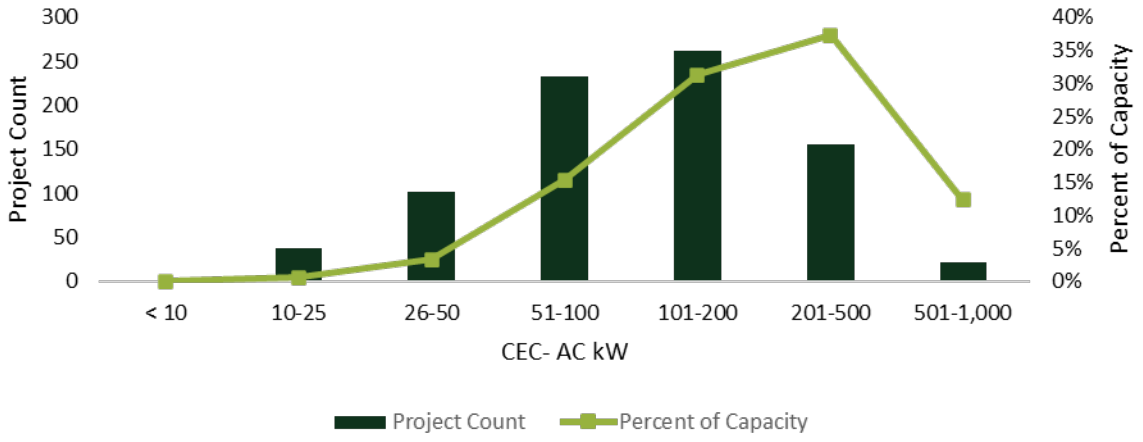
4.3 KEY CHARACTERISTICS OF SOMAH PROJECTS

This section presents project-specific characteristics including the project purchase types, capacities (CEC PTC kW), the tenant versus common areas PV allocations, and plans to pair with on-site energy storage. Figure 4-6 presents the distribution of PV system capacities for the 811 active or completed projects that have capacity recorded in PowerClerk.

[33] These contractors were identified in the SOMAH PA Contractor tracking database as "minority-owned" businesses.

[34] See Appendix F for a comparison of SOMAH participating contractors and eligible contractors

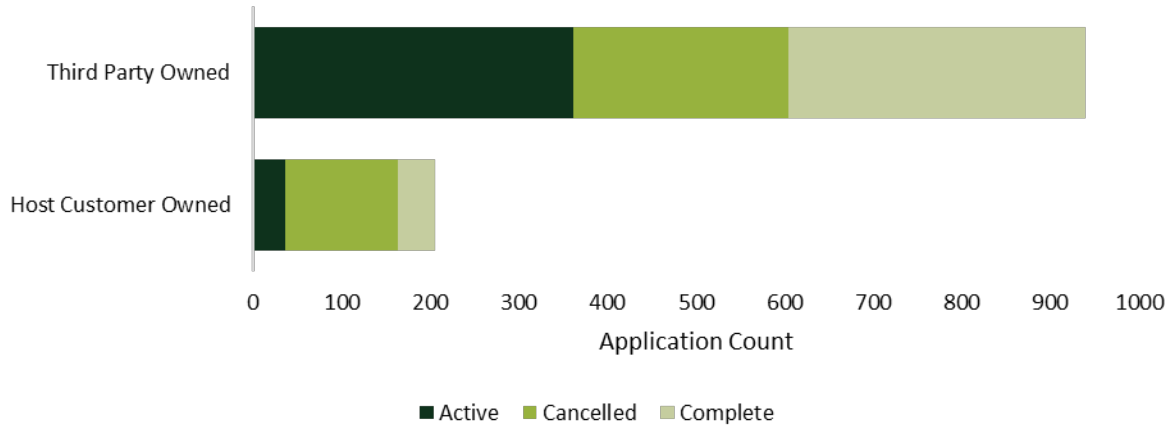
FIGURE 4-6: DISTRIBUTION OF PROPOSED PV SIZING[35]



4.3.1 System Purchase Type

During the Reservation Request step SOMAH projects select their system purchase type: TPO or HCO. At the end of 2025, 74% of all submitted applications had selected TPO. As shown in Figure 4-7, TPO projects are completed at a higher rate than HCO projects (36% versus 21%). TPO projects also have a lower cancellation rate than HCO projects (26% versus 61%) but see section 4.1.1 for a discussion on how this has changed over the course of the program.

FIGURE 4-7: DISTRIBUTION OF PROGRAM SUBMISSIONS BY SYSTEM PURCHASE TYPE



[35] This includes projects that have not yet received their RR Approval and thus the project sizing has not yet been validated.

The average incentive paid (or expected to be paid) per Watt for HCO and TPO systems was also compared and, as shown in Table 4-5, the average incentive rate was $0.85 less for completed and $0.72 less for active TPO projects as most TPO systems are leveraging the federal tax credit which lowers their incentive rate. This cost difference is likely to change moving forward as ITC, the dominant tax credit used for the TPO systems, is unavailable from July 4, 2026 onward.

TABLE 4-5: AVERAGE SIZE AND INCENTIVE OF ACTIVE AND COMPLETED HCO VS TPO PROJECTS

Metric	Completed		Active	
	HCO	TPO	HCO	TPO
# of Projects	43	335	37	361
System Capacity	147 kW	124 kW	151 kW	163 kW
Incentive (paid or estimated) Total	$268,479	$122,066	$443,701	$362,988
Average Incentive ($/W)	$1.83	$0.98	$2.95	$2.23

4.3.2 Capacity of Applicant Projects

A review of the current program data shows that TPO and HCO projects have a similar average kW per project (Table 4-6). This is much lower than projects that are currently undecided, with these projects exhibiting planned sizes more akin to sizing from much earlier in the SOMAH Program.[36]

TABLE 4-6: PROJECT SIZE (PER TENANT UNIT AND OVERALL) VS. SYSTEM PURCHASE TYPE

System Purchase Type	# of Projects	# of Tenant Units	Total kW for Projects	Average kW per Tenant Unit	Average kW per Project
Host Customer Owned	80	5,369	11,882	2.4	149
Third Party Owned	694	53,087	100,031	2.0	144
Undecided*	35	3,159	6,557	2.2	187
Total	***809*****	**61,615**	**118,469**	**2.0**	**146**

*58 of the 834 active and complete projects are undecided as to system purchase type in the tracking data. 23 of those 58 have no capacity information and are therefore excluded from this analysis. Of the remaining 35 undecided projects, one is a Track A application in the EE Compliance step. The remaining 34 are Track B applications in the EE Compliance, Proof of Project, and Incentive Claim Package steps.

**Two TPO project in the tracking data do not have number of tenant units recorded so they are not included in this chart.

4.3.3 Projects Eligibility

Senate Bill 355 changed the property eligibility criteria for SOMAH. Prior to October 7, 2023, for a property to be eligible for SOMAH, the property must be deed restricted with at least 10 years remaining on the

[36] See Appendix F for a breakdown of size changes over time for the program

term, be a property with at least five units (and tenant units must be individually metered), and they must either be located in a DAC[37] or 80% of tenants have incomes at or below 60% of the Area Median Income (AMI). Under the new eligibility rules, properties in which at least 66% of the tenants have incomes at or below 80% AMI can be included in the program. Additionally, properties owned by a Tribe[38] and public housing authority properties can participate without needing to meet the affordability requirement. We evaluated the distribution of how projects qualify for eligibility under the new rules. Table 4-7 shows a breakdown of project eligibility for each qualifying pathway. The two original pathways, income and DAC, still make up most projects in the SOMAH Program.

TABLE 4-7: ELIGIBILITY PATHWAYS UNDER NEW PROGRAM RULES*

Pathway	Active	Completed	Cancelled	Total N	Total % of Projects
Low Income	160	1	23	184	56%
DAC + Low Income	103	1	29	133	41%
Housing Authority + Low Income + DAC	0	0	2	2	1%
Housing Authority + Low Income	7	0	1	8	2%
DAC	1	0	0	1	0%
Tribal	0	0	0	0	0%
Total	271	2	55	328	100%

*For projects submitted after Oct. 7, 2023

Per CPUC D.24-11-006, one of SOMAH's goals is for at least 40% of all projects statewide to be in a DAC by the end of the program (2032). A current benchmark in the SOMAH Program Handbook is to have 40% of all participating SOMAH projects be in a DAC by 2026. As of December 31, 2025, only 32% of all active or completed SOMAH projects (n = 265) were in a DAC. Another SOMAH goal aims for 30% of all projects within each large IOU territory to be in a DAC by the end of the program. As of December 31, 2025, active and completed projects within a DAC comprise 29% of PG&E projects, 45% of SCE projects, and 13% of SDG&E projects.

Eligible Properties Map

The SOMAH eligible properties map lists properties segmented by electric utility, legislative district, and disadvantaged community tract, including addresses and the number of eligible units. As of March 2026, the list contained 4,674 records, 16% of which are active or completed SOMAH properties. Of the inactive SOMAH properties, 36% are in a DAC, 99% are income eligible, 0.3% are tribal, and 9% are public housing authorities. A majority of the inactive SOMAH properties are in PG&E territory (57%), 30% in Edison territory, 12% in SDG&E territory, 0.8% in PacificCorp territory, and 0.4% in Liberty Utility territory. A

[37] As defined by CalEPA pursuant to Health and Safety Code Section 39711.

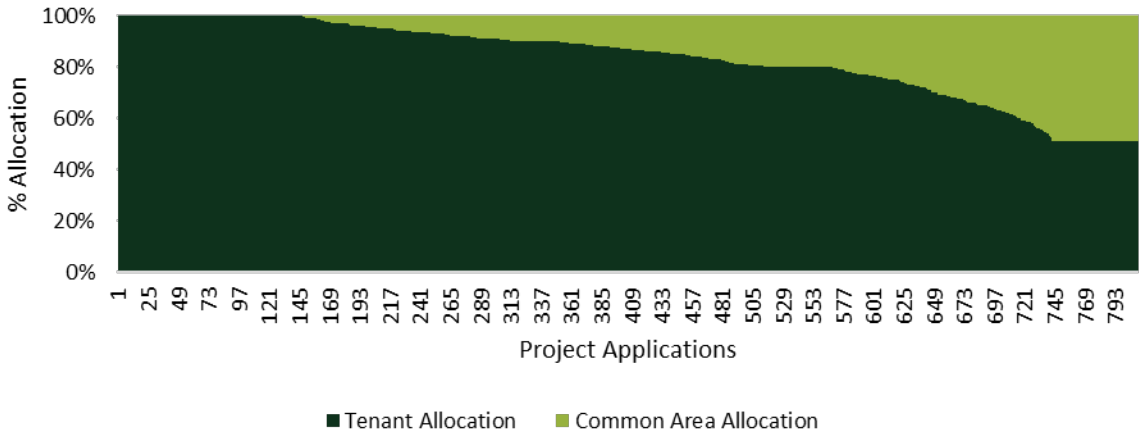
[38] Non-federally recognized Tribes can also participate in the program under the new rules

review of a sample of properties on this list revealed some sites with tree cover and sites with solar already on their roofs (indicating they may not truly be eligible for SOMAH). As mentioned in 3.2.6 Subsection on Eligible Property Data, the SOMAH PA is working with IOUs to update property information, including whether properties already have solar onsite. This information should then be incorporated into the public facing eligible properties map.

4.3.4 Tenant versus Common Area PV Allocation

The SOMAH Program requires that a minimum of 51% of each project's electrical output is allocated to offset tenant's load. Figure 4-8 presents the distribution of tenant versus common area allocations for active and completed SOMAH projects. We found that 147 projects (21% of active and complete) currently allocate 100% to tenant load. Most of these projects are non-profits (127 applications).

FIGURE 4-8: TENANT VERSUS COMMON AREA ALLOCATION



TPO projects have a statistically significant (p = 0.03, t-test) lower tenant allocation than HCO projects (82% compared to 88% for HCO).[39] This is likely due to differences in system funding. For example, TPO projects often leverage the ITC through their contractor and roll up additional costs into their solar loan. This makes it less critical to ensure the tenant load allocation is maximized for SOMAH incentives as TPO projects typically have lower out of pocket expenses for the property owner. In contrast, HCO property owners may try to increase tenant load allocation to maximize incentives.

4.3.5 Paired with Battery Storage

The previous evaluation found that very few projects (i.e., six active projects, <2%) planned to be paired with storage. This was due to challenges pairing a battery with VNEM along with leveraging SGIP incentives

[39] See Appendix F for how tenant allocation varies by application year

for SOMAH/VNEM. Multiple changes have taken place since the last evaluation around these issues. Notably, D.24-11-006 opened the solar incentive budget to be applied to paired storage and solar through the SOMAH program.[40] These incentives became available May 11, 2025, and since then there has been an uptick in the number of projects pairing solar and battery storage (Table 4-8). Storage paired projects make up 21% of the active projects submitted since May 11th, 2025, compared to only 9% of active and completed projects prior to then. As funds for solar and paired storage are shared, it could be beneficial to monitor the incentive budget with these new changes to ensure that there are enough funds available to reach the 300 MW goal.

TABLE 4-8: STORAGE PAIRED COUNT, SIZE, AND INCENTIVE

Time Period	Storage Paired	N	%	Total Storage (kWh)	Median Size (kW)	Median Incentive	Median Incentive/kW
Pre-May, 11th 2025	Yes	63	9%	7,614	128	$409,227	$2,940
	No	658	91%	--	106	$211,830	$2,018
May 11th, 2025 On	Yes	24	21%	7,149	141	$552,883	$3,706
	No	89	79%	--	108	$268,999	$2,132

4.3.6 System Installation and Interconnection

The program tracking data was updated after the prior evaluation to include the field, "Mechanical Completion Date" which records the exact date when construction is finalized for a project. The evaluation team was able to use this new addition paired with PTO date to accurately quantify how long it takes each project to interconnect after it's completed. Overall, interconnection timing does not appear to be getting faster (Table 4-9). PG&E is the only IOU to show a decrease in the average days to interconnect, but their maximum days (822 days) is by far the longest time of all three IOUs.

[40] CPUC Energy Division Resolution E-5374: https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M570/K149/570149179.PDF

TABLE 4-9: INTERCONNECTION TIMING BY UTILITY

IOU	Prior Evaluation Reported Interconnection Times*			Current Evaluation (2023-2025)			
	Min Days	Max Days	Mean Days	N	Min Days	Max Days	Mean Days
PG&E	119	701	291	93	8	822	241
SCE	88	598	228	12	176	563	361
SDG&E	26	318	147	13	129	686	388

*The prior evaluation used a slightly different methodology to calculate interconnection timing. As Mechanical Completion Date was not available, the team asked a main SOMAH contractor the average time to complete construction on a project. They reported six weeks, so construction end (i.e., Mechanical Completion Date for current evaluation) was estimated as construction start date plus adding six weeks. This calculated day was then used in the analysis to estimate construction to interconnection. If we were to use the same methodology to determine interconnection timing as the last evaluation, the directionality of our finding would not change as our results would show PG&E taking an average of 361 days to interconnect, SCE would take 581 days, and SDG&E would take 422 (all much longer than the previous evaluation). A comparison of the two methodologies can be found in Appendix F.

We analyzed interconnection data from DGStats to understand if the long interconnection times in Table 4-9 are characteristic of VNEM interconnecting systems. Table 4-10 shows a comparison of VNEM to non-VNEM (generation or generation with storage projects) and the time to interconnect. We analyzed projects with PTO dates in 2023-2025 and analyses were constrained to the same application period for more accurate comparison. While there are instances recorded of very timely interconnection for VNEM systems (i.e., 0 days to interconnect for a project in SCE territory or 8 days for PG&E), on average, VNEM projects take well over five times as long as non-VNEM systems to be interconnected. Table 4-10 also shows that for all three IOUs, VNEM systems are taking longer to interconnect through time.

TABLE 4-10: VNEM AND NON-VNEM DAYS FROM INTERCONNECTION REQUEST TO PTO FROM UTILITY DATA*

IOU	Interconnection Type	Prior Evaluation Reported Times		2023-2025 PTO	
		Min to Max Span of Days from Request to PTO	Average Days from Request to PTO	Min to Max Span of Days from Request to PTO	Average Days from Request to PTO
PG&E	VNEM	141-412	277	8-1,668	596
	Non-VNEM	0-475	143	0-1,801	90
SCE	VNEM	235-491	396	0-1,947	749
	Non-VNEM	1-631	148	0-1,741	87
SDG&E	VNEM	16-657	200	55-1,666	583
	Non-VNEM	0-625	134	0-1,847	101

*The interconnection data on DGStats does not have a unique identifier that ties applications together in the project sites data files. Each time an adjustment or addition is made to the interconnection application, a new application ID is generated. While it was possible to de-duplicate records with project ID information from a program (e.g., SOMAH), it's not possible to de-duplicate the other records. This inflates the sample sizes, especially for non-VNEM systems, because it was not possible to identify any duplicate applications.

The interconnection data in DGStats has a variable that allows the identification of SOMAH projects. We used this variable to further explore if SOMAH projects have a different interconnection experience than

non-SOMAH VNEM systems. Table 4-11 shows that SOMAH projects take longer than other VNEM interconnections for all three IOUs. Interconnection delays could stem from delays in utility processes or customer and contractor response times. It is unclear what is causing interconnection to take, on average, almost a year longer than other VNEM projects for two of the IOUs, but this is something that should be explored and rectified immediately to bring SOMAH interconnections in-line with other VNEM projects. Having a project take over five years to interconnect (SCE: 1,947 days) has a major impact on the success of the SOMAH program.

TABLE 4-11: SOMAH INTERCONNECTION VS. OTHER VNEM

IOU	Program	N	Min-Max	Mean	Median
PG&E	SOMAH	243	8-1,668	689	655
	MASH	119	83-990	527	539
	VNEM	667	125-1,469	575	580
SCE	SOMAH	170	0-1,947	761	819
	MASH	26	0-1,183	484	349
	NBT-V	6	0-528	302	283
	NEM - V	234	0-1,358	685	748
SDG&E	SOMAH	59	161-1,666	870	744
	NBT-V	4	162-273	202	187
	NEM-V ST	283	55-1,406	529	569

In addition to Mechanical Completion Date, the tracking data now provides a field, 'When Did the Solar Bill Credits Begin' which tracks the date that bill credits are set up for each SOMAH project. The evaluation team used the dates in this field and when the project received PTO to calculate how many days it took for bill credits to begin for each utility. Table 4-12 shows the difference in time for bill credits to be set up between the previous program years and the years covered by the current evaluation. There has been an overall decrease in the average time for bill credits to be set up for all utilities. Though the maximum days for bill credit setup still tend to be rather extreme (e.g., 423 days), this may reflect the resolution of old projects that had fallen under the radar prior to updated processes. Per D.24-11-006, the IOUs are now required to share a confidential quarterly memo with the SOMAH PA regarding VNEM billing status for projects that received PTO. This is an important step to improve transparency and increase monitoring of the bill credit setup process.

TABLE 4-12: DAYS FROM INTERCONNECTION TO BILL SETUP FOR COMPLETED PROJECTS BY UTILITY

IOU	2019-2022			2023-2025		
	N	Average	Min-Max	N	Average	Min-Max
PG&E	38	152	5-474	159	69	6-423
SCE	43	111	1-484	38	15	0-88
SDG&E	21	53	0-384	11	23	0-117

4.3.7 Cross Program Participation

A high-priority objective of the CPUC is to improve the integration (in terms of eligibility, participation, and data sharing) of programs targeting low-income and disadvantaged communities in California. D.17-12-022 includes the requirement for SOMAH projects to undergo energy efficiency audits and notify tenants about the availability of the IOUs' Energy Savings Assistance (ESA) Program. Additionally, the SOMAH program markets information on 13 'stackable programs' ranging from EV charging support to energy efficiency programs.

We requested IOU cross participation data for projects that had reached the reservation request form (RRF) approval date by January 1, 2023 through April 30, 2025. The SOMAH PA sends project referrals to the partner IOUs for ESA recruitment on a monthly basis (after RRF Approval). We used this data to identify cross participation between SOMAH property owners and tenants for any of the 13 stackable programs that would be recorded in the IOU's database (i.e., administered by the IOUs like the SCE Charge Ready program) or IOU specific low-income energy programs. Our review found limited evidence of cross program participation for IOU specific stackable programs or other IOU energy program offerings (Table 4-13). The only program identified was the ESA program, but only for PG&E (participating tenants = 1) and SCE (participating tenants = 83). It is possible that tenants and property owners are not participating in ESA or other IOU administered stackable programs because all possible upgrades have already been made. The SOMAH PA should identify if this is indeed the case, but if it's not, then the SOMAH PA should figure out what is driving the lack of cross program participation and work to identify steps to address it. Additionally, the SOMAH PA currently does not rigorously track non-IOU stackable program participation. This makes analyzing the effectiveness of project referrals sent for these other programs not possible. It would be beneficial for the PA to collect this information to evaluate how many properties and tenants are leveraging non-IOU administered stackable programs.

TABLE 4-13: ESA TENANT AND PROPERTY OWNER CROSS PARTICIPATION BY IOU

IOU	Tenant Participants	Property Owner Participants	Total
PG&E	1	8	9
SCE	83	0	83
SDG&E	0	0	0
Total	84	8	92

We also surveyed tenants residing at properties with completed SOMAH projects about whether they received information or participated in other programs (findings are in Section 5.3.3).

4.4 KEY PROJECT COST CHARACTERISTICS

4.4.1 Program Incentives Levels

On March 21, 2023, the Commission adopted D.23-03-007, which increased current incentive levels and eliminated the annual incentive step-down process adopted by D.17-12-022. The decision defers consideration of proposed higher incentive levels for projects located in disadvantaged communities. SOMAH incentive rates ($ per AC Watt) vary based on whether the applicant is planning to claim the ITC[41] or receives the LIHTC.[42] As shown in Table 4-14, SOMAH incentives are reduced by 30% if a project takes advantage of one of these tax credits and by 50% if the project takes advantage of both tax credits.

Storage incentives were introduced in May of 2025 through D.24-11-006. Storage incentives are a flat rate set at $1.10/Wh.[43] They are applied to the entire storage capacity regardless of tenant or common area allocations (as compared to solar).

TABLE 4-14: SOMAH INCENTIVE RATES

Federal ITC	LIHTC	Tenant $ per AC Watt				Common Area $ per AC Watt			
		7/19-6/20	7/20-6/21	7/21-3/23	3/23 onward	7/19-6/20	7/20-6/21	7/21-3/23	3/23 onward
No	No	$3.20	$3.04	$2.97	$3.50	$1.10	$1.04	$1.02	$1.19
Yes	No	$2.25	$2.14	$2.09	2.45	$0.80	$0.76	$0.74	$0.87
No	Yes	$2.25	$2.14	$2.09	2.45	$0.80	$0.76	$0.74	$0.87
Yes	Yes	$1.60	$1.52	$1.49	1.75	$0.60	$0.57	$0.56	$0.65

Tax Credits

As shown in the table above, tax credits provide additional funding for SOMAH projects and can help to extend the reach of SOMAH Program incentives. As of the end of 2025, 85% of completed SOMAH projects are leveraging either the ITC or the LIHTC to offset a portion of their solar installation costs. Solar projects

41 The ITC is a one-time credit on federal taxes and can be used to offset a portion of the total PV system cost. The Inflation Reduction Act of 2022 (IRA) provides non-profit organizations an opportunity to benefit from tax credits such as the ITC and LIHTC via "direct pay" tax credits, which are effectively cash payments that can be used to offset clean energy project.

42 The LIHTC is an indirect Federal subsidy used to finance the construction and/or rehabilitation of low-income affordable rental housing. These tax credits are awarded to affordable housing developers and then typically sold by the developers to private investors to obtain funding to finance the project. Once the project is placed in service (i.e., rentable) the investors can claim the LIHTC over a 10-year period.

43 Storage incentive calculated as energy capacity (Wh) x $1.10/Wh.

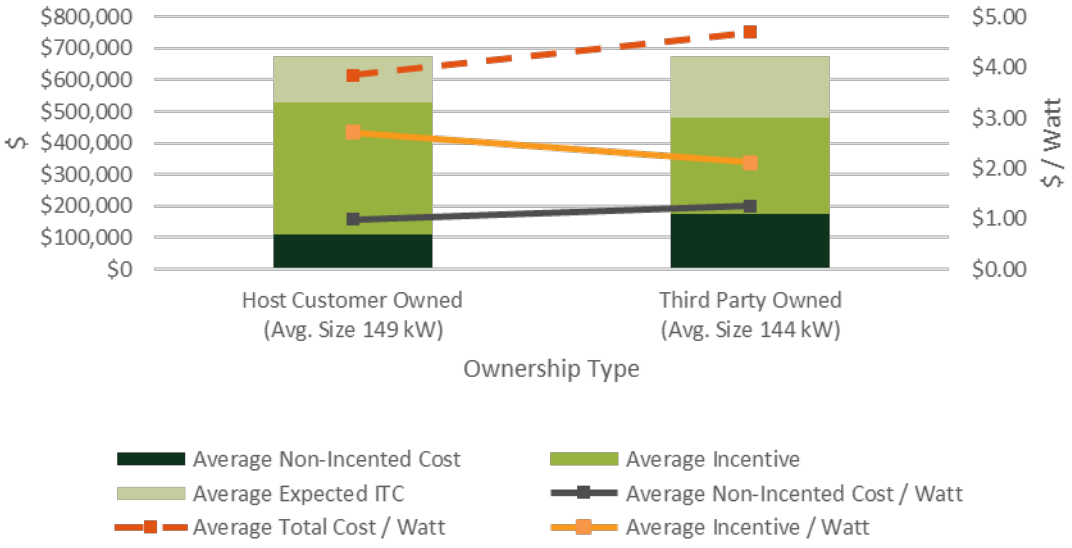
that do not begin construction by July 4, 2026 must be placed in service by December 31, 2027 to qualify for the solar ITC, which is currently being phased out.

At the end of 2025, both completed and active SOMAH projects were much more likely to use the ITC than the LIHTC, with 84% of completed projects and 90% of active applications claiming the ITC and 1% of completed projects and 1% of active applications planning to claim the LIHTC. This breakdown is likely to change from 2026 onwards as the ITC is phased out. For more details on ITC changes see Section 5.7).

4.4.2 Project Cost Assessment

The evaluation team reviewed total project costs and SOMAH incentives across project applications by system purchase type. Figure 4-9 below shows the average project incentive, expected ITC, and cost not covered by the program (which is either paid for or financed by the property owner or included in TPO payments). As this figure shows, the average total system cost per Watt is higher for TPO projects, however the average SOMAH incentive for these projects is lower as they typically leverage ITC thereby decreasing the SOMAH incentives for those projects. We also found that the average non-incented cost is higher for TPO projects than HCO. This is a change from previous evaluations where the average non-incented costs were very similar between the two purchase types.

FIGURE 4-9: SYSTEM COSTS AND INCENTIVES PER WATT BY SYSTEM PURCHASE TYPE[44]



[44] The average expected ITC is estimated as the percentage of active projects that stated they would claim the ITC times the average total cost ($) times the ITC percent for that project year.

TPO projects are, on average, more expensive than HCO projects when accounting for size using a cost/kW basis (Table 4-15). This is partially due to the additional costs included in a solar lease,[45] but it's also possible that this is due to 25 active projects taking advantage of the new storage incentives that were added in May, 2025. The average project cost/kW of these 25 projects is $6,419/kW as compared to $4,732/kW for active TPO projects without storage added on during the same time period. As more storage projects get completed and more information on cost is recorded in the field 'Total Project Cost Storage', it should become possible to determine if storage is the main driver for these cost differences.

TABLE 4-15: AVERAGE TOTAL SYSTEM COST AND COST/KW FOR ACTIVE AND COMPLETED SOMAH PROJECTS

Time Period	SOMAH Project Status	HCO		TPO	
		Average Total System Cost	Average System Cost/kW	Average Total System Cost	Average System Cost/kW
Pre-2023	Active	$851,976	$4,550	$824,177	$4,628
	Completed	$516,880	$3,712	$580,498	$4,412
Current Evaluation	Active	$454,249	$3,730	$770,465	$4,922
	Completed	$330,320	$3,699	$363,970	$4,790

A more detailed breakdown of the costs by system purchase type is shown in Table 4-16 for completed projects. Active projects were excluded as many TPO projects did not have disaggregated system component data. The total costs of HCO and TPO systems may not be comparable due to the costs included in the Balance of System (BoS) costs.[46] BoS costs for TPO systems may include other allowable costs (such as system design or feasibility study costs) which increase the total system cost and ultimately the cost basis for the ITC. The costs are broken out by time (2019-2023 vs. 2023-2025) and color coded to show cost components that have changed in the current evaluation period (green shows a cost decrease through time while orange shows a cost increase). All cost components show a decrease in average cost from previous evaluations to the current evaluation except for carports. Carport costs in the current evaluation period only represent one project whereas the pre-2023 average is calculated from 46 projects. This is in-line with interview feedback from one of the main SOMAH contractors. They reported that while customers were very interested in carports and the contractor themselves liked doing carports as projects because of their ease, the cost of steel due to tariffs has made them nearly impossible to pencil out. This has contributed to the sharp decline (i.e., only one project) during the current evaluation period.

[45] Lawrence Berkley Lab's Tracking the Sun U.S. Distributed Solar and Storage 2025 Data Update. The report shows that loan financed projects (e.g., TPO) are found to have a median cost of ~$1.2/W more than HCO.

[46] Balance of System (BoS) costs include the parts of the solar PV system that are not modules and inverters. This includes the wiring to connect modules to each other and the inverter(s), framing to support the modules, and all other hardware.

TABLE 4-16: SYSTEM COMPONENT COSTS BY SYSTEM PURCHASE TYPE FOR COMPLETED PROJECTS

Average System Costs	HCO		TPO	
	Pre-2023	Current Evaluation	Pre-2023	Current Evaluation
Number of Applications	42	1	270	65
Average System Size	148	89	136	76
Average Incentive Amount	270,141	198,697	139,698	48,824
Average Project Cost	516,880	330,320	580,498	363,970
Average PV Module Cost	122,795	36,563	86,403	46,962
Average Inverter Cost	60,599	30,805	44,728	25,203
Average PMRS Cost	22,206	10,000	22,572	15,736
Average Carport Cost	259,340		108,693	758,217*
Average Permitting Fees	19,175	5,217	16,330	11,806
Average Balance of System Costs	261,232	247,735	393,961	252,597

*There is only one project that was submitted and completed during the evaluation period that had a carport.

4.4.3 Forecasted SOMAH Installed Capacity

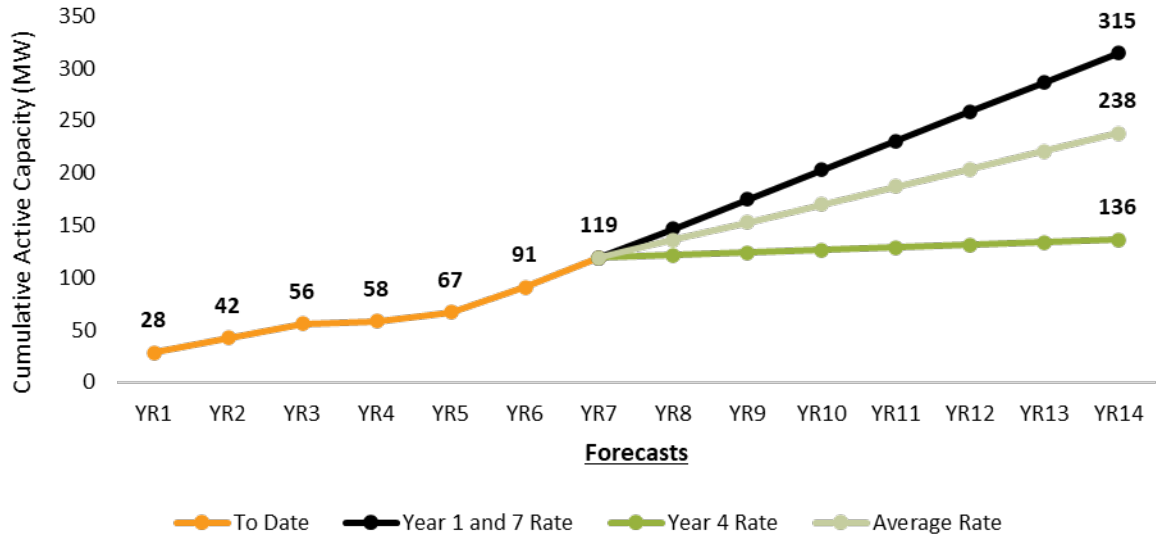
The last evaluation report provided scenarios to determine the maximum megawatts of solar the program could incentivize at the new incentive levels (as of March 2023) compared to the program's goal of installing 300 MW of solar over 10 years.[47] This table showed that with current incentive levels and the ITC or LIHTC, the program could reach 156% of its goals.[48] Figure 4-10 below shows the 12-year forecast[49] of installed capacity based on program applications as of December 31, 2025. This forecast includes the 12-year projections assuming participation continued at the same pace as the program's first year, fourth year (which had the lowest application rate for the program), and the average rate of years one through seven. Year seven has the same rate as year one, so they are indicated as one line on Figure 4-10. If the program can maintain the rate from years one (and seven), it is possible to achieve the 300 MW of solar installed goal now that the program is extended to 2032. However, as the other forecasts show, if this rate is not maintained, the program is likely to fall short of its 300 MW goal.

47 SOMAH Second Triennial Evaluation Report, Table 4-16, Section 4.4.3.

48 The next evaluation should consider updating these forecasts without the ITC to see how this change impacts the program's ability to reach its goals.

49 Senate Bill 355 extended the end of the SOMAH program from December 31, 2030 to December 31, 2032.

FIGURE 4-10: SOMAH 10-YEAR FORECAST OF INSTALLED CAPACITY, DECEMBER 31, 2025



VERDANT

4.5 PROGRESS ON PRIOR RECOMMENDATIONS RELATED TO APPLICATION PROCESSING

The previous SOMAH evaluation provided recommendations for improving application processing. Below we present these recommendations and the progress made to address them.

TABLE 4-17: APPLICATION PROCESSING PRIOR RECOMMENDATIONS AND PROGRESS

Prior Recommendation	Progress Made to Address Recommendation
The SOMAH PA should engage with Fannie Mae to develop a solution for Fannie Mae funded properties to have SOMAH third-party owned systems. (12)	The SOMAH PA reported meeting with Fannie Mae representatives in May of 2024 (as well as on subsequent occasions) and found "Fannie Mae was not amenable to implementing a blanket exemption for SOMAH projects". There were 10 projects cancelled between 2023-2025 because of Fannie Mae funding issues. The SOMAH PA may want to consider if it would be helpful to identify Fannie Mae owned mortgages early in the application process. [See Section 4.1.1].
The SOMAH PA and IOUs should work together to identify all issues leading to extended interconnection timelines and take steps to expedite this process to ensure program benefits and incentives are provided in a timely manner. (13)	Compared to the previous evaluation, interconnection times have increased significantly for SCE (228 → 361 days) and SDG&E (147 → 388 days), with modest improvement for PG&E (291 → 241 days). [Section 4.3.6] D. 24-11-006, issued November 2024, ordered that PG&E, SDG&E, and SCE must dedicate the equivalent of one full-time employee to completing SOMAH interconnection applications and providing support for SOMAH property owners and tenants in cases of VNEM billing delays. In that same decision, it was also ordered that the IOUs must provide a confidential quarterly memo to the SOMAH PA and Energy Division staff about VNEM billing status for SOMAH projects that have received permission to operate.
The SOMAH PA should update the SOMAH Program handbook with guidance on pairing SOMAH PV with battery storage. (14)	Changes were made to SOMAH Handbook 9 (per D.24-11-006 issued in November 2024) to add integrated or paired storage incentives to the SOMAH program. The Handbook includes details throughout regarding the inclusion of integrated storage and requirements are specified in SOMAH Handbook Section 2.4 Integrated Energy Storage Requirements.

VERDANT

5 PROCESS ASSESSMENT

This section presents the results of the process assessment conducted as part of the third triennial SOMAH Program evaluation. The purpose of this process assessment is to provide a comprehensive understanding of how the program is currently operating, identify strengths and persistent barriers to participation, and highlight opportunities for continued improvement to enhance program participation and participant satisfaction. Building on findings from prior evaluations, this assessment examines the effectiveness and efficiency of the program's implementation across a broad set of activities, including the organizational structure, ME&O, technical assistance, training resources, and progress made in response to earlier evaluation recommendations. Findings presented in this section draw on a mixed-methods approach that includes in-depth interviews with key program stakeholders including the SOMAH PAs, contractors, property owners, and CBOs, surveys with tenants and job trainees, as well as analyses of program metrics and materials.

Findings are organized by the following subsections:

- Participant experiences (including contractors, property owners, tenants, and job trainees)
- Perspectives from SOMAH PA partners (including CBOs and financing organizations)
- Overview of the current federal tax credit landscape for solar and storage at low-income multifamily properties
- Responses to prior recommendations are included throughout this section where applicable.

5.1 CONTRACTOR EXPERIENCE

The evaluation team conducted a total of fourteen IDIs with participating and non-participating contractors and subcontractors. The primary goal was to understand what is working well, what could be improved, what is driving or limiting program participation, and how changes to the program since the last evaluation have impacted their experience. We share the key feedback from those interviews below.

5.1.1 Updates to Contractor Experiences with the SOMAH Program

We segment our findings into two categories: continuing themes and new feedback. Continuing themes encompasses feedback we've heard consistently, either since the first triennial evaluation or during the last evaluation. While much of the feedback has been consistent, we do document where new recommendations or experiences have occurred. The new feedback section covers topics that arose since the last evaluation.

5.1.2 Continuing Themes

As part of our interview process, we heard consistent themes and feedback from participating and non-participating contractors. These include:

- **Contractors new to the program learn about SOMAH through peer organizations** (e.g., energy efficiency contractors) **rather than direct program outreach.**

- **Non-participating contractors aren't getting onboarded effectively**

  - Contractor Eligibility Training sessions were reduced from six sessions per year to quarterly in 2023 (supplemented by 2-3 contractor office hour sessions per year).

  - Two non-participating contractors reported feeling unprepared to participate in the program; one couldn't find available eligibility training sessions. Both wanted clearer materials for use in sales.

- **Contractors reported receiving little support from the SOMAH PA in generating leads**

  - Participating and non-participating properties described several limitations with the eligible properties map. Additionally, non-participating properties expressed a desire for more training from the SOMAH PA surrounding how to find eligible properties.

  - Contractors are largely generating their own leads through in-house calling teams that cross-reference the eligible property map with housing authority lists, participation in trade shows and industry conferences, word of mouth referrals, and existing relationships with affordable housing developers.

- **The SOMAH eligible properties map has issues which limit its usefulness**

  - Among non-participating contractors, one reported spending 16 hours using program tools but was unable to identify any eligible properties in San Diego territory, finding that every property researched already had solar installed or was ineligible, another contractor described the map as “useless”, and another had never used it.

  - One contractor suggested the following changes to the eligible properties map to improve its usefulness: 1) Add ownership type to distinguish individual owners from large portfolio holders, 2) add story count or a flag for properties that would likely require prevailing wages, 3) remove

properties that have active or completed SOMAH projects,[50] and 4) flag properties with existing solar. [51]

- **Contractors who have submitted applications generally find the SOMAH PA responsive and supportive**
  - One participating contractor new to the program in 2024 described strong support from the SOMAH PA. They used Track A on their first application to learn about the program. For their subsequent projects, they felt confident navigating the program through Track B. They also mentioned regular meetings with the SOMAH PA to work through issues on active projects.
  - Several contractors praised the technical support provided by the SOMAH PA, sharing kudos by name about how helpful certain SOMAH PA staff members have been.
- **Contractors reported difficulty finding job trainees for rural projects**
- **Difficulties acquiring tenant meter numbers delay project timelines and can lead to project cancellations**
  - One contractor cited 11 cancelled projects primarily due to their inability to obtain tenant meter numbers from utilities. Although IOUs are required to provide meter numbers if the applicant experiences issues collecting them (per D.24-11-006), most contractors were not aware of this requirement and felt that IOUs were resistant to help. The SOMAH handbook currently includes resources for meter number issues, but this information may need to be disseminated more assertively as this example demonstrates contractors may not be aware of these resources.[52]
- **Interconnection timelines are still very long, with no clear point of contact**
  - Although D.24-11-006 required the IOUs to dedicate one full-time equivalent employee to completing SOMAH interconnection applications, one contractor noted that interconnection has actually "gotten worse" since the last evaluation, despite regular meetings with IOUs. Another contractor emphasized that the communication lines with IOUs are "very murky" with no clear point of contact who carries actual authority to resolve issues.
  - There is a perception amongst contractors that IOUs take advantage of inertia within larger contractor organizations to carry forward interconnection application progress.

[50] We note that the eligible property map does include a field that indicates if a property is active or complete in the SOMAH program. However, this information does not match tracking data as of 12/31/25. For example, the eligible map lists 376 completed and 378 active projects vs. the actual 378 completed and 456 active projects noted in this report. This either means the maps are out of date or do not include all SOMAH properties.

[51] The PA asserts these properties are removed from the map quarterly based on IOU data.

[52] https://calsomah.org/resources/iou-meter-information

- **Contractors cited multiple barriers to working with smaller "mom and pop" property owners**
  - Contractors can't justify the administrative overhead costs for small projects. Larger contractors deprioritize small property owners as thin margins require volume (i.e., many properties with a single point of contact). Small properties pose additional challenges, one contractor stated that "projects under 70 panels are difficult, but 100 to 300 panel projects are more viable."
  - One contractor suggested that small property owners are more likely to mistake solar outreach for scams.
  - Contractors also suggested that small property owners are less likely to have the bandwidth to focus on a solar project over other high priority needs at the property.

5.1.3 New Feedback

- **Contractors are satisfied with incentive levels for solar, even without the ITC, unless the project requires prevailing wages or is paired with storage**
  - Contractors stated that projects are still financially viable without taking advantage of the ITC, due to the stepped nature of the SOMAH incentive (i.e., higher incentive amounts available for projects that do not take advantage of the ITC).
  - Project that require prevailing wages increase overall project costs.
    - One contractor stated that prevailing wage requirements increased labor costs by 80% to 100%. Another noted that prevailing wage requirements add approximately $0.35 to $0.45 per watt to their installation costs. A third contractor estimated $1 per watt increase to costs.
    - Multiple contractors stated that SOMAH incentives are not adequate to cover the increased costs on projects that require prevailing wage, with some contractors stating that they only work on projects that do not require prevailing wage.
    - One contractor mentioned that ITC bonus credits were currently sufficient to cover prevailing wage requirements, however, once the ITC and bonus credits are no longer available, SOMAH incentives will be insufficient.
  - One contractor stated that there were cost constraints with current incentive levels for storage projects absent tax credits.
- **Many participating contractors reported interest from property owners in pairing solar with battery storage, though implementation faces several hurdles, including**:
  - Batteries are typically requested for common area backup and resilience rather than individual tenant units, which can be complicated to configure in order to comply with program rules. There

are also complex configuration challenges when connecting batteries to tenant units rather than common areas.

- There is limited battery equipment availability, with an expectation of manufacturers releasing newer suitable products in the coming year.
- Fire code requirements and space constraints for larger battery installations are limiting.
- Costly trenching may be required when solar installation and tenant units are far apart.

- **Some contractors did not understand that they could increase system size after reservation request approval, if energy audits reveal electrification opportunities (e.g., EV chargers, heat pumps) that would warrant a larger system.**
  - SOMAH PAs confirmed that applicants are allowed to submit load justifications to increase system size anytime before the final Incentive Claim step. However, as contractors shared the feedback during interviews that they were unable to increase system sizes after the reservation request approval, it is likely this rule is not widely known. The SOMAH PA should explore how to disseminate this information more effectively to contractors.

- **Some Tribal properties can't qualify under current deed restriction documentation requirements and Tribal councils would need to adopt specific legal language to participate**
  - One contractor has five interested Tribal properties that cannot move forward due to documentation limitations. The contractor suggested SOMAH could create alternative documentation pathways to demonstrate that properties serve low-income tenants without requiring standard deed restriction documentation.
  - The individual SOMAH PA organization members ran a legislative bill, SB 1118, to increase deed-restriction requirement flexibility for Tribal projects. The bill was vetoed in 2024.[53] The SOMAH PA has created a guide to help with documentation requirements for Tribal groups.[54]

- **Smaller contractors don't know how to connect customers to financing options**
  - One contractor stated that they only work with customers that can purchase systems outright, since they have no avenue for offering or connecting customers to financing options. They were not aware of SOMAH's finance partner organizations.

- **Incentive payment timelines are elongated by the IOU approval process**

[53] https://calmatters.digitaldemocracy.org/bills/ca_202320240sb1118

[54] https://calsomah.org/resources/tribal-requirements-guide

- One contractor suggested the SOMAH PA maintain working capital equivalent to one quarter's worth of expenditures to enable faster payments without IOU approval delays.

5.1.4 Progress on Prior Recommendations Addressing Contractor Experience

The previous SOMAH evaluation provided several recommendations to improve contractor's experience with the program. Below we present these recommendations and the progress made to date to address them.

TABLE 5-1: CONTRACTOR BARRIERS PRIOR RECOMMENDATIONS AND PROGRESS

Prior Recommendation	Progress Made to Address Recommendation
The SOMAH PA should do greater outreach to contractors to ensure they are aware of all available SOMAH resources and to reduce the administrative burden. (5)	In 2023 only three contractors submitted applications to SOMAH, whereas an increased number of contractors submitted applications in the following two years (eight contractors in 2024 and six contractors in 2025). According to the 2025 ME&O plan, in 2024 the SOMAH PA sent out eight emails to 364 contractors (email listserv subscribers) with a 72% open rate. The draft 2026 ME&O plan includes a goal for quarterly direct outreach (emails and calls) to nonparticipating eligible contractors to communicate program improvements and new offerings. While awareness of resources improved, application submissions remain concentrated among a limited number of prime contractors, indicating partial progress. The SOMAH PA should continue their contractor outreach efforts.
The SOMAH PA should increase support to contractors to assist with customer acquisition. (6)	The SOMAH PA held an Office Hours Session in September 2024 on "Property Leads and Tribal Sources". A second Office Hours Session in May 2025 covered "Lead Generation." This is still an ongoing need.
Progress payment pathway should be a default milestone rather than opt-in. (7B) Increase marketing of the progress payment pathway. (7A)	Through D.24-11-006, issued November 14, 2024, it was ordered that the progress payment pathway should become the default payment pathway with an option to opt-out. This change was integrated into the program in SOMAH Program Handbook 9.
Establish a well-understood communication channel sharing program feedback with the SOMAH PA and the CPUC (8)	The SOMAH PA offered 2-3 contractor office hour sessions per year in 2023-2025.These sessions offer a chance to communicate program feedback. Additionally, the PA has added a direct phone number to the SOMAH website in 2022.

5.2 PROPERTY OWNER EXPERIENCE

The evaluation team conducted a total of 16 IDIs with participating property owners and three non-participating property owner web surveys. The primary goal was to understand what is working well, what could be improved, what is driving or limiting program participation, and how changes to the program

since the last evaluation have impacted property owner experience.[55] We share the key feedback from those interviews and web surveys below.

5.2.1 Updates to Property Owner Experiences with the SOMAH Program

Interviews were completed with 16 of the 138 unique participant affordable housing property owners/developers who had submitted an application to the SOMAH Program as of June 2025. The sample of participating property owners interviewed represented a diverse set of SOMAH Program participants including for-profit, non-profit, and government run (public housing agencies) organizations, Track A and Track B participants, prolific property owners and those who have submitted only a single application, property owners who partnered with both large and small SOMAH contractors, and those using third-party and host customer ownership financing.

We segment our findings into two categories: continuing themes and new feedback. Continuing themes encompasses feedback we've heard consistently, either since the first triennial evaluation or during the last evaluation. While much of the feedback has been consistent, we do document where new recommendations or experiences have occurred. The new feedback section covers topics that arose since the last evaluation. These topics are often the product of the program maturing (like more projects being completed) and growing which allows for more diverse experiences. Details on findings for each category (continuing themes or new feedback) are shared below.

Continuing Themes

As part of our interview process, we heard feedback that has been consistent either since the first triennial evaluation or the last evaluation. While this feedback is not new, it does point to ongoing issues and the experience of the property owners within the SOMAH Program. While we have included the general theme as the main topic (first bold bullet), details or new feedback from property owners around that experience are included in subsequent bullets.

Consistent, continuing themes around property owner experience within the SOMAH Program:

- **Many participating property owners learned about the SOMAH Program through contractors or peer organizations rather than direct program outreach**
  - One participating property owner believes that the program suffers from inadequate marketing and outreach; noting that they had installed solar on other buildings for years and even worked with the Association of Energy Affordability on other programs before ever hearing about SOMAH.

[55] Interview guides are available in Appendix C

- Property owners recommended increased presence at housing conferences and other housing events, increasing webinars, and deploying dedicated outreach staff to proactively contact properties on the eligible properties list.

- **The experience between TPO and HCO projects is different**
  - Property owners using the TPO system purchase type highlight the ease of participation in the program as their contractor handles most program aspects.
  - Property owners using the HCO system purchase type report challenges around navigating the SOMAH application process.
    - While one property owner said the application forms were difficult to fill out, they did note that they appreciated the PA's support through the process.
  - SOMAH project incentives are essential and multiple property owners would not have installed solar without SOMAH because of tight margins.
  - Property owners still report resource limitations around staffing and managing SOMAH projects
    - Interviewees recommended having funding set aside for resource limited property owners to use to cover administrative overhead costs.

- **Smaller affordable housing organizations continue to report difficulty with finding contractors**
  - The Contractor Directory on the SOMAH website only includes contractors who are headquartered in a city or county rather than the cities or counties where they work.

- **Property owners are still frustrated with project delays**
  - Projects can face years of delays due to numerous issues: the original contractor backing out, HUD qualification questions, and permitting.
  - A recurring complaint from property owners centered on long delays between system installation and receiving PTO. Property owners reported systems sitting idle for 18 months to three years, with one system installed two years ago still not granted PTO. These delays have resulted in one property owner initiating legal action against two utility companies. Property owners expressed frustration with the lack of accountability from both utilities and contractors, with some noting that contractors appeared unwilling to push utilities to resolve interconnection issues.[56]

[56] D.24-11-006 aimed to correct this issue by directing the IOUs to dedicate one full-time equivalent employee to supporting SOMAH interconnection applications. However, this does not appear to have resolved the issue as interconnection timelines do not appear to be improving.

- As noted in Section 4.3.6 (Table 4-9), a review of tracking data showed long, often worsening interconnection wait times. For projects completed between 2023 and 2025, interconnection took an average of 269 days (~9 months), with a range of 8 to 822 days.

- A previous recommendation around this topic was shared in the last evaluation, namely that the SOMAH PA and IOUs should work together to identify all issues leading to extended interconnection timelines and take steps to expedite this process to ensure program benefits and incentives are provided in a timely manner. Reports from property owners and the data from Section 4.3.6 suggest this collaboration has not yet been successful at addressing this pressing issue. The next evaluation should investigate whether assigning a full-time equivalent staff member in 2025 at each IOU to support SOMAH interconnection applications has worked to address this issue.

- **Property owners still face challenges with regulatory agreements**

  - One property owner reported experiencing challenges with application requirements, particularly USDA properties. This owner found their "regulatory agreements" were deemed "too old" and reported that the list of acceptable alternative documentation "does not make sense for their properties." The underlying issue may be that properties lack the required 10 years remaining on affordability restrictions, but the time and cost to obtain new regulatory agreements was deemed prohibitive, effectively preventing their participation.

    - In December of 2022, an affordability pre-screen service became available for the SOMAH Program. This service was offered to review a copy of the restriction or regulatory agreement and provide feedback on whether the property was eligible for the program. Section 4.1.1 notes that there were 25 cancellations because of ineligibility during the evaluation period. All 25 of these cancellations were applications that were submitted after the pre-screen service was implemented, but six of these projects were cancelled because of deed restriction or regulatory agreement issues (which should have been captured by the pre-screen). It's unknown if applicants are not using the pre-screen service or if the service did not catch these issues.

    - In addition to challenges with USDA property regulatory agreements, three projects were cancelled during the evaluation period because of HUD documentation issues (Section 4.1.1).

New Feedback

As part of our interview process, we also heard new feedback. We document new findings, experiences, and challenges below. The general, main theme is the first bold bullet with subsequent details or recommendations included as sub bullets.

New feedback on the property owner experience within the SOMAH Program:

- **Property owners are generally satisfied with their overall SOMAH experience**

- Most participating property owners surveyed were satisfied with SOMAH overall and would recommend it or plan to expand their participation.

- **Some property owners report SOMAH benefits are insufficient**

  - Participating property owners felt the benefit to them was insufficient to justify participation, making it "hard to justify poking a whole bunch of holes in your roof all over the place, just for a small amount of benefit."

    - The challenge is compounded when there are needs for expensive upgrades when adding solar to old buildings.

  - Property owners noted resistance to solar installations due to aesthetic concerns and potential property damage risks.

  - One property owner recommended allowing greater common area allocation for projects to increase the benefits to property owners for participation.

  - Battery storage was not appealing to one property owner because (while allowable through SOMAH) they could not physically configure it for resilience in common areas, such as providing conditioned space for tenants during emergencies.

- **While property owners are generally pleased with their contractor relationships and experience, there were some instances where experiences were less than ideal**

  - One property owner noted that their contractor conducted inadequate roof assessments before finalizing designs, and in one case, a system was not built according to permitted drawings, causing a two-year delay in obtaining PTO.

    - The SOMAH PA should institute a policy for when projects go beyond expected milestone time limits so they can check in with property owners and facilitate addressing issues with contractors (or other agents like IOUs).

  - One property owner stated that when they tried to select contractors from SOMAH's eligible list, they found many companies were unreachable or out of business. Additionally, the online SOMAH-eligible contractor directory filters companies solely by the location of their headquarters instead of the areas they serve.[57]

    - The SOMAH PA should review and update the eligible contractor list on an annual basis to ensure that contractor contact information is up-to-date and that all non-participating contractors are still in business. This would also provide the SOMAH PA an annual touch point with non-participating contractors to gauge their continued interest in the program, identify reasons for non-participation, and provide updates on program changes.

[57] https://calsomah.org/contractors-next-steps#find-a-subcontractor

  - The SOMAH PA should update the SOMAH-eligible contractor directory to reflect contractor service areas.

- One property owner mentioned there were some rain leaks after their solar install that the contractor had to fix.

- **One property owner reported transformative savings by successfully stacking multiple programs**

  - One success story was a property that achieved 100% tenant allocation at zero cost to the property. They successfully stacked SOMAH with the Low Income Weatherization Program (LIWP), TECH Clean California, and Bay Area Regional Energy Network (BayREN) programs to complete $900k in building retrofits for only $100k. The outcome was transformative and the tenants are thrilled with the monthly bill savings. This comprehensive project was made possible based on the technical assistance provided by AEA staff and the engagement of a retired board member who championed the project.

  - The SOMAH PA should leverage the learnings from this project and increase AEA staff engagement with property owners who have submitted SOMAH applications to ensure they are aware of all program stacking opportunities that are available to them. Conducting these meetings after the EECM whole-building audit has occurred would provide AEA staff with detailed knowledge of the as-built conditions and opportunities that exist for additional site upgrades.

  - This property was the exception as Table 4-13 showed that there was little to no cross-program participation for IOU programs in the SOMAH Program.

- **Property owners who had experience with the SOMAH PA's technical assistance services reported being very pleased with it**

  - One property owner noted that "participation would not be possible without it."

  - One property owner appreciated receiving unbiased guidance that steered them toward LIWP instead of SOMAH for certain properties where LIWP would provide more direct tenant benefits.

  - Most property owners were unaware of technical assistance services since their contractors "handled everything."

- **Property owners don't have access to their own system's performance data (for TPO)**

  - Multiple property owners experienced post-installation issues that they could not fully track because they didn't have access to their system's performance data.

- Some systems were underperforming but property owners were never alerted by SOMAH when systems began to malfunction.[58]
    - One property owner struggled to obtain API access from their contractor so that they could do real time monitoring of their own systems after a tenant came to them with a $350 bill.
    - The SOMAH PA should share monthly performance reports from their fleet-wide monitoring with property owners to ensure that all SOMAH participants have insight into how their system is performing.[59]

- **Dirty systems, particularly in the Central Valley, impacted performance**
    - HCO system property owners report having no maintenance plans, and the cleaning costs were not offset by PV savings, creating little incentive for upkeep.
        - The SOMAH PA should include information and a cost breakdown of cleaning and maintenance fees for HCO systems to ensure that these participants have all the information they need to make smart financial decisions about their systems. While annual operations and maintenance costs are estimated in full TA reports, these should be generated for all completed projects. The SOMAH PA should provide these materials and ensure that HCO systems have maintenance plans in place prior to the project being finalized.

- **Long interconnection timelines and electrification upgrades put a strain on tenants**
    - One property owner noted that their tenants were paying more on their bills due to electrification measures being installed during the energy efficiency review.

5.2.2 Non-Participating Property Owner Challenges

The evaluation team attempted to contact non-participating property owners but ran into extensive challenges. The team used the internal Salesforce eligible property database provided by the SOMAH PA. The database contained 4,448 records and this included properties that were already participating in SOMAH. This made identifying eligible non-participants difficult, as many properties belong under an 'umbrella company' or a main company with multiple properties. The evaluation team estimated that about 15% of the eligible property database were companies that were already participating in SOMAH. The team removed all properties or umbrella companies they could identify as participating in the SOMAH Program prior to survey outreach.

[58] The SOMAH PA sends communications when system performance is 70% or under compared to expected. Communications are sent to system owners, which is often the contractor and not the property owner.

[59] The SOMAH PA currently shares performance reports on an annual basis.

One of the greatest challenges in using the internal Salesforce eligible property database was the lack of contact information. The team calculated that only about 20% of records contained email addresses; a critical component for requesting interviews or sending out web surveys (which had been the original research plan), not to mention for SOMAH PA ME&O. For those records that did have emails, the team distributed web survey requests. Of the emails distributed, approximately one-quarter were opened, one-quarter were returned as undeliverable, and approximately half remained unopened.

A total of three respondents completed the web survey. Two respondents indicated that they owned or managed properties already participating in the SOMAH Program, suggesting limitations in the available data made it difficult to fully exclude participating property owners from the non-participant outreach list. The remaining respondent, who had not participated in the SOMAH Program, had four buildings that may meet program eligibility criteria, and identified financial considerations as the primary barrier to participation.

These issues point to a greater need for maintenance and accuracy in the eligible property database; especially around carefully removing properties that are already participating and indicating in the data if a property belongs to a participating umbrella company.

As ordered in D.24-11-006, the SOMAH PA is working with IOUs to establish high priority property lists. The IOUs are updating SOMAH property contact information and flagging whether properties are master-metered and/or have existing solar. Beginning in April 2025, each IOU updates 100 properties per month; as information is vetted the SOMAH PA cleans up internal property datasets and the public facing SOMAH eligible properties map (at this rate the update process should be complete in a little over a year).

5.2.3 Progress on Prior Recommendations to Support Property Owners

The previous SOMAH evaluation provided several related to improve property owner's experience with the program. Below we present these recommendations and the progress made to date to address them.

TABLE 5-2: PROPERTY OWNER RELATED PRIOR RECOMMENDATIONS AND PROGRESS

Prior Recommendation	Progress Made to Address Recommendation
The SOMAH PA should assess the Track A multiple bid requirement to ensure it isn't inadvertently adding an additional burden to Track A participants. (1A) Allow Track A projects to submit a multiple bid waiver (1B)	Through D.24-11-006, issued November 14, 2024, the requirement for Track A to obtain multiple bids was removed. This change was integrated into the program in SOMAH Program Handbook 9.
The SOMAH PA should increase engagement with property owners using HCO to ensure they have adequate support to navigate issues they encounter and keep their projects on track. (2)	Property owners surveyed, who are using HCO, had mixed reviews about the SOMAH PA engagement. One felt strongly that the SOMAH PA was not responsive or helpful; another said they would not have been able to participate in the program without the technical assistance provided by the PA; the rest noted that the contractor did most of the work and could not comment on the SOMAH PA or TA.

5.3 TENANT EXPERIENCE

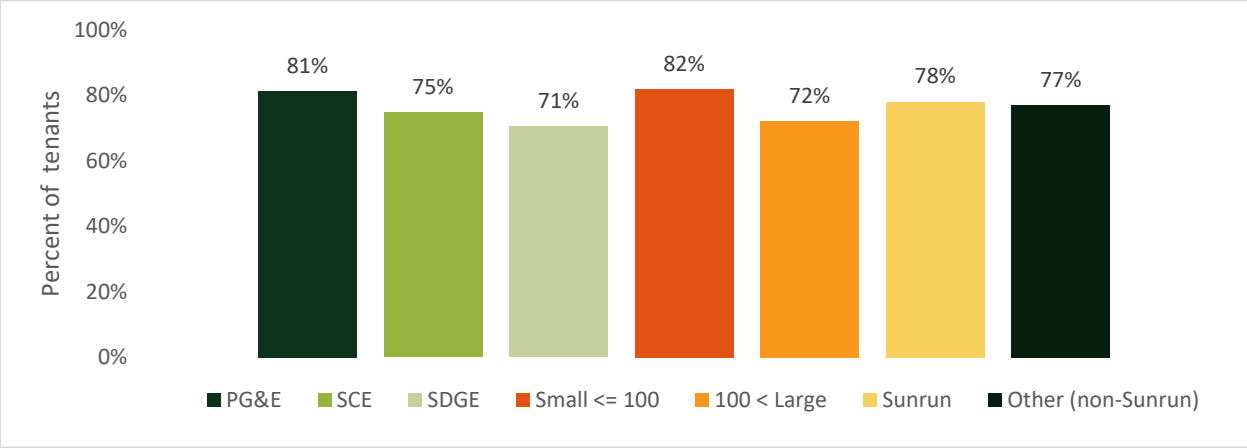
In this section we provide a summary of results from the 293 web surveys we conducted with tenants whose multifamily buildings had solar installed through the SOMAH program. This survey was administered in English and Spanish.

5.3.1 Program Awareness

Tenant Awareness of their Participation in the SOMAH Program

Tenant awareness that solar panels have been installed at their multifamily home through SOMAH is overall at about 78% (Figure 5-1). PG&E area tenants were the most informed, and SDG&E the least. PG&E had the highest levels of awareness at 81%, while SDG&E was the lowest at 71%. Smaller properties (fewer tenants) were more aware at 82% compared to large properties at 72%. Whether the installation was done by Sunrun (the program's largest contractor) or another contractor had little effect on tenant awareness.

FIGURE 5-1: PERCENT OF TENANTS WHO WERE AWARE OF SOMAH SOLAR

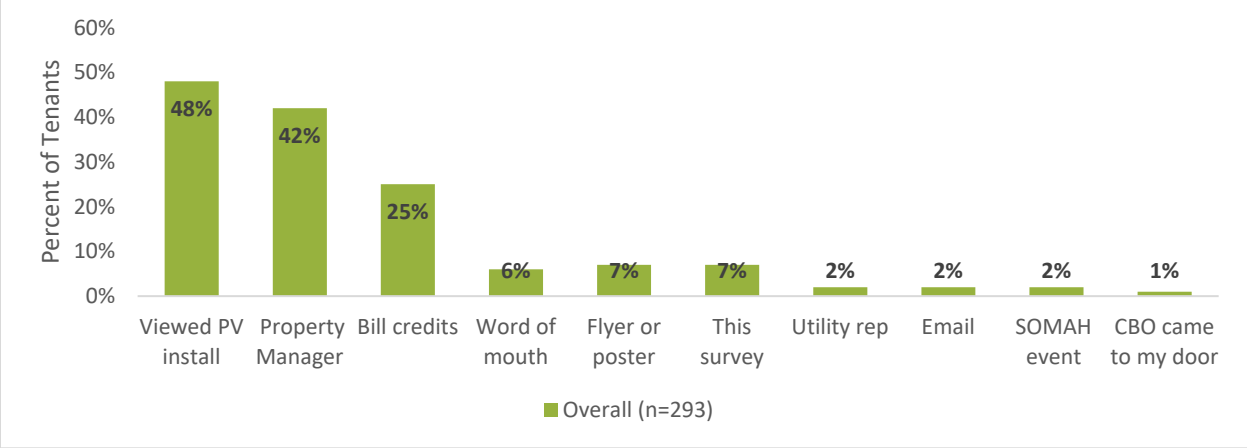


Surveyed tenant awareness is largely passive, with most tenants learning about the program by noticing the solar panels themselves (48%), hearing from their property manager (42%) or seeing credits on their electric bill (25%). No other single source reached more than 7% of tenants (Figure 5-2). Seven percent of surveyed tenants reported they first learned about the solar at their residence from the evaluation survey, which was more than those who reported learning about if from CBO outreach and SOMAH events combined.[60]

When we spoke to property owners, one property owner said that they took it upon themselves to conduct education efforts, and they felt that tenants were happier once they understood the program. Making sure property managers are aware of and have access to accurate program information and effective communication materials could help with tenant satisfaction.

[60] Since CBOs operate alongside the SOMAH PA, it is possible that tenants would not recall the CBO specifically as distinct from the SOMAH program.

FIGURE 5-2: HOW SURVEYED TENANTS LEARNED ABOUT SOMAH SOLAR AT THEIR RESIDENCE



When tenants were specifically asked about interactions with CBOs, over 90% of the tenants surveyed did not recall receiving any information from a CBO, and no single organization achieved more than 3% name recognition. Nearly half of tenants explicitly stated they had no contact with any CBO partner, and an additional 44% simply had no recollection of such contact.

Tenant Questions

A significant proportion of tenants either had no questions about SOMAH or did not seek assistance. Approximately 23% of tenants across all properties reported having no questions about SOMAH, and 20% did not speak to anyone regarding the program. Tenants in large complexes were more than twice as likely as tenants in small complexes to report having no questions (30% compared to 18%).

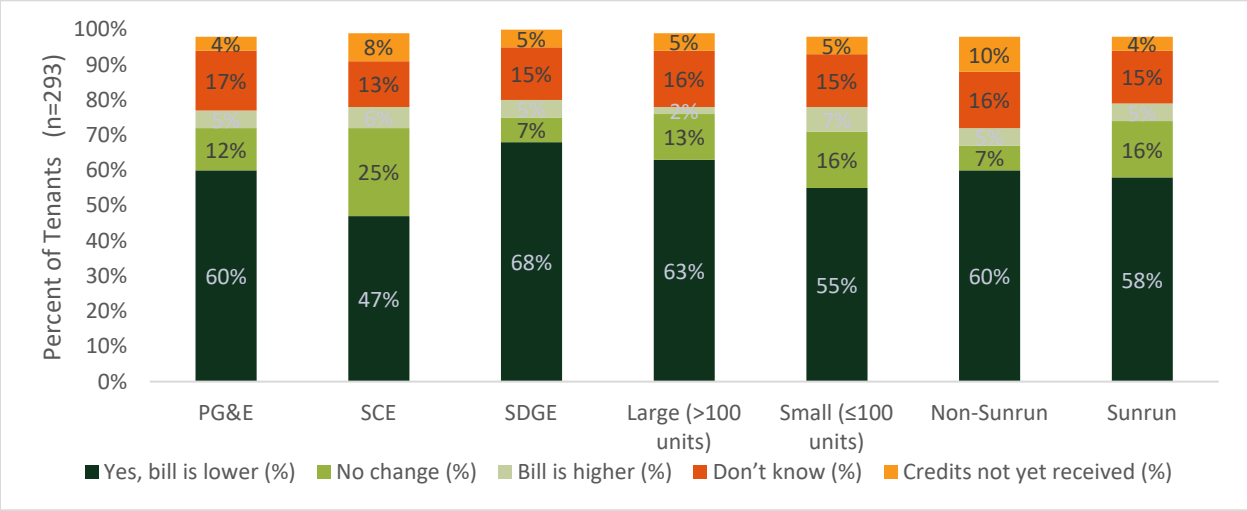
Tenant Awareness of Solar Credits

Only 59% of surveyed tenants knew that solar would result in bill credits that could lower their electricity bills (38% did not know and 4% had someone else paying their bill). Awareness was lowest in SCE territory, where tenants also reported lower bill savings and greater uncertainty about whether credits had begun.

Tenant Understanding of their Energy Bills

A majority (59%) of surveyed tenants noticed that their bills were lower once the solar credits were applied, while 14% thought their bills remained the same, 15% were unsure, 5% saw higher bills, and 5% indicated the credits hadn't yet appeared on their bills.

FIGURE 5-3: HAVE TENANTS SEEN A BILL REDUCTION DUE TO SOLAR CREDITS



5.3.2 Tenant Satisfaction

Tenant Satisfaction with the SOMAH Program

Across all the tenants surveyed, 52% were very satisfied with SOMAH, 16% somewhat satisfied, and only ~6% expressed any dissatisfaction. Around one-quarter of tenants were neutral or unsure, which correlates with other findings that noted a significant minority were unaware of how bill credits work. Continued efforts to improve communication could convert more neutral respondents into satisfied customers.

Tenant Satisfaction with Education Hotline and SOMAH Information

One item that can limit tenant satisfaction is accessibility of the materials. Among surveyed tenants, just over half recall receiving SOMAH information in their preferred language. Another quarter couldn't recall, and around 20% did not receive information in their preferred language. The sizable number of tenants not recalling the language of the materials or not getting them in the preferred language indicates there is room for improvement in this area.

The tenant hotline is also available for tenants to ask questions. Even though only a small proportion of tenants (3%) contacted the SOMAH tenant hotline, of those who called, nearly all rated it as very or somewhat helpful.

Tenant Satisfaction with the Bills

A few property owners noted that some tenants are confused about their bills, and some have complaints, especially during the long delays before PTO when solar panels are visible but not yet producing bill

credits. As noted in Section 4.3.6 (Table 4-12), for projects completed between 2023 and 2025, the average length of time from system interconnection to bill credits to be set up took 57 days (~2 months), with a range of 0 to 423 days.

Of those surveyed tenants who were aware of the bill credits, a majority are satisfied with the reduction in their bills due to solar credits, but there is some variation by utility territory. Across all respondents, 78% were either very or somewhat satisfied with the credits on their bill (61% very and 17% somewhat satisfied). Only 6% were dissatisfied (combining very and somewhat dissatisfied), the remaining were neutral. Comparing utilities, tenants reported slightly higher satisfaction in SDG&E and PG&E territories compared to those in SCE territory. In all territories, about 5% of tenants are very dissatisfied, and 2–4% are somewhat dissatisfied.

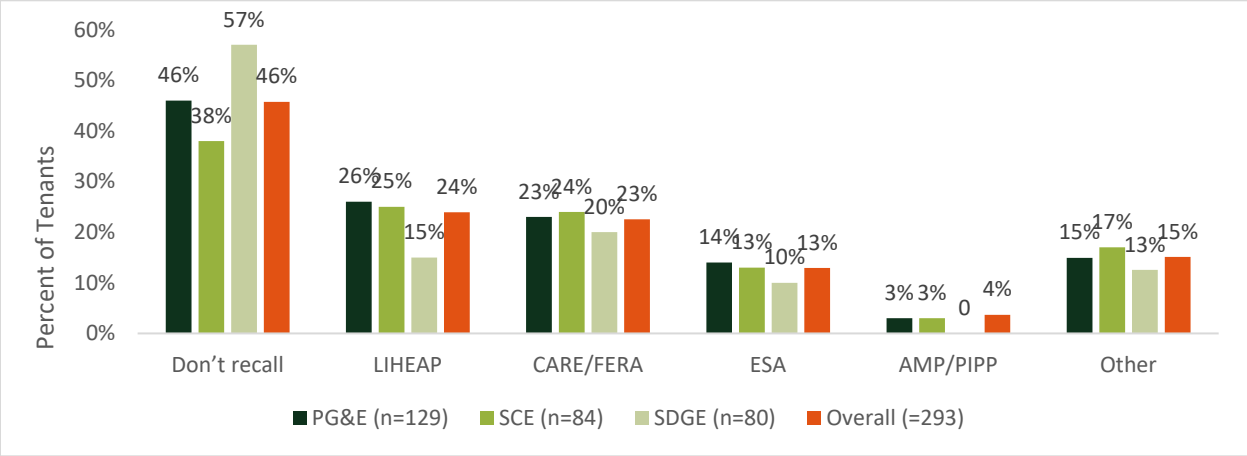
The most common source of dissatisfaction was bills not decreasing as much as expected. Additional reasons cited included delayed solar credits, unsatisfactory job training opportunities, and noise or disruption during construction. A small number of respondents selected “other.”

5.3.3 Cross Program Awareness and Participation

Surveyed tenants were asked whether they had received information about energy-assistance programs from their property manager, solar contractor, or another SOMAH partner. Awareness was generally low across all programs (Figure 5-4). About a quarter of surveyed tenants recalled receiving information about the Low-Income Home Energy Assistance Program (LIHEAP) and CARE/FERA, while ESA had lower recall. Arrearage Management Plan (AMP)/Percentage of Income Payment Plan (PIPP) were virtually unknown, with only 4% of surveyed tenants remembering them.[61]

[61] SOMAH participants are not eligible for participation in AMP. This comes from Resolution E-5114 which states, "Customers receiving Net Energy Metering are not eligible for arrearage forgiveness under AMP programs until issues related to their participation can be discussed in greater detail."

FIGURE 5-4: PERCENT OF TENANTS WHO RECEIVED ENERGY-ASSISTANCE AND BILL ASSISTANCE INFO



Surveyed tenants who remembered receiving information on programs were asked if they were participating in them. Tenants most frequently reported participation in LIHEAP (23%) and CARE/FERA (22%) followed by ESA (12%).[62] We also researched cross program participation based on utility program tracking data, see results in Section 4.3.7 above.

5.3.4 Changes in Energy Usage Patterns Since Participating

Tenants were asked how they used the savings achieved from their SOMAH solar bill credits. Roughly two-thirds of tenants who noticed a change in their bill reported using the savings on things to increase home comfort, specifically more heating/cooling, lighting, and additional devices. These results indicate that for a majority of tenants the bill-credit benefit is helping to improve home comfort while also providing electric bill savings.

5.3.5 Progress on Prior Recommendations for Improving Tenant Education

The previous SOMAH evaluation provided recommendations for improving SOMAH tenant education. Below we present these recommendations and the progress made to address them.

TABLE 5-3: TENANT EDUCATION PRIOR RECCOMENDATIONS AND PROGRESS

Prior Recommendation	Progress Made to Address Recommendation
The SOMAH PA should ensure educational materials are available to tenants in common areas of the property and should include information on the tenant hotline. (16A)	Until early 2025, tenant education was a required component of program participation, but a CPUC decision eliminated this requirement. However, we still recommend this as the best practice.

62 According to utility provided data, 70% of tenant beneficiaries participate in CARE as of July 31, 2025.

Prior Recommendation	Progress Made to Address Recommendation
The SOMAH program should consider a paid tenant partner role to educate fellow tenants about SOMAH, assist property managers with tenant inquiries, and point tenants to SOMAH support resources. (16B)	No longer applicable due to recent elimination of the tenant education requirement.
The SOMAH PA should update the tenant survey to collect more in-depth information about tenant experience and education awareness. (16C)	The SOMAH PA is no longer conducting a tenant survey. This is related to the recent elimination of the tenant education requirement.

5.4 JOB TRAINEE EXPERIENCE

The SOMAH program requires contractors to hire job trainees who are currently enrolled in or recently graduated from an eligible job training program, or who live at a participating SOMAH property.[63] The evaluation team conducted job trainee surveys with 28 trainees to determine whether there have been any notable changes to the tasks completed by job trainees, the types and lengths of SOMAH job training opportunities, and whether this training has led to beneficial long-term workforce outcomes. Appendix C.8 describes the survey outreach efforts and difficulties achieving a robust sample.

5.4.1 Job Trainee Survey Results

Key takeaways from the job trainee surveys are reported below:

- **SOMAH Trainee Experience**
  - High levels of satisfaction (80%, n=19/24 for very satisfied and satisfied combined)
  - 96% of survey respondents would recommend the SOMAH job training opportunity (n=23/24)
  - 81% of survey respondents rate the quality of the training they received as excellent or good (n=21/26)
  - One survey respondent lived in a SOMAH-funded community. The job trainee tracking data records 23 trainees that are SOMAH tenants.[64]
- **SOMAH Workforce Development**

[63] Beyond these eligibility requirements, the program strongly encourages — but does not require — "local" hires (individuals living in the same county as the project) and "targeted" hires, defined as residents of disadvantaged communities, affordable housing residents, women, people of color, or individuals who have faced employment barriers: https://calsomah.org/resources/job-training-requirements

[64] As of 6/30/25

- 64% of survey respondents report that the job training opportunities prepared them with skills and knowledge needed to work in the solar industry either extremely well or very well (n=16/25)
    - Two respondents did report that they felt the job training opportunity only prepared them slightly well and they learned skills that didn't match what the solar industry needs
- The most common tasks or skills that trainees learned were (n=28, multi-response question): jobsite safety (79%), installing electrical equipment (68%), and installing mechanical equipment (61%)
- Trainees wished they had more time to practice the following skills (n=28, multi-response question): system design (39%) and assessing project site and requirements (36%)
- Four trainees noted the training needed improvement; three noted there was a lot of manual labor involved, one said the quality of the job training experience depends on the contractor

- **SOMAH Job Trainee Outcomes**
    - 85% of survey respondents got a job in a solar company (n=22/26)
    - 87% of those that got a job (solar or in another field) were hired full time (n=20/23)
    - 36% of survey respondents were still working at a solar job at the time of the survey (n=9/25), 12% were employed in another field (n=3/25), and 40% were currently looking for a solar job (n=10/25)
    - 80% of survey respondents rate SOMAH's support of connecting trainees to long-term employment as excellent or good (n=20/25)

5.4.2 Progress on Prior Recommendations for Addressing Job Trainees

The previous SOMAH evaluation provided recommendations for improving SOMAH's workforce development offering. Below we present these recommendations and the progress made to address them.

TABLE 5-4: JOB TRAINEE PRIOR RECOMENDATIONS AND PROGRESS

Prior Recommendation	Progress Made to Address Recommendation
The SOMAH PA should do greater outreach to contractors to ensure they are aware of all available SOMAH job training resources. (17)	Contractors (n=14) were asked to rate their satisfaction with job training requirements and were asked if they had any issues with the job training aspects of the SOMAH Program during interviews. All interviewed contractors but one reported they were satisfied with the job training portion of the program. The one contractor who had issues reported they had a hard time finding someone to come to a rural installation location, but none of the contractors noted issues in the awareness of available job training resources.
The SOMAH PA should include questions on the job trainee survey regarding the trainee's motivations for participating, and how their experience has impacted their career path moving forward, including their interest in solar, and career goals and expectations. (18)	The SOMAH PA has updated their SOMAH job trainee survey to include additional questions in accordance with the prior evaluation recommendation. The evaluation team also administered a job trainee survey and found that 61% (n=17) participated in order to build skills and 50% (n=14) were interested in a solar energy career. As reported above, 85% of survey respondents indicated they were able to get a job after the training, and 80% were satisfied with the training.

5.5 COMMUNITY BASED ORGANIZATION PERSPECTIVES

According to discussion with the SOMAH PA, in prior years CBO priorities were broad and contained a "mixture of everything." Starting with the 2025 ME&O plan, CBO contracts were re-scoped and focused on two priority functions: 1) property owner outreach, and 2) tenant education. In 2025, three CBOs ended their partnerships with SOMAH and one was added to the program,[65] leaving a total of six CBO partner organizations.

We interviewed seven CBOs who had partnered with SOMAH over the 2023-2025 evaluation period. Five of the seven CBOs interviewed found current goals appropriate and aligned with their work. CBOs use a mix of in-person, community-based, and digital outreach strategies (including conference tabling events, workshops, canvassing, and digital campaigns) to encourage property owner participation. CBOs generally reported feeling prepared for their roles and supported by the SOMAH PA through regular communication through meetings, Slack, and shared resources. Though CBOs also reported having **trouble reaching the property owner decision-makers** needed to advance applications. While CBOs work towards their KPIs, those **metrics are activity-based** and do not reveal whether CBO efforts are generating applications or reaching the right people. One CBO we spoke with shared that **they don't know what happens to leads after they are passed along to the SOMAH PA**. Without feedback on which leads move forward in the application process (or which do not continue – and why), it can be hard for CBOs to know what types of efforts and interactions are more successful. CBOs **expressed more confidence on the tenant education side** (a finding consistent with prior evaluations).

[65] This entity is a for-profit business that has a similar scope and is in a cohort with other CBOs.

5.6 FINANCIAL ORGANIZATION PERSPECTIVES

The SOMAH PA has engaged with three financing organizations to help provide bridge financing loans to property owners who want to participate in the program but need assistance with the upfront cost. The goal of these engagements is to provide grants and loans to participating property owners. In-depth interviews with these organizations found they have strong mission alignment with SOMAH's clean energy and affordable housing goals, engaging for mission-driven rather than incentive-based reasons. However, their integration into the program could be improved. Findings from these interviews include:

- **Finance organizations experienced minimal integration into the SOMAH program**
  - Finance organizations do not have regular meetings with the SOMAH PA and are also not connected amongst themselves.
  - Two organizations reported minimal or no direct involvement in the SOMAH Program. They received no outreach from SOMAH contractors or property owners, no leads from the SOMAH PA, and minimal interaction with the PA itself. One financing organization said the evaluation interview was the first time someone had reached out to them about SOMAH (including the SOMAH PA) since they first engaged with the program. Despite offering a range of products (including equipment financing agreements, traditional loans, and energy service agreements of up to 20 years) these organizations had little opportunity to deploy capital within the program.
  - One organization reported active, sustained engagement with SOMAH, including PA-facilitated introductions to property owners, resulting in approximately eight properties financed over six years using bridge loans and long-term, low-interest financing.
- **Finance organizations shared their opinions on property owner barriers**: **borrower readiness, credit considerations, and property owner misconceptions about needing upfront capital**
  - They recommended stronger contractor and property owner education, improved SOMAH PA-led coordination of financing organizations, and more streamlined financing pathways. They suggested that financing should be offered as an integrated part of the program experience, not as a separate step that property owners must navigate on their own.

5.7 TAX CREDIT LANDSCAPE

To understand the federal tax credit landscape for SOMAH participants, the evaluation team interviewed a national tax expert specializing in renewable energy and affordable housing tax credits. Below is a summary of key points from that conversation

The ITC Basics

The ITC allows solar system owners to deduct 30% of installation costs from their federal tax liability. Bonus adders can increase this significantly: Energy Community (+10%), Domestic Content (+10%), and Low-Income Community Bonus (+10–20%) can stack to bring total credits above 30%. For tax-exempt owners, like nonprofits and Tribal governments, the Inflation Reduction Act's elective pay provision allows these entities to receive credit value as a direct Internal Revenue Service (IRS) cash payment rather than a tax offset, a critical pathway for the types of owners most common in SOMAH. As of December 31, 2025, 84% of completed SOMAH projects and 90% of active SOMAH applications planned to claim the ITC.

What Changed: The OBBBA and ITC

The One Big Beautiful Bill Act (H.R. 1, signed July 4, 2025) significantly accelerated the ITC sunset for solar. Solar projects must now either begin construction before July 5, 2026, or be placed in service by December 31, 2027, to qualify for credits (applies to base and bonus credits). Projects meeting the begin-construction deadline can have up to four years to complete. This compressed timeline increases the urgency of project planning and program efficiency. Projects beginning construction after 2025 must also comply with new Foreign Entity of Concern (FEOC) restrictions, which can disqualify projects that rely too heavily on equipment from prohibited foreign entities.

The phase-out of the ITC for energy storage doesn't begin until 2034. This means paired solar-plus-storage SOMAH projects can still partially access the ITC, even as the solar ITC window closes, making storage an increasingly important part of the financial case for new projects.

The SOMAH PA has developed an online reference document to help contractors and property owners navigate current ITC options, updates, and timing considerations.[66]

OBBBA's Impact on LIHTC

Beyond ITC changes, the OBBBA also made a significant reform to the LIHTC program. The LIHTC is a federal tax credit for the rehabilitation of low-income affordable rental housing and can be used to offset a portion of solar PV system costs. The so-called 4% tax credit can be claimed over ten years and is designed to subsidize 30% of project costs. The legislation permanently lowered the private activity bond financing threshold from 50% to 25% of a project's aggregate basis for properties placed in service after December 31, 2025. Previously, a developer had to finance at least half of a project's total costs with tax-exempt bonds to automatically qualify for 4% LIHTC credits. With the 25% bond test making 4% LIHTC deals easier to finance, more SOMAH projects may leverage the LIHTC in coming years. As of December 31, 2025, 1% of completed SOMAH projects and 1% of active SOMAH applications planned to claim the LIHTC.

[66] https://calsomah.org/resources/itc-changes-explained

6 PROGRAM EXPENDITURE REVIEW

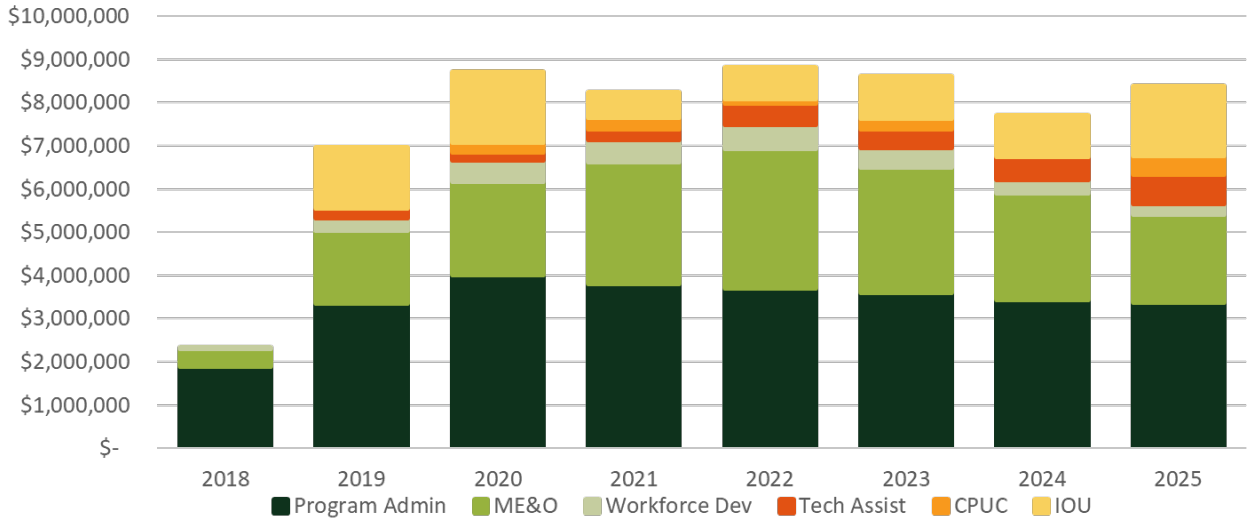
This section documents the findings from the Program Expenditure Review, including a longitudinal summary of program implementation costs by program budget category, program task, and entity. This section also presents the trends, challenges, and effectiveness of SOMAH's ME&O activities since the program was implemented and provides recommendations for continued program improvement. Detailed overviews of ME&O activities, including a historical analysis and goal assessment can also be found in Appendices G and H.

6.1 PROGRAM SPENDING ASSESSMENT

6.1.1 Yearly Expenditures

The January 2026 Semi-Annual Expense Report (SAER) specified that SOMAH program implementation spending (not including incentives) as of December 31, 2025, was just under $60M and has averaged roughly $7.5M a year since the program launched. During this same period the program has paid out roughly $132M in incentive payments (including Progress Payments). As shown in the figure below, from 2018 through 2025 the majority of SOMAH program spending was on implementing the program (which included tasks such as general program administration, application processing, program reporting, database management, and onsite field verifications).

FIGURE 6-1: PROGRAM IMPLEMENTATION SPENDING BY BUDGET CATEGORY, 2018 THROUGH 2025



Source: SOMAH Semi-Annual Expense Report, January 31, 2026, tab "1. Expenditures"

Cumulative Collections and Expenditures

The SOMAH annual budget is either 10% of IOU greenhouse gas auction revenues or $100 million, whichever is less, and collected between 2016 and June 30, 2026. The costs for implementing the program are capped over the lifetime of the program to not exceed 10% of the total available funds, and there is flexibility as to when funds can be utilized.[67]

Table 6-1 presents the cumulative budget (collections) and spending (expenditures) for program implementation and incentives as of December 31, 2025 as documented in the SAER. As the table shows the program has spent 67% of the money collected for implementing the program and 16% of the incentive money collected, indicating the incentive spending is lagging far behind the program administration spending. [68]

TABLE 6-1: CUMULATIVE COLLECTIONS AND EXPENDITURES IN MILLIONS OF DOLLARS

Implementation/ Incentives	Collections/ Expenditures	2016 - 2018	2019	True-Up	2020	2021	2022	2023	2024	2025
Program Implementation	Collections	11.8	20.2	30.0	37.5	48.3	62.5	73.4	79.7	89.6
	Expenditures	2.3	9.3	9.3	18.0	26.3	35.1	43.7	51.4	59.7
	% Spent	20%	46%	31%	48%	54%	56%	60%	64%	67%
Incentives	Collections	106	182	270	337	435	563	660	717	807
	Expenditures	0	0	0	0	7	32	48	91	132
	% Spent	0%	0%	0%	0%	2%	6%	7%	13%	16%

Note: In the SAER the yearly collections and expenditures do not include waitlist, earmarked, pending reservation, or reserved projects.
Source: SOMAH Semi-Annual Expense Report, January 31, 2026, tab "2. Program Funding" (Collections), tab "1. Expenditures" (PI Expenditures), tab "7. Incentive Payments" (Incentive Expenditures)

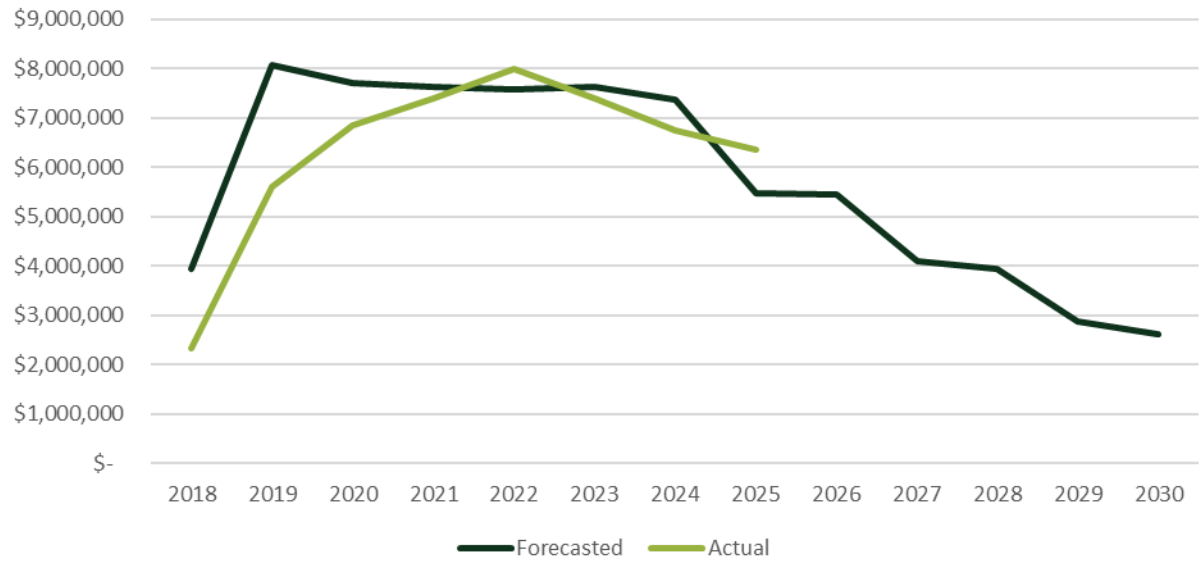
SOMAH Spending versus Originally Planned Budget

SCE's Purchase Order (PO) for CSE for the implementation of the SOMAH Program laid out the PA's projected spending by program year (Table 1 of the Purchase Order). The figure below shows the SOMAH PA's forecasted Administrative Work Budget for 2018-2030 compared with the spending to date through the end of 2025. As this figure shows, the overall trend in spending is following the general planned trajectory of the projected spending by program year.

[67] D.19-03-015 Ordering Paragraph 1.

[68] The yearly collections and expenditures reported in the SAER do not include waitlist, earmarked, pending reservation, or reserved projects

FIGURE 6-2: SOMAH PROGRAM IMPLEMENTATION ANNUAL SPENDING TO DATE FORECASTED VERSUS ACTUAL



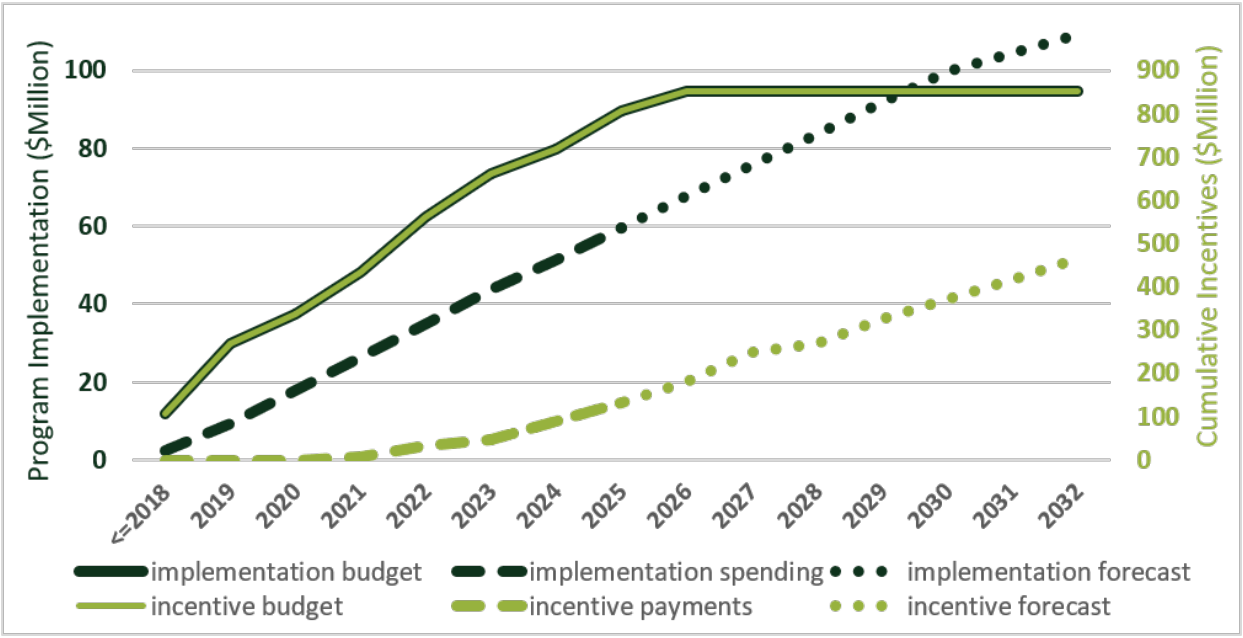
Sources: SOMAH Semi-Annual Expense Report, January 31, 2026 and PAs response to SCE RFP # 153-02132018 - forecasted administrative work budget through Dec 31, 2030

Cumulative Collections and Expenditures Forecast

Figure 6-3 below presents the same data as shown in Table 6-1 above and extends a forecast out through the end of 2032. Note that the program implementation values are shown on a different axis (left hand side) from the incentive values (right hand side), causing the budget values to overlap as the program implementation budget is 10% of the overall budget. The program implementation forecast was estimated by forecasting a line for each billing category using the actual values in 2020-2025 and removing ME&O, Financial Technical Assistance, and Pre-Installation Technical Assistance spending in 2031-2032. The incentive forecast was estimated by using the forecasts reported in the SAER for 2026-2028 and then by forecasting a line for 2029-2032 using the values from 2023-2028. The collections forecast for 2026 was estimated from collections in 2025 and divided in half to account for only six months of collections in 2026. This graphic forecasts that the program implementation budget will be fully spent by 2032, however the incentives will only be around 54% spent.[69]

FIGURE 6-3: PROGRAM IMPLEMENTATION AND INCENTIVE BUDGET VS. SPENDING

[69] The incentive forecast table in the Semi-Annual Expense Report (SAER) ("Table 13. Forecasted Incentive Payments" on Tab "7. Incentive Payments") only represents active applications at the time the SAER data is pulled. This table does not account for future/anticipated application volume. The total 54% incentive spend as currently cited in the report is a snapshot that includes active projects at the time the SAER data was pulled and does not capture any future project volume.



Sources: SOMAH Semi-Annual Expense Report, January 31, 2026 and evaluation team forecast, tabs "2. Program Funding", "1. Expenditures", "7. Incentive Payments"

10% Implementation Spending Cap

A review of program spending to date, spending trend by program year, and remaining program budget was used to determine whether SOMAH is on track to stay below the 10% implementation spending cap by the end of the program (in 2032).

Table 6-2 shows SOMAH's spending on program implementation activities through December 31, 2025, total just under $60M and account for 31% of the program's overall spending. The remaining 69% of spending has been paid out as program incentives. The forecast through the end of 2028 is estimated based on the SOMAH PA's forecast of incentive payments in the SAER (which include estimates of incentive payments for active projects at the time the SAER was pulled) and assumes program implementation spending continues at the same level as 2025. The forecast for the end of 2032 is estimated as described in the paragraph above Figure 6-3. These forecasts are trending in the right direction with a higher percent of the program spending going towards incentives, however, the SOMAH Program implementation spending does not seem to be on track to be under its 10% cap by the program's end in 2032 if incentive spending does not increase dramatically (Figure 6-3, Table 6-2). The SOMAH PA notes that the reason why program implementation spending has stayed relatively high is that "when originally designed, the program's declining budget design did not account for the level of Decisions, Proceedings, Handbook changes, and other program modifications to still be happening seven years into the declining implementation budget."

TABLE 6-2: DISTRIBUTION OF SOMAH PROGRAM ADMINISTRATION SPENDING BY SPENDING CATEGORY

Spending Category	SOMAH (2018-2025)		SOMAH Forecast (2018-2028)		Eval Team Forecast (2018-2032)			
	Spending	%	Spending	%	Spending	%	Collections	%
PA	$27,208,995	14%	$37,322,520	11%	$47,819,042	8%		
ME&O	$17,709,668	9%	$23,828,617	7%	$29,114,672	5%		
WFD	$2,881,543	2%	$3,662,612	1%	$4,266,574	1%		
TA	$2,796,755	1%	$4,813,794	1%	$8,089,058	1%		
CPUC	$1,277,328	1%	$2,536,146	1%	$3,107,137	1%		
IOUs	$7,850,332	4%	$12,681,651	4%	$16,964,215	3%		
PA/CPUC/ IOU Total	**$59,724,622**	**31%**	**$84,845,340**	**24%**	**$190,014,349**	**19%**	**$94,625,751**	**10%**
Incentive	$131,621,070	69%	$268,279,368	76%	$464,069,927	81%	$851,631,763	90%
Total	**$191,345,692**	**100%**	**$353,124,708**	**100%**	**$572,883,988**	**100%**	**$946,257,515**	**100%**

Sources: SOMAH Semi-Annual Expense Report, January 31, 2026 and evaluation team forecast

6.1.2 Monthly Expenditures

The program spending from program inception through December of 2025 that is provided in the SAER cannot be broken down by SOMAH PA member as the SAER does not provide that level of detail. The SAER also only presents program implementation expenditures at the yearly level. For these reasons the Evaluation Team reviewed a more detailed monthly program implementation expense report (SOMAH PA Admin Expenses_2018 – 2025.xlsx). It detailed program implementation spending by month, program administrator, and billing category task. The monthly data does not include incentives, IOU, or CPUC spending and therefore will not be included in this subsection. Also note that the monthly program implementation expense report did not match the 2025 Semi-Annual Expense Report exactly, with discrepances in 2018 and 2019. The difference was minor accounting for just 0.05%.

Expenditures by Program Budget Category

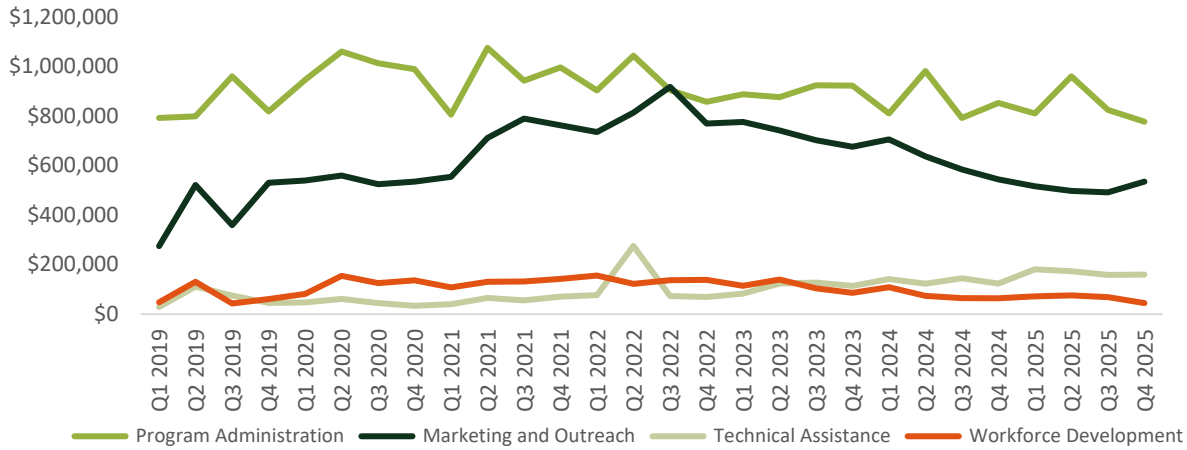
In Figure 6-4 below we present SOMAH Program Budget Category spending by quarter. Notable findings from this figure include:

- The Program Administration category is the largest expenditure – accounting for 54% of program implementation spending (not including IOU or CPUC spending) since program inception. The next largest category is ME&O, which contributed 35% of implementation spending, WFD spending at 6%, and Technical Assistance (TA) spending at 6%.

- Spending in the PA, ME&O, and WFD categories have been trending down since mid-2022.

- The TA category spending has been trending up over time, however the spending is still low – making up only 6% of program implementation spending (not including IOU or CPUC spending).

FIGURE 6-4: TOTAL QUARTERLY SPENDING BY PROGRAM BUDGET CATEGORY



Source: SOMAH PA Admin Expenses_2018 – 2025.xlsx

Expenditures by Program Budget Category and Task

Table 6-3 below provides the distribution of program implementation spending (not including IOU or CPUC spending) across program budget categories and tasks from program inception through the end of 2025. The "Spending Trend" column is a qualitative description of the trend in spending for each category since program inception. If spending has generally increased since inception it is labeled "up", if spending has generally decreased since inception it is labeled "down", if spending has generally remained steady since inception it is labeled "flat," and if spending increased after inception but has decreased in recent years it is labeled "up/down". Notable findings from this table include:

- **The Program Administration task has the largest amount of spending** – it made up 14% of program implementation spending (not including IOU or CPUC spending) and 26% of spending within the Program Administration Category. This task encompasses many important activities necessary to run this large statewide program.

- CBOs have the second largest task spending – 11%

- The **remaining top 5** in task spending: **Application Processing, ME&O admin, and Program Reporting** – 8%, 7%, and 6% respectively.

- Spending has been increasing for the following tasks (mostly as a result of increased participation): Property Owner Engagement, Tenant Engagement, WFD Admin, Pre-Installation Technical Assistance, On-site Field Inspections, ME&O Plan Development, and Financial Technical Assistance.

- Spending has been decreasing in the Program Administration and Workforce Development Categories and increasing in the Technical Assistance Category.

VERDANT

TABLE 6-3: DISTRIBUTION OF SOMAH IMPLEMENTATION SPENDING (NOT INCLUDING IOU OR CPUC SPENDING) BY PROGRAM CATEGORY AND PROGRAM TASK

Program Category	Program Task	SOMAH PA Spending through 2025	% of Category Spending	% of SOMAH PA Spending	Spending Trend*
Program Administration (PA)	Program Admin	$7,187,580	26%	14%	down
	Application Processing	$4,187,328	15%	8%	flat
	Program Reporting	$3,276,133	12%	6%	down
	Program Planning and Development	$2,693,329	10%	5%	flat
	Database Management	$2,637,539	10%	5%	down
	Financial Tracking	$2,614,719	10%	5%	flat
	Timekeeping	$992,643	4%	2%	down
	On-site Field Inspections	$925,003	3%	2%	up
	Bidding Resources	$770,817	3%	2%	down
	Advisory Council	$676,681	2%	1%	down
	Program QA/QC	$624,748	2%	1%	down
	Working Group & Public Forums	$468,980	2%	1%	down
	Worksite Safety Program	$162,225	1%	0%	down
	Total	**$27,217,726**	**100%**	**54%**	**down**
Marketing, Education, & Outreach (ME&O)	Community Based Organizations	$5,493,217	31%	11%	up/down
	ME&O Admin	$3,445,038	19%	7%	up/down
	Property Owner Engagement	$1,626,335	9%	3%	up
	Website Develop. & Enhancements	$1,401,985	8%	3%	down
	Tenant Engagement	$903,309	5%	2%	up
	Marketing Collateral Development	$888,083	5%	2%	up/down
	Cooperative Marketing Efforts	$800,269	5%	2%	up/down
	Communications	$644,825	4%	1%	up/down
	Media	$606,756	3%	1%	up/down
	ME&O Plan Development	$602,705	3%	1%	up
	Conferences	$491,084	3%	1%	down
	Contractor Engagement	$483,358	3%	1%	up/down
	Contractor Training	$285,697	2%	1%	flat
	Liberty and PacifiCorp ME&O	$41,201	0%	0%	n/a
	Total	**$17,713,862**	**100%**	**35%**	**up/down**

TABLE 6-3 (CONTINUED): DISTRIBUTION OF SOMAH PA SPENDING BY PROGRAM CATEGORY AND TASK

Program Category	Program Task	SOMAH PA Spending through 2025	% of Category Spending	% of SOMAH PA Spending	Spending Trend*
Workforce Development (WFD)	WFD Admin	$1,420,888	49%	3%	up
	WFD Resource and Content Creation	$432,278	15%	1%	up/down
	Regional JTO Task Force	$408,536	14%	1%	down
	Job Training Portal	$347,393	12%	1%	down
	WFD Cooperative Marketing Efforts	$163,731	6%	0%	down
	WFD Workshops and Conferences	$64,189	2%	0%	up/down
	Data and Digital Tools Management	$33,721	1%	0%	n/a
	Local Hiring Plan Development	$10,808	0%	0%	flat
	Total	**$2,881,543**	**100%**	**6%**	**down**
Technical Assistance (TA)	Pre-Installation TA	$1,940,130	69%	4%	up
	Post-Installation TA	$546,029	19%	1%	up/down
	EE and Program Leveraging	$212,400	8%	0%	up/down
	Financial TA	$125,001	4%	0%	up
	Total	**$2,823,559**	**100%**	**6%**	**up**
Total		**$50,636,691**	**100%**	**100%**	**up/down**

Source: SOMAH PA Admin Expenses_2018 – 2025.xlsx. "SOMAH PA Spending" excludes incentives and IOU/CPUC spending.
Note: The numbers in the "SOMAH PA Admin Expenses_2018 – 2025.xlsx" file did not match the 2025 Semi-Annual Expense Report exactly (specifically in years 2018 and 2019). The total was off by 0.05%.

* Spending Trend = "up" if spending has generally increased since inception.
Spending Trend = "down" if spending has generally decreased since inception.
Spending Trend = "flat" if spending has generally remained steady since inception.
Spending Trend = "up/down" if spending initially increased after inception but has decreased in recent years

As the table above shows, the four primary program categories include a variety of tasks, which serve several different purposes. The evaluation team reviewed the tasks and identified three primary "Purpose" groupings that span program categories. For example, the Program Administration category includes program administration tasks that were included within the PA, ME&O and WFD categories. After these groupings were established, each of the tasks was assigned to one of these three groupings. The three groupings included:

- Program Administration – these tasks include those that support the general administration of the program. This grouping includes all Admin tasks (PA, WFD, ME&O), as well as planning activities,

database and website management, program reporting, financial tracking, timekeeping activities, task force, working group, or advisory council activities with utilities and external stakeholders, etc.

- Program Outreach – these tasks include those focused on all program marketing, communications, and engagement activities.

- Application Support – these tasks include activities that support program applications moving through the application process, from technical assistance to on-site field inspections.

The table below presents the program spending across each of these "Purpose" groupings. Notable findings from this table include:

- Program Administration Grouping – Sixty percent of the spending to date has been on tasks required to support the general implementation of the program. The SOMAH Program is a very large and complex program with many program requirements necessitating a large and diverse staff with different skill sets to implement it.

- Program Outreach – Tasks focused on program outreach made up the second largest grouping (25%). This program has required significant outreach to many different populations (contractors, property owners, job seekers, job training organizations (JTOs), tenants, and other stakeholders). Additionally, many of these populations are underserved and hard-to-reach populations, therefore requiring substantial effort to engage with and educate on the SOMAH Program.

- Application Support – Spending directly related to project application support made up only 16% of program spending. It is anticipated that the spending in this grouping will continue to increase as more projects make their way through the application process to installation and interconnection. The SOMAH PA noted that they "expect application support spending to also increase strictly as a percent in relation to other spending as those other (categories) winds down and application support stays paramount."

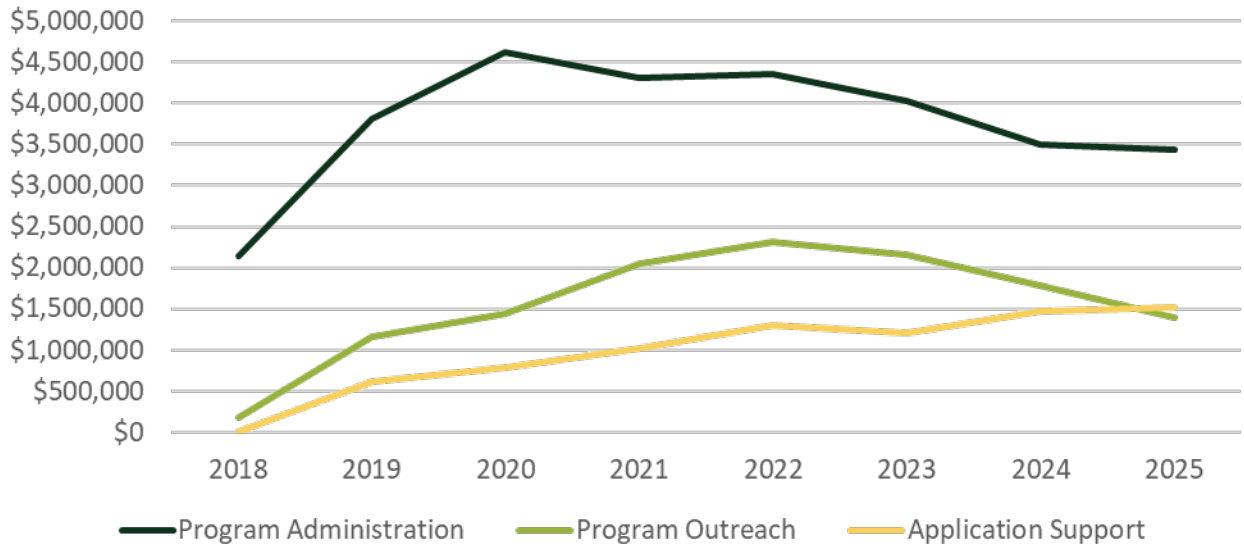
TABLE 6-4: SPENDING BY "PURPOSE" GROUPINGS

Evaluation Defined "Purpose" Groupings	Total Spending through 2025		
	$	%	Spending Trend*
Program Administration	$30,208,747	60%	up/down
Program Outreach	$12,492,053	25%	up/down
Application Support	$7,935,891	16%	up
Total	**$50,636,691**	**100%**	up/down

Source: SOMAH PA Admin Expenses_2018 – 2025.xlsx and evaluation teams "purpose" grouping

* Spending Trend = "up" if spending has generally increased since inception.
Spending Trend = "down" if spending has generally decreased since inception.
Spending Trend = "flat" if spending has generally remained steady since inception.
Spending Trend = "up/down" if spending initially increased after inception but has decreased in recent years,

FIGURE 6-5: "PURPOSE" GROUPING SPENDING BY YEAR



Source: SOMAH PA Admin Expenses_2018 – 2025.xlsx and evaluation teams "purpose" grouping

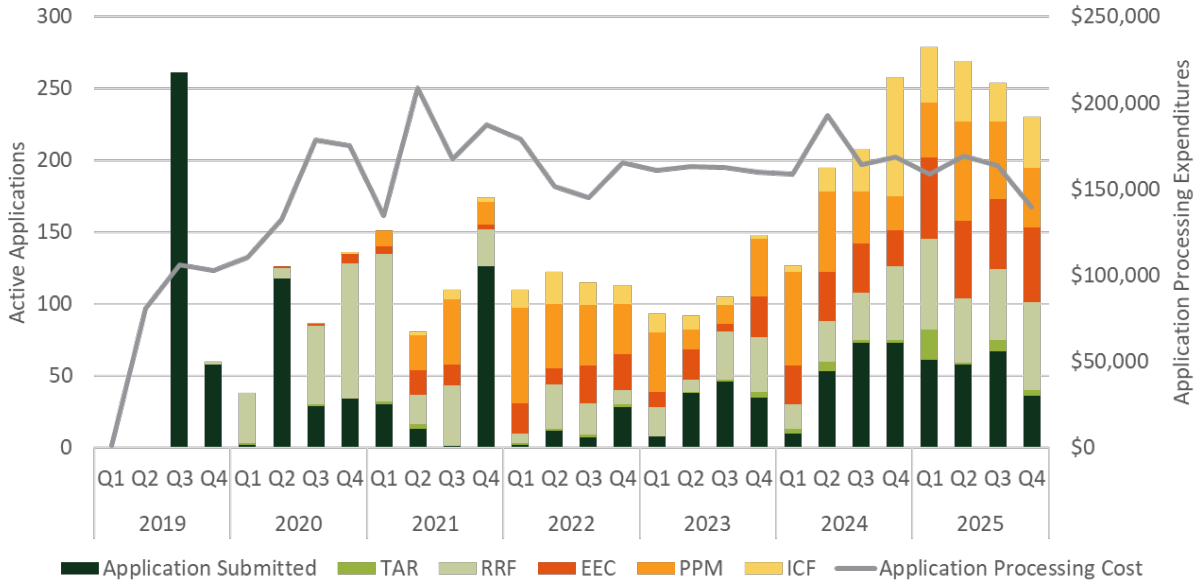
Average Cost of Processing an Application

To date, the processing of program applications has accounted for 15% of the program administration category expenditures (8% of total program implementation spending, not including IOU or CPUC spending) and the yearly spend has been consistent for this task across the years. In prior interviews both the CPUC and the SOMAH PA separately reported that application processing consumes a significant amount the PA's time, however based on the time billed to this task since the program launched it amounts to roughly $1,041 per application (or around nine hours per application based on an assumed average application processing staff rate of $110/hour).[70] This cost per application is calculated by counting the number of applications active in PowerClerk each quarter, based on the approval date of each step and dividing by the application processing expenditures during that same quarter. Because an application moves through up to six steps, it may be counted as active in up to six different quarters. The figure below maps quarterly spending on this task to the number of active SOMAH applications. As the figure shows, spending remained relatively stable in 2024 and 2025 despite increases in submitted applications. Per the SOMAH PA, this is attributable to gains in application processing and QA/QC efficiencies allowing the application processing team to "handle more application volume using the same

[70] Hours billed to "application processing" do not include hours billed to pre-install technical assistance and post-install technical assistance.

amount of hours." They also point out that "returning applicants with previous practice contribute to more application volume without more admin spending" as "applicants get better at submitting clean applications that move smoothly."

FIGURE 6-6: APPLICATION PROCESSING SPENDING VS. ACTIVE APPLICATIONS BY QUARTER



Expenditures by SOMAH PA Member

The table below breaks down the implementation spending (not including IOU or CPUC spending) by budget category through the end of 2025 by each SOMAH PA member.

TABLE 6-5: SPENDING BY SOMAH PA MEMBER ACROSS BUDGET CATEGORIES, 4/18-12/25

Budget Category	CSE		GRID		CHP		AEA	
	$	%	$	%	$	%	$	%
PA	$18,133,134	73%	$6,163,319	33%	$1,140,895	30%	$1,770,131	54%
ME&O	$6,465,645	26%	$8,570,019	45%	$2,509,902	67%	$168,296	5%
WFD	$3,026	0%	$2,875,841	15%	$0	0%	$2,676	0%
TA	$83,512	0%	$1,264,337	7%	$111,953	3%	$1,363,757	41%
Total	**$24,685,317**	**49%**	**$18,873,517**	**37%**	**$3,762,750**	**7%**	**$3,304,861**	**7%**

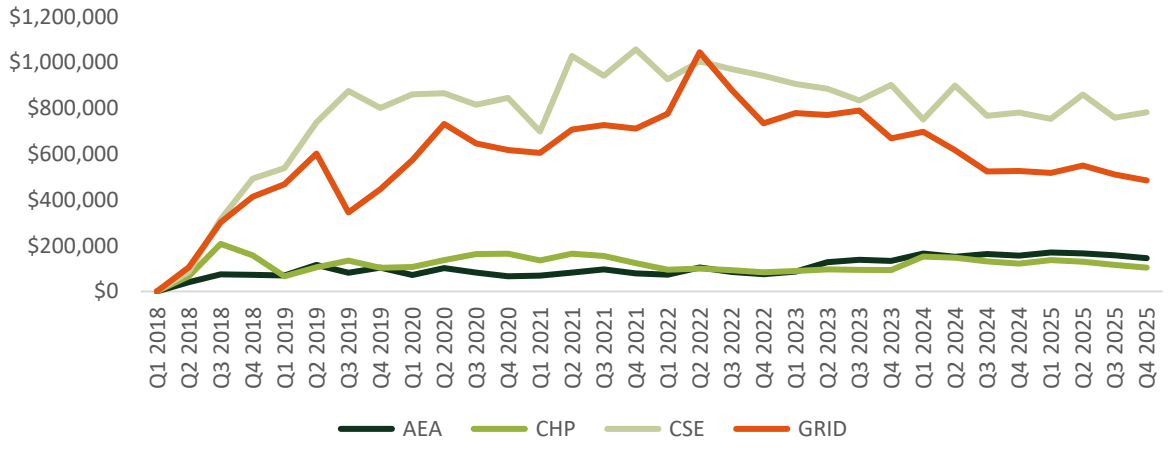
Source: SOMAH PA Admin Expenses_2018 – 2025.xlsx

Notable findings from the Table 6-5 include:

- CSE made up nearly half of the program implementation spending (49%), the overwhelming majority of which was on tasks within the SOMAH PA category (73%). CSE had very little spending in the TA or WFD categories.
- GRID had the second highest level of implementation spending (37%), the largest percentage of which was in the ME&O category. GRID was the only SOMAH PA member that had significant spending on all four program categories.
- CHP had the third highest level of implementation spending (7%), the majority of which fell under the ME&O category.
- AEA had the lowest level of implementation spending amongst the four SOMAH PA members (7%). Just over half of their spending was in the SOMAH PA category, followed closely by the TA category (41%).

The next figure shows the total quarterly implementation spending for each of the four SOMAH PA members from program inception through December 31, 2025 (Figure 6-7). This figure shows that while quarterly spending for CSE and GRID increased from 2018 to mid-2022, it has been on a decline since then. Spending from AEA and CHP has been much lower than CSE and GRID and more steady throughout the years.

FIGURE 6-7: QUARTERLY SPENDING BY SOMAH PA MEMBER



Source: SOMAH PA Admin Expenses_2018 – 2025.xlsx

6.1.3 Incentive Expenditures by IOU (DGStats)

An analysis of SOMAH DGStats incentive budget data (extract date of February 11, 2026), shows that 32% of the SOMAH incentive budget is earmarked, pending, reserved, or completed for PV, and another 3%

for storage. PG&E has 49% of their incentive budget unallocated, while the other utilities have between 70% and 100% of their incentive budget unallocated.

TABLE 6-6: INCENTIVE PROGRAM BUDGET AND SPENDING BY IOU IN MILLIONS OF DOLLARS

	PG&E	SCE	SDG&E	PacifiCorp	Liberty	Total	Percent of Total Budget
PV Application Totals	145.4	86.0	26.7	0.0	0.1	258.2	32%
Waitlist	0.0	0.0	0.0	0.0	0.0	0.0	0%
Earmarked	6.0	1.5	0.4	0.0	0.0	7.9	1%
Pending Reservation	7.9	2.0	2.3	0.0	0.0	12.2	2%
Reserved	77.0	48.7	10.9	0.0	0.1	136.8	17%
Completed	54.5	33.8	13.0	0.0	0.0	101.3	13%
Storage Application Totals	13.0	7.8	0.8	0.0	0.0	21.6	3%
Total Budget	**310.9**	**383.0**	**98.4**	**11.6**	**3.0**	**806.8**	**100%**
% of Budget Remaining	49%	76%	72%	100%	96%	65%	65%

Source: SOMAH Incentive Budget Report as of February 11, 2026

Data from the SOMAH IOU semi-annual expense reports were combined to look into the distribution of spending within the IOU administration costs by IOU and over time. Table 6-7 presents the cumulative IOU costs by IOU and the distribution of spending by budget category. Around half of the spending has been on "IT/Customer Billing" and just under half on "Program Management Support". Liberty and PacifiCorp make up only 2% of the overall spending and bill a majority of their expenses to "Program Management Support".

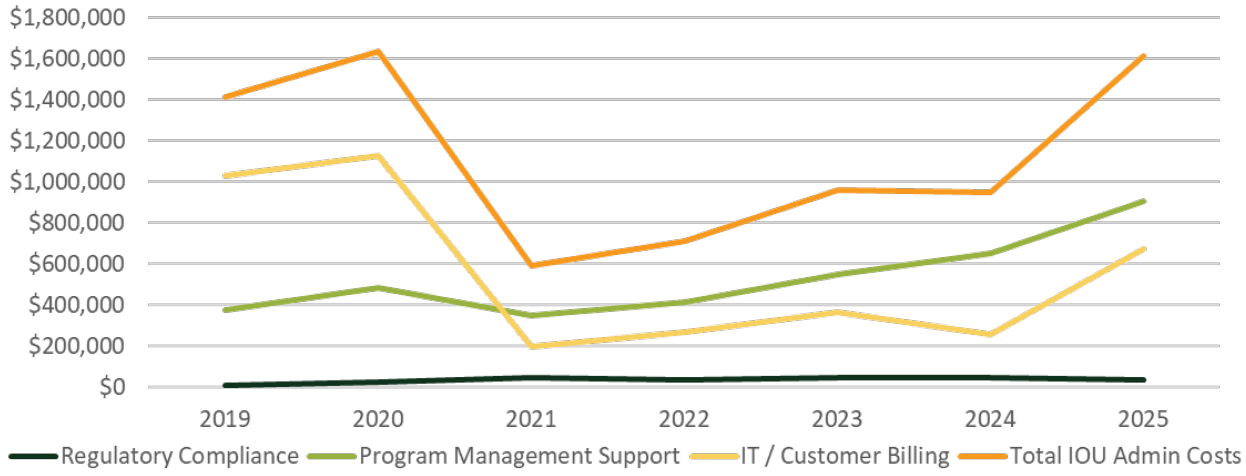
TABLE 6-7: DISTRIBUTION OF IOU COSTS BY SPENDING CATEGORY, AS OF 12/31/25

IOU Admin Costs	PG&E	SCE	SDG&E	PacifiCorp	Liberty	Total
Regulatory Compliance	0%	0%	10%	7%	35%	3%
Program Mgmt Support	45%	57%	33%	92%	65%	47%
IT / Customer Billing	55%	43%	57%	1%	0%	50%
Total	**$2,286,159**	**$3,264,138**	**$2,161,733**	**$115,895**	**$31,694**	**$7,859,619**

Source: SOMAH IOU Expense Reports
Note: These numbers do not match the 2025 Semi-Annual Expense Report exactly. They are off by -0.12%.

Total IOU costs were relatively high in 2025, up to similar levels as 2019 and 2020. Spending on "Program Management Support" has been increasing over the years and spending on "Regulatory Compliance" has been low and steady over time. "IT/Customer Billing" spending more than doubled in 2025 when compared to 2021 through 2024.

FIGURE 6-8: YEARLY SPENDING BY IOU SPENDING CATEGORY



Source: SOMAH IOU Expense Reports

6.2 EFFECTIVENESS OF PROGRAM OUTREACH AND AWARENESS SPENDING

We detail results on ME&O spending and effectiveness below.

6.2.1 ME&O Spending

At the end of 2025 SOMAH ME&O activities accounted for 35% of SOMAH's overall implementation expenditures since program inception and 32% of program implementation spending in 2025. The ME&O budget category has 14 tasks that expenditures are grouped into as shown in Table 6-8. Four tasks have accounted for the majority of the total M&EO spending: CBOs (31%), ME&O administration (19%), property owner engagement (9%), and website development and enhancements (8%). While all other categories of spending account for less than 5% each. Notable findings include:

- **Though spending has decreased in the last two years, CBOs still represent the largest single ME&O expenditure at 31% of the budget overall - yet the return on this investment is difficult to assess and shows signs of misalignment**
  - Almost all property owners reported learning about SOMAH from a contractor.
  - With program awareness remaining low and CBO engagement declining (three CBOs left the program due to the reduced tenant education focus), the program should consider whether this

level of investment is well-placed or if resources would be better directed toward other activities to drive property owner participation.[71]

- Figure 6-9 (below) shows CBO spending has been inversely related to applications submitted. Though it's important to note that CBO contracts have evolved since the inception of the SOMAH program and have not focused solely on application generation. Previous iterations of CBO contracts included general community outreach, tenant education, workforce development support, research on best practices, and review of communications materials. These activities are not directly tied to application generation.

- **Administrative spending rose to 23% in 2025 (19% overall)**

  - Current administrative setup is fragmented with unclear ownership of outreach outcomes.

    - ME&O responsibilities are distributed across nonprofits, for-profits, and CBOs, and it is unclear who is responsible for outreach outcomes.

    - Evidence of this fragmentation includes an inadequate property owner contact list.

  - A significant share of the budget is being consumed by internal and external coordination rather than direct program impact. This external coordination includes time the SOMAH PA spends addressing topics related to CPUC Decisions, Open Proceedings, Handbook Changes, and other program modifications.

- **SOMAH PA directed property owner engagement receives only 9% of the budget, rising modestly to 12% in 2025.[72]**

  - Given that property owner awareness remains low, the spending on this task may benefit from increased investment.

  - Engaging property managers and owners present unique challenges. It is often difficult to locate and connect with decision-makers, the "split incentive" value proposition means that most benefits accrue to tenants rather than property owners, and other significant barriers related to eligibility and building condition exist. ME&O activities must then be designed not just to increase awareness but to address these barriers directly. Additional focus – in terms of time and money – would be beneficial for this group.

- **Tenant engagement spending is trending upward at 5-7%, likely due to the increased number of completed projects in recent years**

---

[71] Per the SOMAH PA via comments left in an initial review of this report "The SOMAH PA is phasing out CBO partnerships in early-to-mid-2027, when these contracts end."

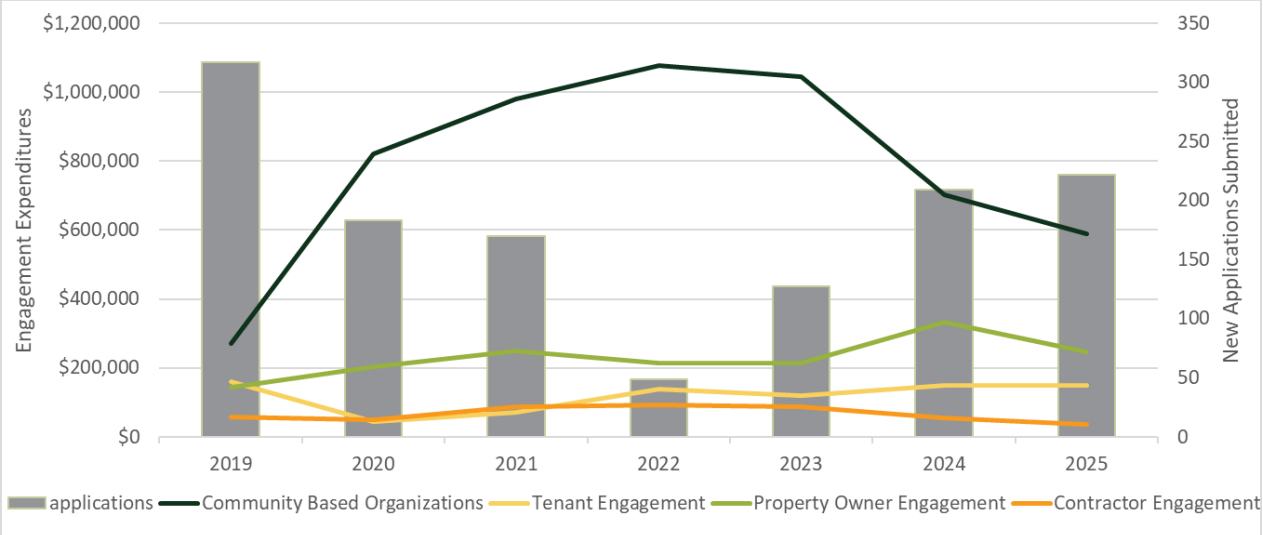
[72] The property owner engagement task excludes CBO outreach to property owners, PacifiCorp and Liberty Utilities targeted outreach, and pre-installation technical assistance provided to property owners which fall under other billing categories.

- **Contractor engagement and training together receive only about 5% of the budget despite contractors being among the most motivated drivers of program participation**
  - Reallocating resources toward contractor support could direct the ME&O budget to resources that may be more effective in increasing program participation.

TABLE 6-8: TOTAL ME&O EXPENDITURES BY ME&O CATEGORY FOR 2018-2025 (IN THOUSANDS OF DOLLARS)

SOMAH ME&O Category	2018/19	2020	2021	2022	2023	2024	2025	Total	% 20-22	% 23-25
Community Based Organizations	$277	$821	$980	$1,077	$1,045	$702	$589	$5,491	35%	31%
ME&O Admin	$359	$462	$527	$599	$539	$490	$467	$3,443	20%	20%
Property Owner Engagement	$170	$203	$248	$214	$215	$332	$246	$1,627	8%	11%
Website Development & Enhancements	$333	$207	$220	$287	$143	$124	$88	$1,401	9%	5%
Tenant Engagement	$235	$43	$71	$140	$119	$150	$150	$908	3%	6%
Marketing Collateral Development	$75	$59	$118	$199	$194	$175	$68	$888	4%	6%
Cooperative Marketing Efforts	$132	$52	$121	$178	$177	$90	$48	$798	4%	4%
Communications	$109	$81	$136	$92	$65	$84	$78	$645	4%	3%
Media	$15	$9	$77	$154	$168	$121	$62	$605	3%	5%
ME&O Plan Development	$102	$90	$70	$75	$78	$81	$105	$602	3%	4%
Conferences	$136	$54	$120	$90	$29	$32	$28	$490	3%	1%
Contractor Engagement	$82	$48	$87	$92	$86	$54	$35	$486	3%	2%
Contractor Training	$69	$29	$42	$37	$37	$35	$35	$285	1%	1%
Liberty and PacifiCorp ME&O							$41	$41	0%	1%
Total Expenses for ME&O	**$2,094**	**$2,158**	**$2,817**	**$3,235**	**$2,895**	**$2,471**	**$2,040**	**$17,710**	**100%**	**100%**

FIGURE 6-9: ME&O ENGAGEMENT SPENDING AND NUMBER OF NEW APPLICATIONS SUBMITTED BY YEAR



6.2.2 ME&O Effectiveness

The evaluation team conducted an analysis of the ME&O effectiveness during the evaluation period (2023-2025). The team combined information from PA, property owner, and contractor interviews with tenant surveys, tracking data, and information from the public ME&O reports. We compared results of ME&O implementation to previous evaluations to identify continuing themes and highlight changes. Special attention was paid to 2025 as new ME&O requirements were put into effect in response to D.24-11-006. Here we provide a brief overview of the ME&O effectiveness for the SOMAH Program over the evaluation period. Appendix H details a historic overview of the ME&O activities for the program start through 2024 and Appendix G covers details on strategic goal shifts in ME&O for 2025 and 2026.

ME&O Overview

The evaluation team synthesized results from stakeholder interviews and surveys with a review of SOMAH ME&O plans to identify overarching themes during 2023-2025. We detail these below:

- **Core outreach strategies were similar to previous years with some notable tweaks**
  - Incentives increased in 2023 following a program low in applications (n=49 in 2022). The SOMAH PA capitalized on this to launch the "Step Up to SOMAH" marketing campaign, which highlighted features such as the elimination of annual incentive step downs and (at that time) expanded federal Investment tax credit opportunities.
  - –The SOMAH PA expanded storytelling efforts by publishing success stories, press releases, and social media content featuring the first Tribal project and a 780 kW installation in Carlsbad that delivers average monthly bill savings of approximately $60 for 344 families.
  - PA added a Tribal housing page and paid for targeted advertising in 2024
    - Website traffic increased by 28%
  - Worked with CBOs to expand outreach and partnerships into lower participation areas
    - Focused primarily on DACs and housing authorities
- **Property owners still report in interviews that contractors are the primary way they learn about the Program (see Section 5.2 for more details)**
  - The next most common way is through peer organizations with most property owners reporting that SOMAH marketing is ineffective and needs improvement
  - None of the property owners reported learning about the SOMAH Program through a SOMAH CBO

  - Contractors feel unsupported in their marketing and outreach of the program[73] (see Section 5.1 for more details)

- **Tenants report that they learned about their solar system by seeing it installed – not through the program**

  - Tenants learning about the program by noticing the solar panels themselves (48%), hearing from their property manager (42%) or seeing credits on their electric bill (25%) (Section 5.3.1)

    - Only 1% reported interacting with a CBO

2025 Goals

Marketing for the SOMAH Program changed substantially in 2025. This was in response to D.24-11-006 which provided specific direction for the SOMAH Program's ME&O efforts. Three main ME&O changes came out of D.24-11-006 Issued in November 2024:

- **High priority properties list**: The SOMAH PA must work with IOUs to pre-screen eligible properties, build an annual list of properties most likely to benefit from solar (and paired storage), and conduct direct outreach to every property on it. IOUs must provide contact information to support this effort. (The SOMAH PA and IOU's efforts to create the high priority properties list is described in 3.2.6 Subsection Eligible Property Data above)

- **CBO requirements**: Future ME&O plans must explicitly address how CBOs align with the target audience's core mission, their familiarity with outreach to that audience, their focus on individual underserved community members, and their capacity for sustained engagement.

- **Liberty and PacifiCorp territories:** At least 1.5% of the total ME&O budget must be dedicated to these service territories each year from 2025 through 2029, with specific KPIs tracked and reported annually.

The decision also significantly expanded ME&O reporting requirements. The SOMAH PA must now track and report detailed interaction counts (inbound vs. outbound, SOMAH PA vs. CBO-initiated), event attendance broken out by audience type and IOU territory, social media follower composition, and earned media placements.

The evaluation team reviewed the 2025 ME&O plan, including the goals based on SMARTIE (specific, measurable, achievable, relevant, time-bound, inclusive, equitable) objectives and 2025 program performance presented in the 2026 Draft ME&O plan. We provide a debrief of each goal and the results below.

[73] The SOMAH Program has contractor office hours and the PA works to market ways contractors can get support.

Goal 1: Property Owners: Engage Owners for a Pipeline of Projects

Table 6-9 shows the outcomes of property owner engagement for 2025. **Evaluation findings indicate that most SOMAH project participation is initiated through solar contractors, while historical ME&O spending has been concentrated in awareness-oriented activities such as community based outreach, communications, and general marketing. Despite sustained investment in these areas, application and installed capacity outcomes have remained below long-term targets in multiple program years**. Future ME&O budgets should be rebalanced to increase investment in contractor engagement and training activities that directly support project origination, owner decision making, and application completion. This rebalancing should be achieved through reallocation of existing ME&O funds rather than increases in total ME&O spending.

TABLE 6-9: ME&O GOAL 1: PROPERTY OWNER SMARTIE OBJECTIVES ACHIEVED IN PROGRAM YEAR 2025

2025 SMARTIE Objective	Activities/Outcomes	Result
1. Property Owners: Engage owners for a pipeline of projects		
Outreach to ≥200 affordable housing orgs (incl. 30 PHAs)	446 orgs reached, incl. 30 housing authorities	Met
Outreach to ~180 Tribes; build ≥3 Tribal relationships	76 Tribes contacted (<180 tribes are actually within eligible service territories); <3 relationships confirmed	Not Met
≥100 TA requests; ≥40 Solar Preview Reports	34 TA requests; 27 Solar Preview Reports	Not Met
Respond to 100% of Check Eligibility Forms and new email subscribers	Yes, confirmed in 2026 plan	Met
Present at ≥2 external webinars/panels for property owners	3 events held	Met
Build ≥2 new co-marketing partnerships in gap regions	2+ partnerships confirmed	Met
Attend ≥2 affordable housing conferences	3 conferences attended	Met
Outreach to contractors in Liberty (6), PacifiCorp (10), Central Valley (~21), Tribal lands	Outreach conducted; specific counts not fully detailed	Unknown

Goal 2: Retain a robust, diverse contractor base; spur new participation

Table 6-10 shows the 2025 goals for contractor outreach and support. **While all but one goal was met, the reality is that 78% of projects in SOMAH are still conducted by one contractor**. In 2023, no new contractors had submitted applications to the program (only three contractors submitted applications that year), with three new contractors submitting applications in 2024. Two of these contractors went on to submit applications in 2025, but as the table shows, no additional contractors submitted applications in 2025.

TABLE 6-10: ME&O GOAL 2: CONTRACTOR SMARTIE OBJECTIVES ACHIEVED IN PROGRAM YEAR 2025

2025 SMARTIE Objective	Activities/Outcomes	Result
2. Contractors: Retain a robust, diverse contractor base; spur new participation		
Re-engage contractors via 2 Office Hour webinars	2 webinars held	Met
≥4 new nonparticipating contractors submit applications	1 new contractor submitted an application	Not Met
Hold 4 Contractor Eligibility Trainings	4 trainings held	Met
Match subcontractors to all applications needing one	Subcontractors matched to all requesting projects	Met

Goal 3: Ensure ample, well-prepared job trainee participation

Table 6-11 shows the outcomes of the job training goals for 2025. Details from the job trainee survey can be found in Section 5.4. For 2025, the program reduced the number of formal SMARTIE targets and narrowed geographic focus of job trainee outreach to Liberty, PacifiCorp, and Tribal areas where workforce participation gaps remain. The program plan consolidated webinar requirements, lowered survey response expectations to realistic levels, and adjusted the local/targeted hire goal to reflect data limitations. These changes allow the program to prioritize equity and workforce outcomes while directing staff time and resources to the highest impact activities.

TABLE 6-11: ME&O GOAL 3: JOB TRAINING SMARTIE OBJECTIVES ACHIEVED IN PROGRAM YEAR 2025

2025 SMARTIE Objective	Activities/Outcomes	Result
3. Job Training: Ensure ample, well-prepared job trainee participation		
Engage ≥1 JTO per quarter in Northern CA, Central Valley, Central Coast, Tribal areas	95 JTOs confirmed; 91% of projects had local JTOs	Met
Host ≥2 contractor-focused job training webinars	2 webinars held (March & September 2025)	Met
Host ≥2 job trainee-focused webinars	2 webinars held (June & December 2025)	Met
≥30% of job trainees upload resumes to portal	26% resume upload rate	Not Met
≥80% of hired job trainees are local or targeted hires	98% targeted hires; 38% local hires (from those who shared data)	Met
Outreach to JTOs serving DACs; 40% trainees live in DACs	Outreach occurred; 30% of trainees lived in DACs	Not Met
≥25% of job trainees complete survey	Survey conducted. Unable to calculate this metric[74]	Unknown

Goal 4: Support tenants in understanding SOMAH benefits

Table 6-12 shows the outcomes of the tenant education goals for 2025. Details from the tenant survey can be found in Section 5.3. Consistent with the revised framing of Goal 4, the plan removed fixed quotas for tenant workshops and engagement from the 2026 SMARTIE objectives. Instead, the program committed to providing tenant education materials and support on an as needed basis, consistent with the removal of mandatory tenant education requirements. The plan continues to promote tenant participation in workforce opportunities but no longer ties that effort to rigid numeric targets. **This approach reduces administrative burden while preserving support for projects that request assistance.**

[74] Trainees can work on more than one project. The evaluation team was unable to parse whether one person answered the survey multiple times or not at all.

TABLE 6-12: ME&O GOAL 4: TENANT EDUCATION SMARTIE OBJECTIVES ACHIEVED IN PROGRAM YEAR 2025

2025 SMARTIE Objective	Activities/Outcomes	Result
4. Tenant Education: Support tenants in understanding SOMAH benefits		
Make tenant education resources available via webinars, listserv, forums, emails	Resources and webinars provided	Met
Facilitate 1 tenant education workshop per quarter	~1 per quarter held	Met
Revise and disseminate tenant education materials for diverse audiences	Materials updated and distributed	Met
≥10% of job trainees are tenants of SOMAH properties	Tracking data showed 17% of trainees were tenants	Met
Engage ≥50% of tenants with at least one touchpoint	67 projects met tenant education requirements by completing both outreach touchpoints	Met

Goal 5: Inform stakeholders and get them to co-promote SOMAH

Table 6-13 shows the outcomes of co-marketing efforts. In all cases, goals were met as the SOMAH PA worked to expand their partnerships to help market the SOMAH Program. While two of the three goals have been met, there is room to expand co-marketing opportunities with the IOUs (such as bill inserts for property accounts and direct IOU branded outreach).

TABLE 6-13: ME&O GOAL 5: STAKEHOLDER & CO-MARKETING SMARTIE OBJECTIVES ACHIEVED IN PROGRAM YEAR 2025

2025 SMARTIE Objective	Activities/Outcomes	Result
5. Stakeholders & Co-Marketing: Inform stakeholders and get them to co-promote SOMAH		
Outreach to ≥10 government offices	10+ contacted; 4 responses; 2 co-marketing partnerships	Met
≥4 co-branded/co-marketing efforts with energy efficiency partners	2024: 17 co-marketing partners; 2025: continued	Met
Co-market with all 5 IOUs and attend ≥1 ribbon-cutting event	Additional opportunities exist for IOU engagement; ribbon-cuttings attended	Not Met

6.3 PROGRESS ON PRIOR RECOMMENDATIONS ADDRESSING ME&O

The following table presents ME&O recommendations stemming from prior SOMAH evaluations and the progress that has been made to address them.

TABLE 6-14: ME&O PRIOR RECOMMENDATIONS AND PROGRESS

Prior Recommendation	Progress Made to Address Recommendation
The SOMAH PA should conduct outreach to potentially "recoverable" cancelled applications to determine if their needs can be addressed to facilitate future participation. (9)	According to the draft 2026 ME&O plan, the SOMAH PA sent out an ongoing email marketing campaign in 2025 to email addresses associated with cancelled SOMAH applications where the property owner was listed as the system owner. According to the draft 2026 ME&O plan, these emails had a 40% open rate. In addition to the email marketing campaign, the SOMAH PA conducts outreach on a quarterly basis to all cancelled applications. Messaging includes promotion of TA services, availability to assist in reviewing their portfolios to identify additional SOMAH-eligible candidates, and questions to assess the feasibility of resubmitting the initial application (if applicable).
The SOMAH PA should conduct outreach to all non-participating property owners to increase awareness and knowledge of the program. (10)	The evaluation team's efforts to survey non-participating property owners revealed significant structural barriers to property owner outreach. The eligible property list contained 4,448 records, but only approximately 20% included email contact information, and of emails distributed, roughly one-quarter were undeliverable. These findings underscore the challenge in identifying correct points of contact at non-participating properties.
The SOMAH PA should build relationships with participating property owners to provide support and identify additional eligible properties. (11)	Progress has been limited. Most property owners reported little to no proactive outreach from the SOMAH PA beyond occasional surveys or emails, which they did not find influential. A few described positive experiences with specific SOMAH PA staff who provided hands-on guidance through the application process, suggesting that direct relationship-building works when it happens, but it isn't happening consistently.
The SOMAH PA should reevaluate the role of CBOs in SOMAH implementation to determine if their roles are appropriate. (3)	The SOMAH PA has focused on the CBO role in recent years and has made some changes to their roles. Starting with the 2025 ME&O plan, CBO contracts were re-scoped and focused on two priority functions: 1) property owner outreach, and 2) tenant education. CBO spending made up 31% of ME&O spending in 2023-2025 (down from 35% in 2020-2022). The Draft 2026 ME&O plan allocated 26% of the budget to CBOs.
The SOMAH PA should tailor marketing materials to highlight SOMAH's financial benefits for property owners. (4)	Marketing materials increasingly emphasized financial value, including bill savings, incentive availability, and Technical Assistance, supported by case studies and Solar Preview Reports.

VERDANT

7 IMPACT ASSESSMENT

This section summarizes the results of the impact assessment.

7.1 PV PRODUCTION AND ENERGY IMPACTS

This section presents results of the PV production analysis and energy impacts. Throughout the section we refer to two types of results, *observed* and *forecasted.* As discussed in Section 3.2.4, **observed impacts** related to PV production, based on what we have determined from meter data collected. These data show how the system is actually performing in a given year, based on local weather conditions, system shading, system performance, and other factors that would affect the performance of a system. **Forecasted impacts,** or expected impacts, refer to the impacts based on simulated data using typical weather data files. However, because we don't always expect that installed systems will behave as ideally as simulations would expect, we applied the month-hour PV ratio (defined in Section 3.2.4) to the typical-weather simulated PV generation, to account for differences in observed and simulated data.

PV Production

PV generation totals by utility are presented in Table 7-1 for each year of the evaluation. This table also shows the average total observed electric generation per SOMAH project per year, and the annual DC capacity factor by utility. Overall, completed SOMAH projects generated 21.6 thousand MWh of energy in 2023 and 35 thousand MWh of energy in 2024, and 58.8 thousand MWh of energy in 2025. The overall observed capacity factor ranged between 12% and 14%. As a point of comparison, project capacity factors calculated from PowerClerk estimated generation ranged between 15% and 16%. At the end of 2025, PG&E had 238 projects, averaging an annual energy generation of 127 MWh per project. SCE had 94 projects, averaging 212 MWh annually, and SDG&E had 46 projects, averaging 183 MWh annually.

While the first three sections of the table below show the observed impacts, the final section shows the forecasted impacts. The forecasted impacts represent what these completed projects would be expected to produce during a typical year. Because we don't always expect that installed systems will behave as ideally as simulations would expect, we applied a PV Ratio to the simulated data, which provides a month-hour ratio accounting for differences between observed generation and simulations.

TABLE 7-1: 2023-2025 PV GENERATION FROM COMPLETED SOMAH PROJECTS BY UTILITY

Utility	Year	# Projects	Total PV Generation (MWh)	Average PV Generation per Project (MWh)	Annual Capacity Factor (DC)*	PowerClerk Capacity Factor (DC)
2023 Observed Impacts						
PG&E	2023	49	6,178	126.1	11.6%	15.4%
SCE	2023	56	11,528	205.8	11.9%	16.5%
SDG&E	2023	23	3,950	171.7	13.4%	16.4%
Total	**2023**	**128**	**21,657**	**169.1**	**12.1%**	**16.1%**
2024 Observed Impacts						
PG&E	2024	166	13,735	82.7	13.1%	15.0%
SCE	2024	76	16,015	210.7	12.7%	16.6%
SDG&E	2024	33	5,287	160.2	13.0%	16.2%
Total	**2024**	**275**	**35,036**	**127.4**	**12.9%**	**15.9%**
2025 Observed Impacts						
PG&E	2025	238	30,288	127.3	13.6%	14.7%
SCE	2025	94	19,882	211.5	13.7%	16.5%
SDG&E	2025	46	8,411	182.9	14.6%	16.1%
Total	**2025**	**378**	**58,581**	**155.0**	**13.8%**	**15.5%**
Forecasted Impacts						
PG&E	2025	238	34,628	145	13.9%	14.6%
SCE	2025	94	21,357	227	14.2%	16.5%
SDG&E	2025	46	8,094	176	13.5%	16.1%
Total	**2025**	**378**	**64,078**	**170**	**13.9%**	**15.5%**

PV Realization Rate

We calculated two versions of realization rates to quantify PV system performance. The forecasted realization rate is the ratio between annual forecasted generation and the annual estimated generation reported in PowerClerk. The observed realization rate is the ratio between the observed annual PV generation from projects with a full year of generation for each calendar year, and their annual estimated generation reported in PowerClerk. The forecasted realization rate represents the ratio between the simulated generation (based on typical weather) adjusted by the 2025 monthly, customer (or utility specific, as needed) PV ratio to represent observed patterns, and the annual estimated generation reported in PowerClerk.

Table 7-2 below shows the annual observed realization rates compared to the forecasted realization rates, by IOU. Over the last three years of this evaluation cycle, we've observed SOMAH system realization rates to increase year over year. That indicates that the program is making progress to improve PV system

performance and therefore participant benefits.[75] The forecasted realization rate is closely aligned with the performance that has been observed in 2025. While the realization rate is improving, SOMAH is still underperforming relative to expectations. As a comparison point, realization rates from the 2022-2024 Disadvantaged Communities Single-family Solar Homes (DAC-SASH) program evaluation were between 103%-115% when compared with EPBB calculator.

TABLE 7-2: ANNUAL OBSERVED AND FORECASTED REALIZATION RATES BY UTILITY

Utility	2023		2024		2025		Forecasted	
	# Projects	Realization Rate	# Projects	Realization Rate	# Projects	Realization Rate	# Projects	Realization Rate
PG&E	38	79%	51	87%	173	92%	238	95%
SCE	47	73%	56	76%	79	83%	94	86%
SDG&E	20	82%	24	83%	34	89%	46	84%
Total	**105**	**76%**	**131**	**80%**	**286**	**88%**	**378**	**90%**

* As noted above, Forecasted Realization Rates reflect the simulated performance based on TMY weather and adjusted based on actual observed performance reflected in the meter data, in this case, for 2025. Under typical weather conditions, based on what we've seen so far, we would expect the overall program to achieve a 90% realization rate in the future years.

System performance often degrades over time, with older systems seeing lower performance than newer systems. This is partly due to aging and degradation of the PV modules and inverters, but also includes parts breaking and not being fixed, resulting in lower system availability. Many academic papers have well documented the former, but the latter is much less understood due to nonlinear effects on system availability and may be impacted by solar company bankruptcies that make obtaining service challenging for system owners. There may also be a behavioral aspect to it, where the novelty of the system wears off, and system owners being less engaged with its performance. Figure 7-1 highlights the observed performance, or the realization rates, of the systems based on their age. The newest systems saw realization rates over 90%, but these dropped to the mid-80% range as they got older. The oldest systems in the program are currently 5 years old. While there are only 5 systems, two of the three are performing very poorly, driving the average performance for these older systems down. This result highlights the importance of continued monitoring and consistent maintenance of PV systems as they age. The underperformance of older systems may be able to be largely corrected by increasing the frequency of routine system check ins for systems over four years old.

[75] It is important to note that these realization rates are estimated relative to the annual production estimates from the EPBB calculator (based on PVWATTS v2) which is expected to underestimate performance by ~10% relative to more current generation estimation methods. Indeed, in 2025 completed SOMAH projects generated ~80% of the generation forecasted with the PVLIB method (which aligns closely with the current PVWATTS v8).

FIGURE 7-1: REALIZATION RATES BY AGE OF SYSTEM

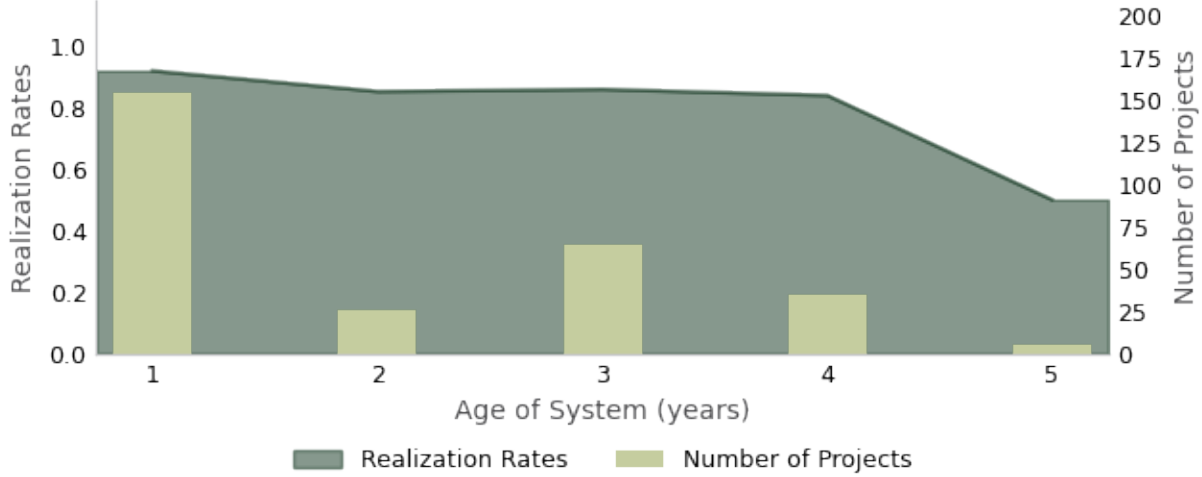


Table 7-3 below highlights the realization rates by ownership type. For SCE and SDG&E, ownership type had little bearing on overall results, though notable variation exists within each category. Among PG&E Host Customer Owned projects, performance was notably lower: 20% had realization rates below 75% and another 35% fell between 80–90%, dragging down the group average. PG&E's Third Party Owned projects, by contrast, skewed high — 28% exceeded a 1.0 realization rate.

SCE showed wide dispersion across both ownership types. Third Party Owned projects ranged from 32% to 110%, while Host Customer Owned systems generally ranged at 73–114%, though a single outlier at 15% skewed the group average downward. SDG&E's Host Customer Owned portfolio was the most consistent of any group, with all but one project exceeding 90%. Its Third Party Owned projects were more variable, ranging from 52% to 106%.

TABLE 7-3: AVERAGE FORECASTED PV GENERATION REALIZATION RATE BY SYSTEM OWNERSHIP TYPE

Utility	Host Customer Owned		Third Party Owned	
	# Projects	Realization Rate	# Projects	Realization Rate
PG&E	20	81%	153	93%
SCE	14	82%	65	84%
SDG&E	8	92%	26	88%
Total	**42**	**83%**	**244**	**89%**

Table 7-4 below shows the percentage of completed projects by grouping of their realization rate. Almost half of the Host Customer Owned projects saw realization rates between 90%-100%, while a third of Third Party Owned projects were in the same bucket, and another third saw realization rates between 80-90%.

TABLE 7-4: COMPLETED PROJECTS RANGE OF FORECASTED PV PRODUCTION REALIZATION RATES BY OWNERSHIP TYPE

Completed Project's RR	% of Projects within Realization Rate (RR) Range		
	Host Customer Owned	Third Party Owned	SOMAH Total
RR less than 0.70	12%	9%	9%
RR from 0.70 to 0.79	10%	5%	6%
RR from 0.80 to 0.89	24%	34%	33%
RR of 0.90 to 1.0	48%	32%	34%
RR greater than 1.0	7%	20%	19%
Total # Completed Projects	**42**	**244**	**286**

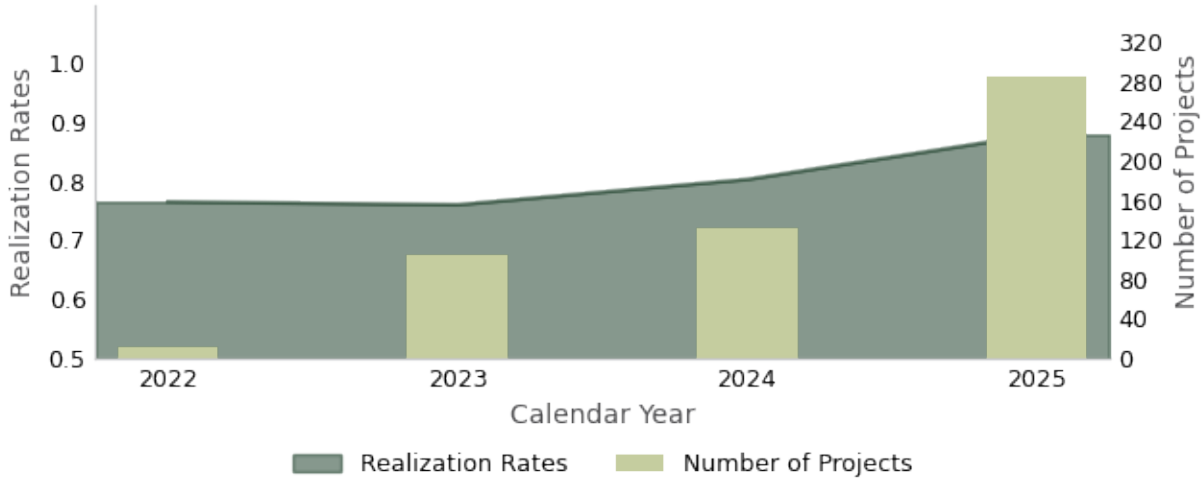
* The sum of percentages may not add up to 100% due to rounding.

The SOMAH handbook states that ". . . third-party owned systems must include performance guarantees ensuring the systems will produce a minimum of 90% of the expected annual production as calculated by the EPBB calculator. . . Should a system's annual production fall below 90% of the expected annual production after a 0.5% annual degradation factor has been applied, the third-party owner must be required to compensate the Host Customer for the lost production [. . .]."[76] The forecasted PV production realization rates shown above indicate that 48% of third-party owned SOMAH completed projects operated below the third-party performance guarantee thresholds.

At the end of the prior reporting period, the SOMAH PA was in the process of setting up a system to monitor SOMAH PV performance on a monthly basis. This SOMAH PA's monitoring software has been configured to flag systems that are underperforming by 30% or more. When a system is flagged, the SOMAH PA alerts the property owner and contractor to identify potential issues. Figure 7-2 shows the program realization rates each year, over the past four years of the evaluation. Since this monitoring was put in place during 2023, the realization rates, on average, trend upwards. More about these findings can be found in the text box below.

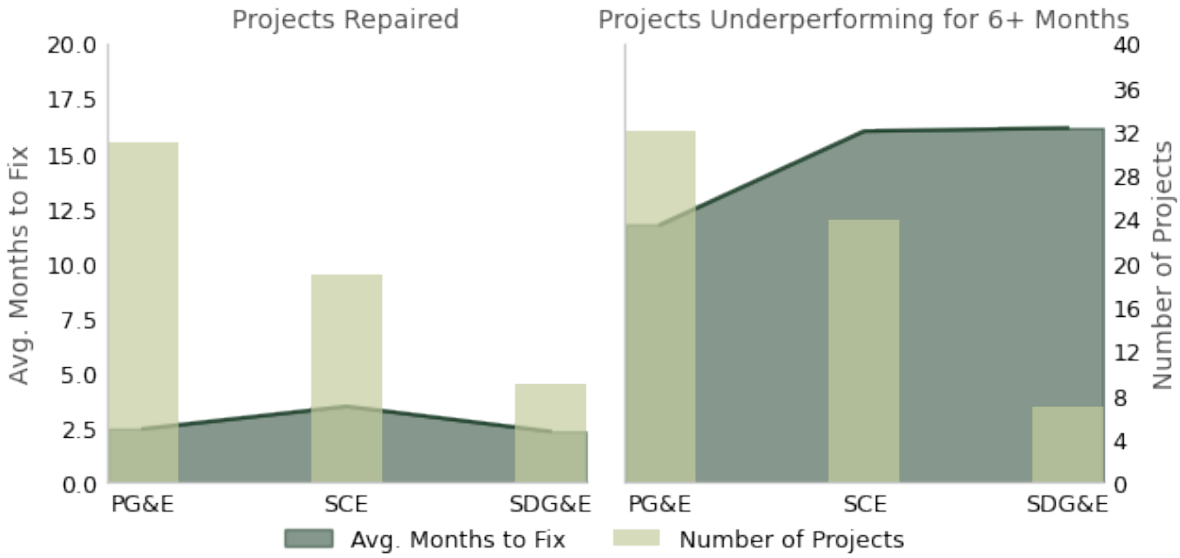
[76] From Section 2.3.6.2 Operations, Maintenance and Performance Guarantees for Third-Party Owned Systems of the SOMAH Handbook.

FIGURE 7-2: PV GENERATION REALIZATION RATES BY YEAR



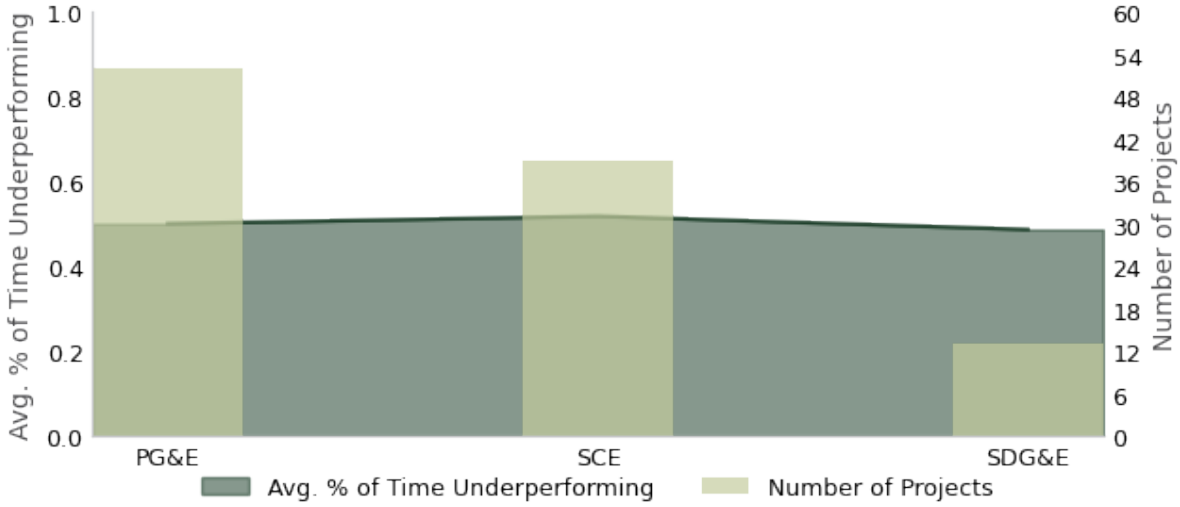
While realization rates have been increasing over the last few years, the SOMAH fleet monitoring system highlights some interesting trends in projects. Approximately half of the projects flagged as underperforming were repaired relatively quickly – within 2-3 months on average. However, there are almost just as many projects where issues were not resolved quickly. The other half of projects were underperforming, on average, for 12-16 months. Figure 7-3 highlights these results.

FIGURE 7-3: LENGTH OF TIME BEFORE REPAIR FOR UNDERPERFORMING PROJECTS



There were also a number of projects that were repaired, but after a few months were found to be underperforming again. Over 50 PG&E projects, 39 SCE projects, and 13 SDG&E projects found their way back onto the "underperforming" list after already being fixed once, as shown in Figure 7-4. These projects were found to be underperforming approximately 50% of their time, on average.

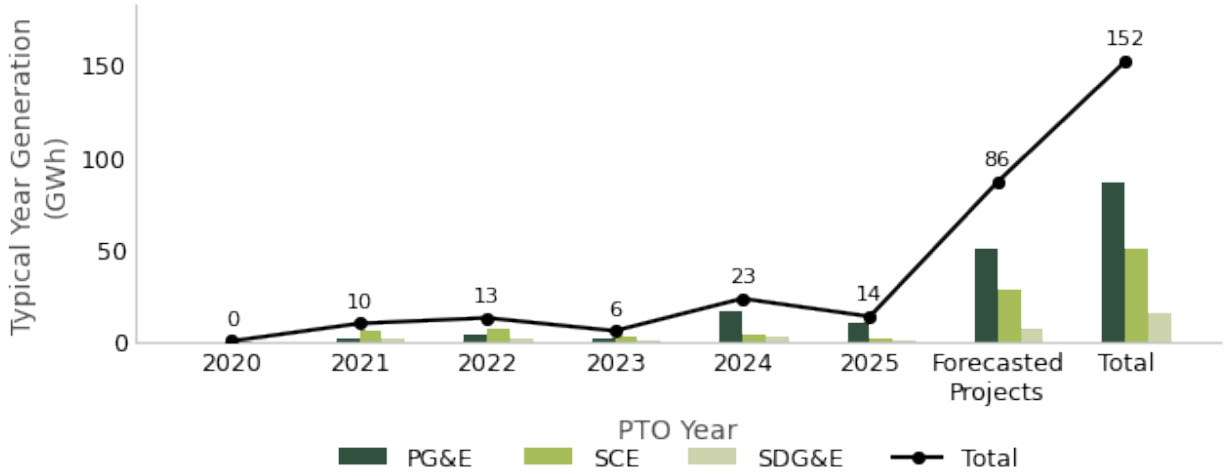
FIGURE 7-4: PERCENT OF TIME PROJECTS WITH REOCCURING ISSUES ARE FOUND TO BE UNDERPERFORMING



Future Program Trends

Figure 7-5 below displays the forecasted energy production by PTO year for the projects in the program, along with the forecasted energy production for the non-completed "active" projects in the program. Figure 4-2 in Section 4.1 shows the number of projects within each "stage" of completion. If all of these projects are to be paid, we would expect the total program to generate 152 GWh of electricity annually, with PG&E projects generating 86 GWh, SCE projects generating 50 GWh, and SDG&E projects generating 15 GWh.

FIGURE 7-5: FORECASTED PROGRAM ENERGY GENERATION



7.2 CUSTOMER ELECTRICITY CONSUMPTION

The evaluation team analyzed whether SOMAH beneficiaries changed their energy consumption following the installation of solar. If customers were previously energy service constrained due to financial limitations, SOMAH enrollment can allow tenants to increase their energy usage while paying a similar amount (or less) month-to-month. Weather normalized average monthly tenant consumption estimates, and estimated consumption impact are presented in Table 7-5 below. Results are presented by cohorts determined by their year of installation to adjust for rate changes as well as any additional temporal differences in the pre/post period for a particular install date. The weather normalized consumption estimates indicate an increase in usage in PG&E and SCE, and a decrease in SDG&E.

TABLE 7-5: WEATHER NORMALIZED ESTIMATED AVERAGE MONTHLY CONSUMPTION AND IMPACT PER TENANT

	PG&E			SCE			SDG&E		
Model Cohort	Est. Monthly kWh Pre-Solar	Est. Monthly kWh Impact	Pct Impact	Est. Monthly kWh Pre-Solar	Est. Monthly kWh Impact	Pct Impact	Est. Monthly kWh Pre-Solar	Est. Monthly kWh Impact	Pct Impact
2022 Install	329	6.5*	2.0%	293	16.8*	5.7%	220	-23.7*	-10.8%
2023 Install	227	5.6*	2.5%	313	8	2.5%	211	-7.2*	-3.4%
2024 Install	289	10.8	3.8%	172	6.7*	3.9%	268	2.4	0.9%

Note: Significance at the $p < .05$ level indicated by *

We directly estimated the difference in monthly consumption based on the weather normalized consumption data using a panel model. The weather normalized monthly tenant consumption in PG&E increased in the post period by 2 - 3.8% across cohorts, representing a modest increase. In SCE, estimated increases across cohort range from 2.5 - 5.7%. The results for SDG&E represent a decrease in consumption relative to pre-install. The timing of SDG&E rate changes potentially explain changes in customer consumption patterns. The rate indices displayed in Table 7-5 show SDG&E rates increased rapidly between 2021 and 2023, before a slight reduction. Customers grouped in the cohorts with 2022 and 2023 solar installs and credit dates are exposed to these higher rates in their post period and potentially changed consumption habits accordingly.

7.3 DEMAND IMPACTS

Coincident peak demand impact estimates are defined as observed generation from SOMAH PV systems during the highest hours of CAISO or IOU peak demand. The single largest annual CAISO or IOU peak hour impact provides a snapshot of program performance during the most critical grid hour. However, analyzing program performance over the top 100 hours of peak demand provides greater insight into how SOMAH projects impact the grid during peak conditions. Electricity generated by SOMAH PV systems during peak hours provides utility avoided cost benefits and reduces grid needs during the most critical hours. In this section, we present the 2023-2025 observed SOMAH PV generation during CAISO and IOU annual peak load hours as well as their top 100 load hours. Table 7-6 presents the timing and magnitude of CAISO and IOU peak events during 2023, 2024, and 2025. Gross loads are those that include customer demand and utility-scale renewable generation. Net loads do not include renewable generation, and

these may provide a more comprehensive picture of how SOMAH systems are contributing to the loads that utilities must meet using non-renewable sources.[77]

TABLE 7-6: CAISO AND IOU PEAK HOURS AND DEMANDS (MW)

Demand Type	Service Area	Peak Demand (MW)	Date	Hour Beginning (Local Time)
2023				
Net	CAISO	41,059	08-15-2023	5:00 PM
Gross	CAISO	44,092	08-16-2023	3:00 PM
	PG&E	19,881	08-05-2023	4:00 PM
	SCE	22,124	07-26-2023	2:00 PM
	SDG&E	4,016	08-02-2023	4:00 PM
2024				
Net	CAISO	43,275	09-05-2024	4:00 PM
Gross	CAISO	47,759	09-05-2024	3:00 PM
	PG&E	21,159	07-11-2024	4:00 PM
	SCE	25,394	09-06-2024	2:00 PM
	SDG&E	4,861	09-08-2024	3:00 PM
2025				
Net	CAISO	40,128	08-21-2025	5:00 PM
Gross	CAISO	43,921	08-21-2025	4:00 PM
	PG&E	18,875	08-21-2025	4:00 PM
	SCE	21,966	08-22-2025	2:00 PM
	SDG&E	4,022	09-02-2025	4:00 PM

CAISO Gross and Net Peak Hour Impacts

Table 7-7 shows the observed SOMAH PV project generation from completed projects during the gross and net peak CAISO hours. During 2023, SOMAH projects contributed 3 MW of capacity during the CAISO gross peak hour and 78 kW during the net peak hour. During 2024 and 2025, PG&E projects contribute the largest proportion of the gross CAISO peak hour generation, followed by SCE, then SDG&E. The CAISO net peak hour generation follows a similar trend.

77 Net load values are only available for the CAISO as a whole.

TABLE 7-7: OBSERVED GROSS AND NET CAISO PEAK HOUR GENERATION BY UTILITY

Utility	Gross			Net		
	Peak Hour Generation (kW)	Percent of Total Peak Hour Generation	Peak Hour Capacity Factor	Peak Hour Generation (kW)	Percent of Total Peak Hour Generation	Peak Hour Capacity Factor
2023 Observed						
PG&E	935	29.0%	16.8%	78	46.5%	1.4%
SCE	1,693	52.6%	15.4%	77	45.9%	0.7%
SDG&E	591	18.4%	18.2%	13	7.6%	0.4%
Total	**3,218**	**100.0%**	**16.3%**	**168**	**100.0%**	**0.8%**
2024 Observed						
PG&E	2,519	53.3%	17.6%	862	66.4%	6.0%
SCE	1,636	34.6%	10.9%	328	25.3%	2.2%
SDG&E	570	12.1%	11.6%	108	8.3%	2.2%
Total	**4,726**	**100.0%**	**13.8%**	**1,298**	**100.0%**	**3.8%**
2025 Observed						
PG&E	2,110	58.9%	8.5%	331	67.3%	1.3%
SCE	1,128	31.5%	6.8%	141	28.8%	0.8%
SDG&E	348	9.7%	5.6%	19	3.9%	0.3%
Total	**3,586**	**100.0%**	**7.5%**	**491**	**100.0%**	**1.0%**

IOU Gross Peak Hour Impacts

Observed peak hour impacts coincident with IOU annual gross peak hours for 2023-2025 are shown in Table 7-8. The 2025 PG&E peak hour occurred on August 21st between 4-5 PM. During this hour, PG&E SOMAH projects produced 2,110 kW with a peak hour capacity factor of 8.5%. SCE's peak hour was on August 22nd between 2 and 3 PM, where coincident generation was observed to be 3,749 kW with a peak hour capacity factor of 23%. SDG&E projects generated 201 kW with a peak hour capacity factor of 3% during the peak hour between 4 and 5 PM on September 2nd.[78] The peak hour capacity factors vary widely across IOUs, as PV system utilization is highly dependent on the sun's position which varies by time of day and time of year.

[78] The defined peak hours are all in local time.

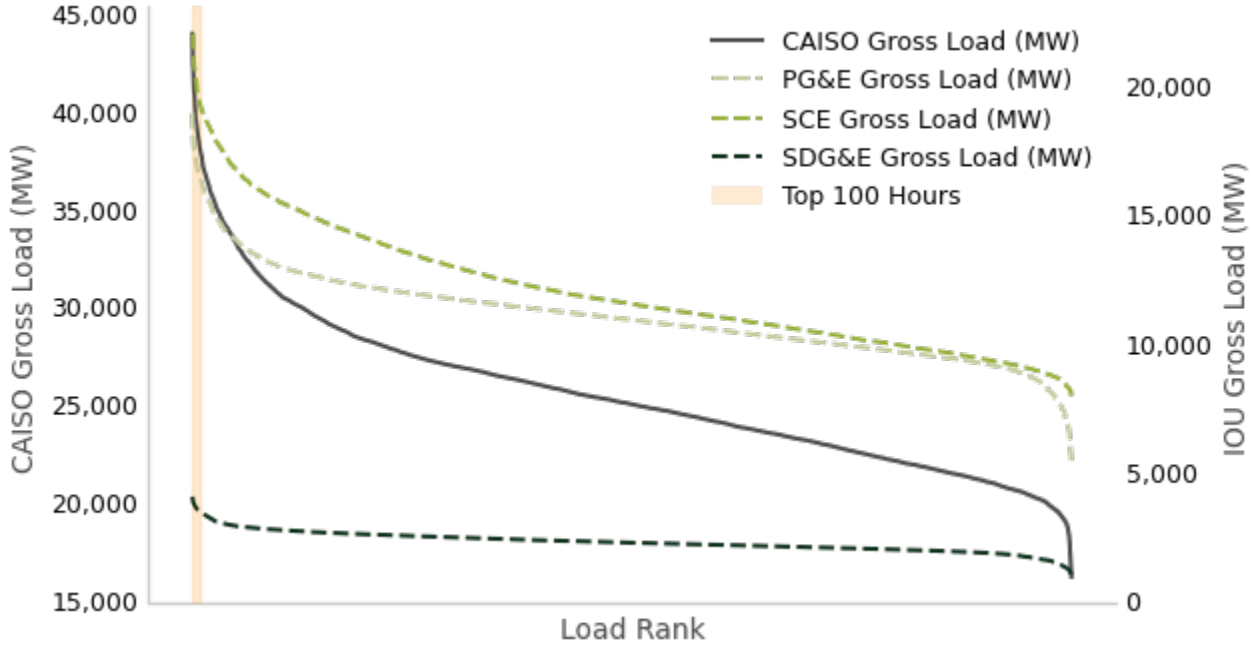
TABLE 7-8: 2023-2025 IOU OBSERVED PEAK HOUR GENERATION

Utility	2023		2024		2025	
	Observed Peak Hour Generation (kW)	Observed Peak Hour Capacity Factor	Observed Peak Hour Generation (kW)	Observed Peak Hour Capacity Factor	Observed Peak Hour Generation (kW)	Observed Peak Hour Capacity Factor
PG&E	448	8.0%	1,524	14.0%	2,110	8.5%
SCE	3,380	30.8%	3,249	21.6%	3,749	22.5%
SDG&E	145	4.5%	582	11.8%	201	3.3%

Top 100 Peak Hours

The CAISO and IOU annual peak hour coincident generation is a snapshot of beneficial program impacts. Analyzing the top 100 peak hours results in a more robust measure of impacts during CAISO and IOU peak grid loads. Representing just 1.1% of all the hours in a year, the top 100 peak hours capture the steepest part of load distribution curves. Figure 7-6 shows the 2025 CAISO and IOU load duration curves and indicates the 100-hour mark as the solid orange bar on the left side.

FIGURE 7-6: 2025 CAISO AND IOU LOAD DURATION CURVES



* Axes are scaled on the left for CAISO and on the right for the IOUs

The distribution of the top 100 hours over the course of a year differs across CAISO and the three IOUS. While generally late summer weekday afternoon occurrences, a top 100 hour can occur on weekends and into October. Figure 7-7 and Figure 7-8 display the distribution of the top 100 peak hours by month and weekday types in 2023, 2024, and 2025.

FIGURE 7-7: TOP 100 PEAK HOUR DISTRIBUTIONS BY MONTH

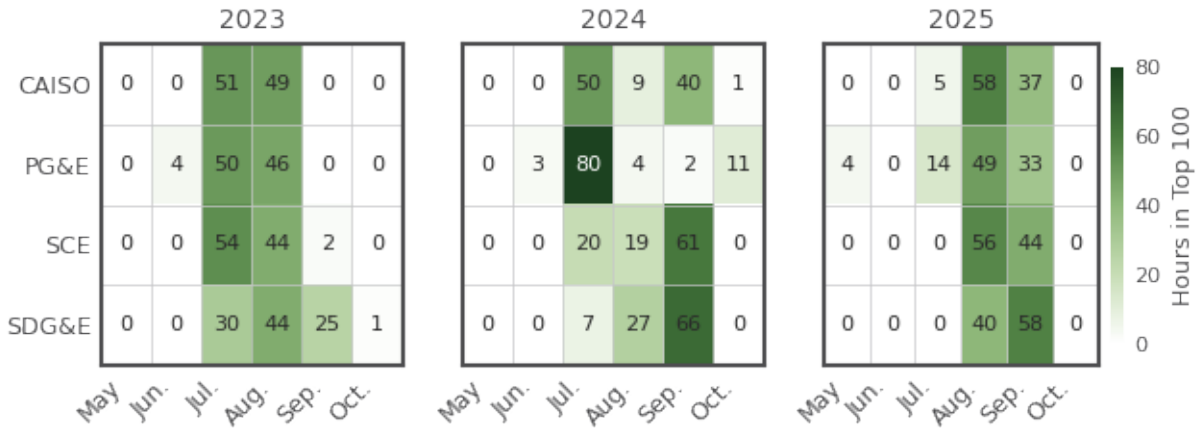
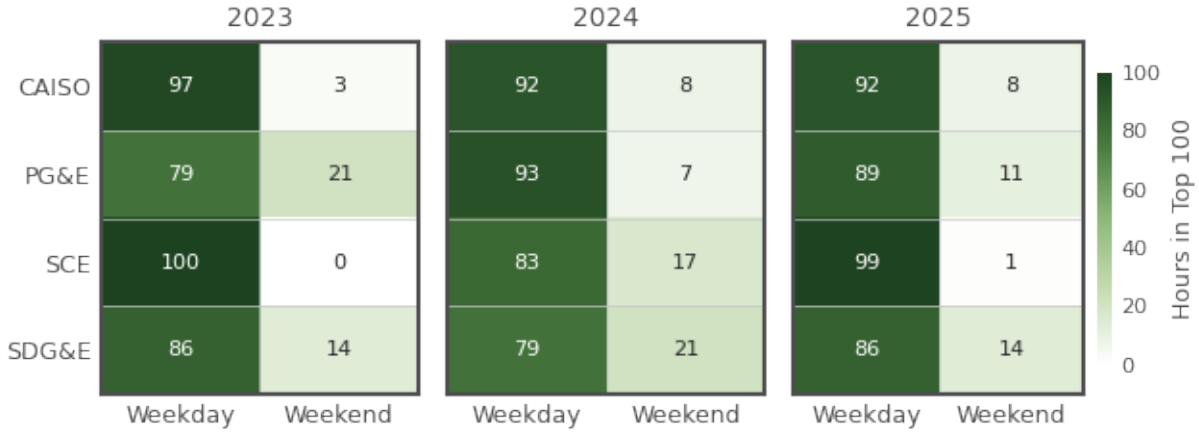


FIGURE 7-8: TOP 100 PEAK HOUR DISTRIBUTIONS BY WEEKDAY/WEEKEND



During 2023, the top 100 peak hours occurred mostly in July and August, with a significant number of SDG&E's top hours occurring in September. For 2024, the hours seemed split – there were some significant hours, especially in PG&E, during July, but SCE and SDG&E saw most of their top hours during September. The 2025 top 100 hours were mostly split between August and September. While most top hours across 2023 through 2025 occurred during weekdays, although during 2023, PG&E saw 21% of their top hours during weekend days and in 2024, SDG&E saw 21% of its top hours during weekend days.

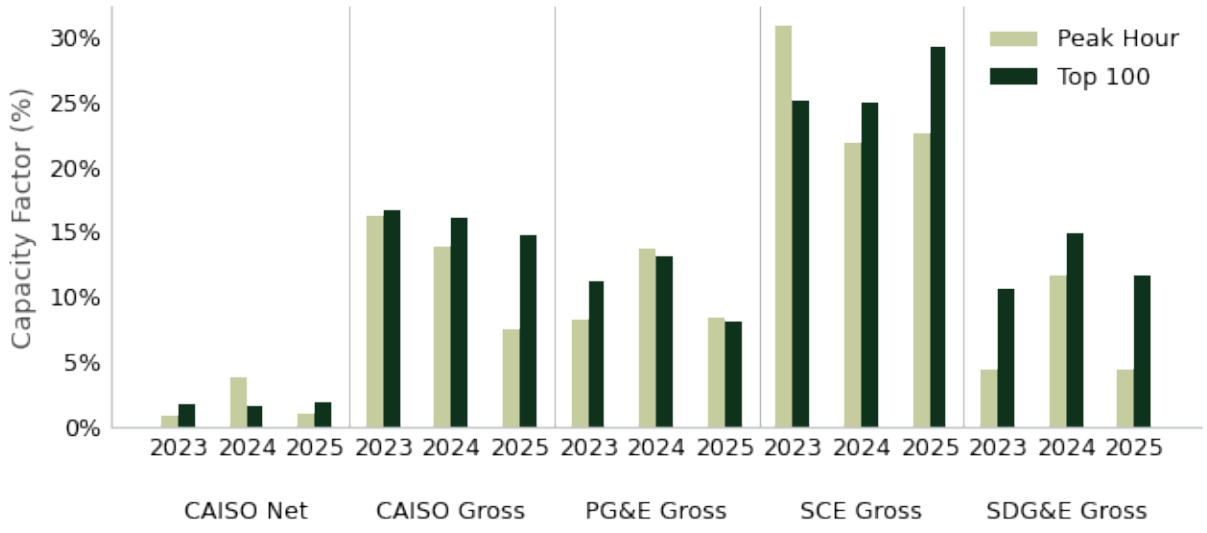
Table 7-9 presents total program observed generation coincident with the three IOU and CAISO gross and net peak hours. Whether the peak hour generation is close to the top 100 average is dependent on how the peak and top hours are distributed in relation to the peak solar output. In some cases, top hour generation was much higher than average top 100 hour generation.

TABLE 7-9: COINCIDENT PEAK AND AVERAGE TOP 100 HOUR COINCIDENT PV GENERATION

Demand Type	Utility	2023		2024		2025	
		Observed PV Generation (kW) Coincident with Peak Hour	Average Observed PV Generation (kW) Coincident with Top 200 Hours	Observed PV Generation (kW) Coincident with Peak Hour	Average Observed PV Generation (kW) Coincident with Top 200 Hours	Observed PV Generation (kW) Coincident with Peak Hour	Average Observed PV Generation (kW) Coincident with Top 200 Hours
Net	CAISO	168	331	1,298	505	491	904
Gross	PG&E	448	610	1,524	1,523	2,110	2,016
	SCE	3,380	2,760	3,249	3,657	3,749	4,870
	SDG&E	145	342	582	724	201	653
	CAISO	168	331	1,298	505	491	904

Higher PV production coincident with CAISO and IOU peak hours yields higher benefits to the grid than during other hours. Figure 7-9 shows the capacity factors during the annual CAISO and IOU peak hour and top 100 hours. SCE consistently saw the highest observed peak and top 100-hour capacity factors.

FIGURE 7-9: 2023-2025 CAISO AND IOU PEAK AND TOP 100 HOUR CAPACITY FACTORS



7.4 ENVIRONMENTAL IMPACTS

This section discusses the observed and forecasted GHG impacts of SOMAH PV systems. Observed impacts are based on the performance of completed projects in 2023 through 2025. Forecasted impacts estimate the annual impacts for both completed and active SOMAH projects.

Emission impacts are calculated as avoided power plant emissions that would have occurred in the absence of the program. This evaluation relies on avoided grid emissions rates developed by WattTime as part of the SGIP GHG Signal efforts. The forecasted environmental impacts presented here also include an estimate of the monetary value of emissions reductions based on the avoided cost calculator.

The evaluation team also estimated the lifetime GHG emissions reductions attributable to proceeds per California Air Resources Board reporting requirements using a 0.5% degradation rate. This analysis can be found in Appendix E.

Observed Environmental Impacts

Emissions Reductions

Table 7-10 below highlights the observed GHG reductions for 2023 through 2025. The table below presents observed GHG reductions only for the time the systems were completed. During 2023, projects in SCE's service territory represented 46% of the total observed GHG impacts for the program, followed by PG&E projects at 37% and SDG&E projects at 17%. By 2025, PG&E projects represented 62% of the GHG impacts, followed by SCE at 26% and SDG&E at 13%.

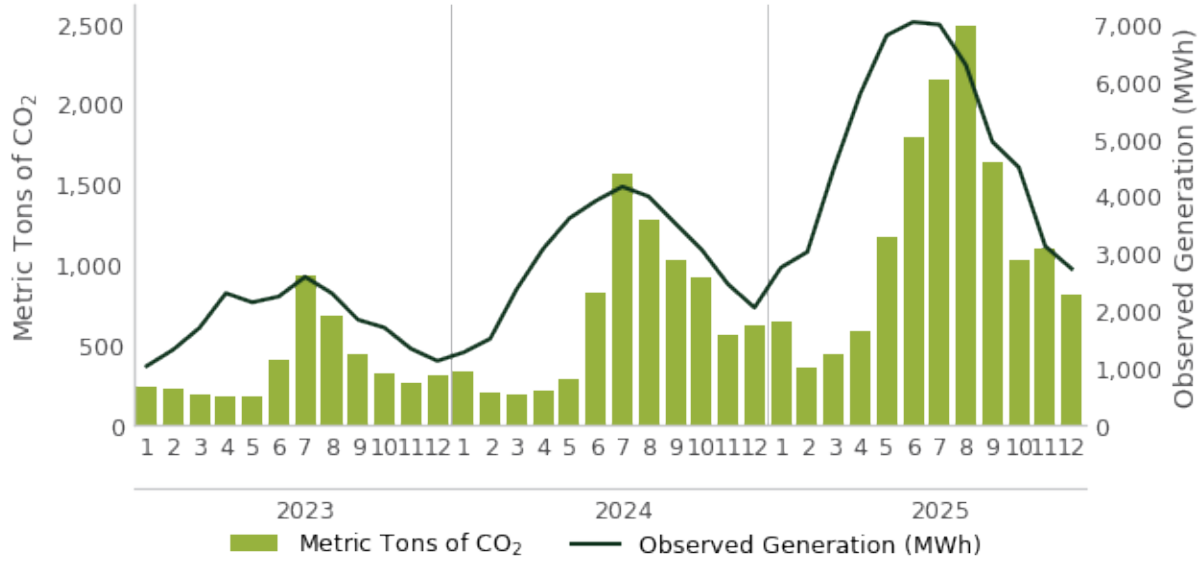
TABLE 7-10: OBSERVED GREENHOUSE GAS IMPACTS BY UTILITY

Utility	2023		2024		2025	
	Observed GHG Impact [Metric Tons of CO2]	Observed % of Total	Observed GHG Impact [Metric Tons of CO2]	Observed % of Total	Observed GHG Impact [Metric Tons of CO2]	Observed % of Total
PG&E	1,615	37%	3,935	49%	8,760	62%
SCE	2,014	46%	3,037	38%	3,671	26%
SDG&E	738	17%	1,083	13%	1,788	13%
Total	**4,367**	**100%**	**8,054**	**100%**	**14,219**	**100%**

Figure 7-10 shows the observed GHG impacts by month, along with the observed total PV system generation from SOMAH projects. While the magnitude of GHG impacts is not directly aligned with the PV system generation, they generally follow similar trends. However, more GHG savings result from specific months due to the source-mix of the avoided electricity that would have been provided by the electric utility. During 2023 and 2024, July had the highest monthly electricity production from SOMAH

systems and the systems provided the highest GHG impacts. However, during 2025, the peak generation occurred in June, while the peak GHG impacts occurred in August.

FIGURE 7-10: OBSERVED GREENHOUSE GAS IMPACTS AND SOMAH PROJECT GENERATION BY MONTH

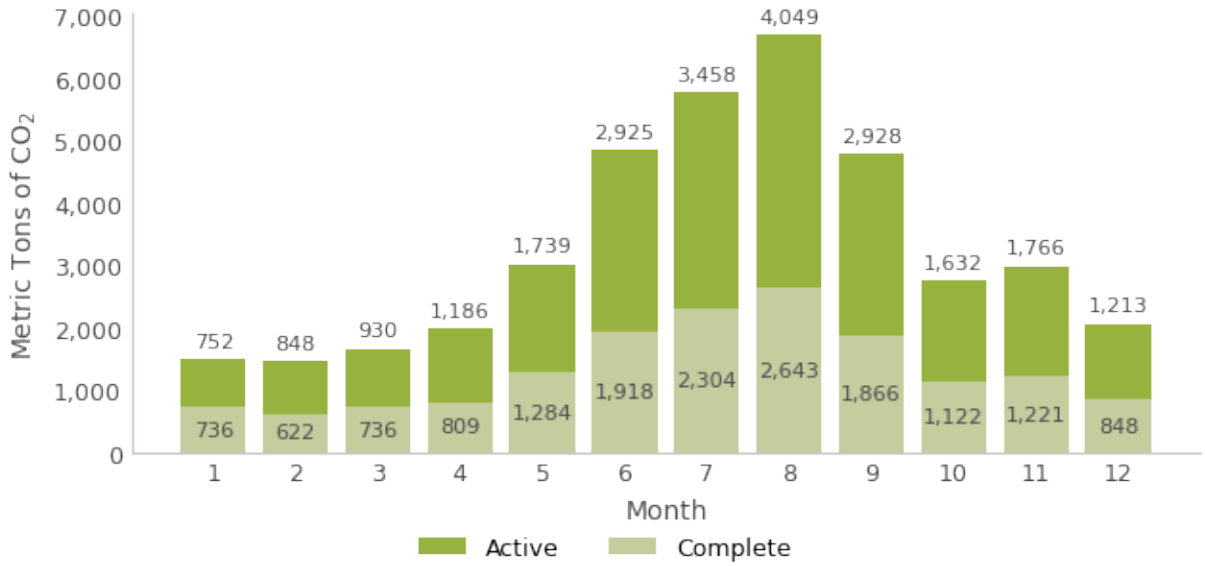


Forecasted Environmental Impacts

Emissions Reductions

Figure 7-11 presents the forecasted GHG impacts for both completed and active SOMAH projects. In a typical year, if all 812 active SOMAH projects were installed, the program has the potential to produce reductions between 1,400 and 6,600 Metric Tons of CO_2 per month, or almost 40,000 Metric Tons of CO_2 annually. Completed SOMAH projects are forecasted to reduce GHG emissions by 16,000 Metric Tons of CO_2 per year.

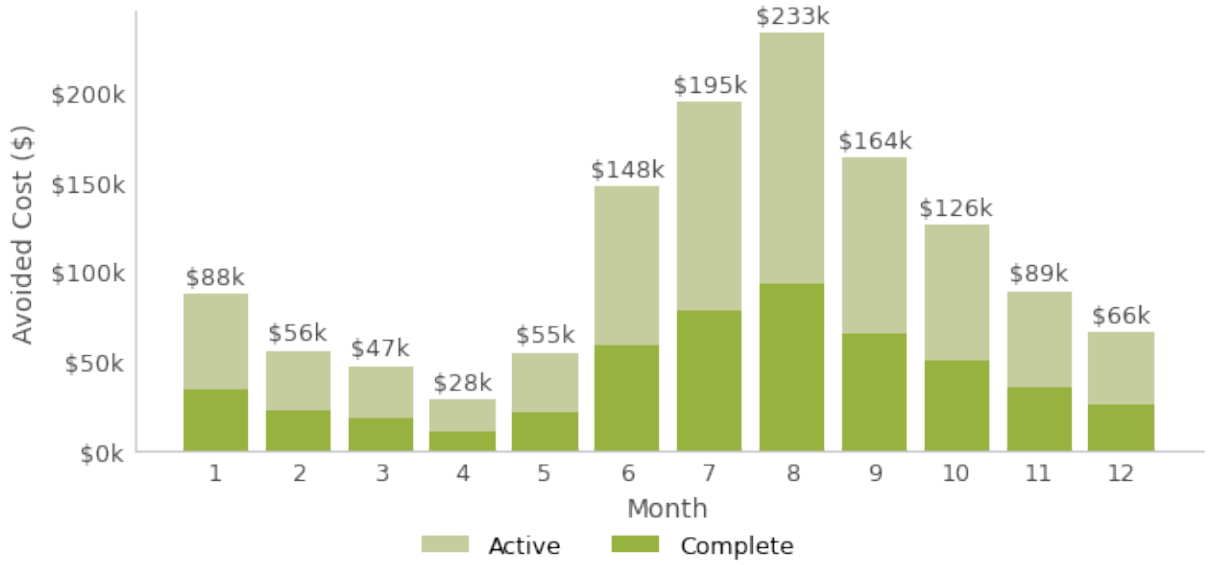
FIGURE 7-11: FORECASTED GREENHOUSE GAS IMPACTS FOR COMPLETED AND ACTIVE SOMAH PROJECTS BY MONTH



Monetary Value of Emissions Reductions

The monetary value of the change in emissions was also calculated by applying the value of GHGs from the 2024 California Avoided Cost Calculator (ACC) to forecasted hourly PV generation. The total value of GHG emissions reductions was based on four ACC factors, the cost of the GHG adder, the cost of the added cap and trade, the cost of the GHG rebalancing, and the cost of methane. Figure 7-12 highlights the forecasted monthly monetary value based on completed and active SOMAH projects. In a typical year, if all active SOMAH projects were installed, the program has the potential for emissions reductions, assessed at avoided costs, to be valued at $233,000 during the peak of the summer, and almost $1,300,000 annually. The forecasted value of emissions savings from currently completed SOMAH projects is $514,000 per year.

FIGURE 7-12: FORECASTED AVOIDED COSTS FOR COMPLETED AND ACTIVE PROJECTS



7.5 ECONOMIC IMPACTS

Two approaches were used to estimate the program's bill impacts. The first method compared actual year-over-year (YoY) pre- and post-installation utility bills. The second method directly estimated the bill credits received in July 2024-June 2025 from SOMAH PV generation. We also estimated the CARE budget impact from SOMAH systems in July 2024-June 2025.

It's important to note when comparing the two measures of bill impacts that the YoY analysis does not separate out bill effects due to weather differences or changes in customer consumption. However, the simulated bill impacts solely represent the change to a customer's bill due to the inclusion or exclusion of PV generation (i.e., customer's consumption is held constant in the pre- and post-installation scenarios). Additionally, the YoY analysis accounts for rate increases over time whereas the simulated bill impacts estimate a counterfactual bill using the same exact rate. Therefore, one cannot directly compare results from the two methods. The YoY analysis tells the story of bill changes that customers experienced over time, through participation in the SOMAH program. The simulated bill impacts are exclusively a counterfactual estimate of bill credits received by customers in July 2024-June 2025 due to SOMAH system PV generation.

7.5.1 Year-over-Year Utility Bill Impacts

The year-over-year bill impact analysis is presented in this section. The YoY billing analysis was performed with both adjusted and unadjusted dollar amounts. The adjusted bills were determined based on observed rate increases from 2021 through 2025; customer's bill amounts were converted to 2021 base-year values using the utility rate index.

The YoY tenant and common area bill impact results are presented in Table 7-11 below. The estimated adjusted annual bill reductions tenants experienced ranged from $58 to $511 per year. For each utility, the tenant impacts are similar between the 2022 and 2023 install cohorts. The 2024 install cohort exhibited a decrease in annual bill savings estimates for PG&E and SCE. Projects within the 2024 install cohort were smaller on average and the average share of tenant allocated generation was also lower which may be contributing factors to the smaller annual bill savings results, but underlying participant behavior differences may also play a role.

For common areas, there were fewer accounts and larger variation in the usage patterns, and therefore bills. Common area bill savings ranged from $361 – $2,227. In all cohorts, except for SDG&E in 2024, the common area annual savings were larger than the average annual tenant bill savings on a per account basis.

All results were adjusted to 2022 rates using the utility rate index. PG&E and SCE rates gradually increased during the study period, while SDG&E rates peaked in 2023 before declining to a level still above 2021 rates. As a result, some customers may have experienced actual bill increases where rate hikes outweighed the benefits of SOMAH credits. Conversely, some SDG&E customers may have seen actual bill reductions greater than what is presented here due to subsequent rate decreases.

TABLE 7-11: SOMAH TENANT AND COMMON AREA ANNUAL BILL IMPACTS (IN 2025 RATES)

	PG&E		SCE		SDG&E	
Model Cohort	Tenant Annual Bill Impact	Common Area Annual Bill Impact	Tenant Annual Bill Impact	Common Area Annual Bill Impact	Tenant Annual Bill Impact	Common Area Annual Bill Impact
2022 Install	-$229*	-$2,062*	-$440*	-$1,449*	-$311*	-$1,114*
2023 Install	-$234*	-$551	-$452*	-$3,399*	-$273*	-$2,619*
2024 Install	-$89*	-$2,574	-$151*	-$780	-$780*	-$557*

Note: Results rounded to nearest dollar; *Indicates significance at $p < 0.05$

7.5.2 Bill Credit Estimation

Bill credits were estimated for common area and tenant beneficiaries that had completed projects prior to July 1, 2024. This allowed for analysis of data from a full year of post-installation, covering the period

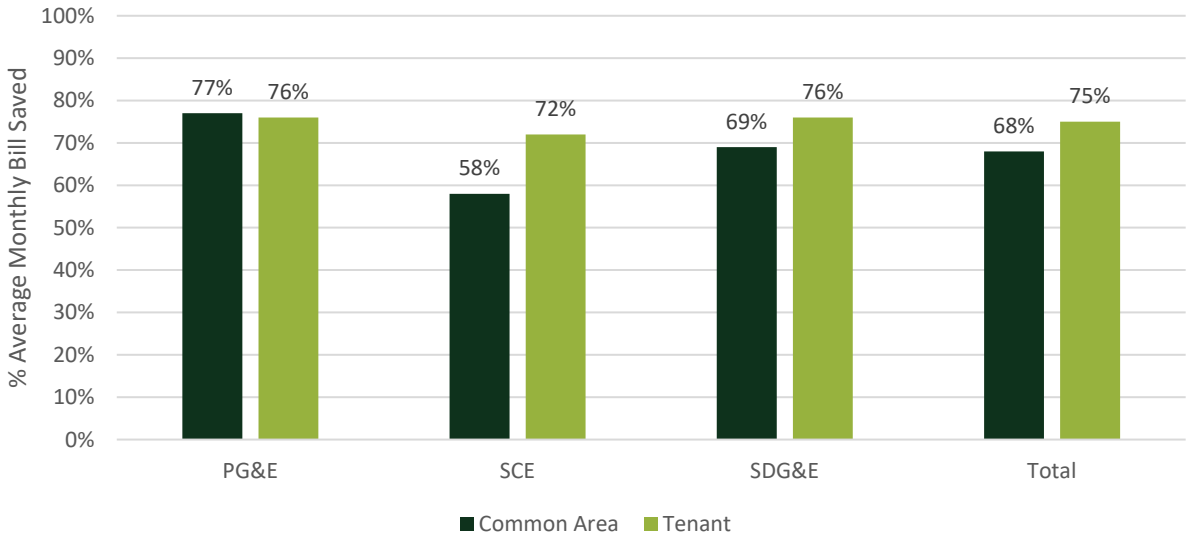
July 1, 2024, through June 30, 2025 (2024-2025). Only those with a full year of usage were included in the analysis. Table 7-12 shows the average common area and average per-tenant VNEM allocations for the beneficiaries included in this analysis. The average VNEM allocation for common areas in this analysis ranged from 28.2 kW_{DC} in PG&E to 52.8 kW_{DC} in SCE. The average VNEM allocations on a per tenant basis in this analysis ranged from 1.2 kW_{DC} in SDG&E to 1.6 kW_{DC} in SCE. While the allocated capacity adds context to the bill credit results, it is important to keep in mind that realization rates for these projects were not at 100% (as reported in Section 7.1); this reflects variances in the ultimate PV generation credited to common areas and tenants.

TABLE 7-12: AVERAGE TENANT AND COMMON AREA VNEM ALLOCATION FOR BENEFICIARIES IN BILL CREDIT ESTIMATION ANALYSIS

Utility	Average Common Area VNEM Allocation		Average Per Tenant VNEM Allocation	
	Percentage of Capacity	Allocated Capacity (kW_{DC})	Percentage of Capacity	Allocated Capacity (kW_{DC})
PG&E	22.4%	28.2	1.1%	1.4
SCE	27.7%	52.8	0.9%	1.6
SDG&E	26.1%	37.2	0.7%	1.2

Bill credit estimation results for 2024-2025 are presented in Figure 7-13 as the proportion of average monthly bill saved. Common area impacts ranged from an average of 58% to 77% of average monthly bill reduced due to SOMAH systems. The per-tenant bill impacts ranged by utility from 72% to 76% of annual bill saved.

FIGURE 7-13: AVERAGE COMMON AREA AND PER-TENANT ESTIMATED SAVINGS AS PERCENTAGE OF AVERAGE MONTHLY BILL



Additional bill savings results by utility and beneficiary type are presented in Table 7-13, including the average monthly bill savings, the average monthly bill savings per kW allocated capacity, and the average bill savings per kwh generated.

TABLE 7-13: CALCULATED BILL IMPACTS BY BENEFICIARY TYPE AND UTILITY

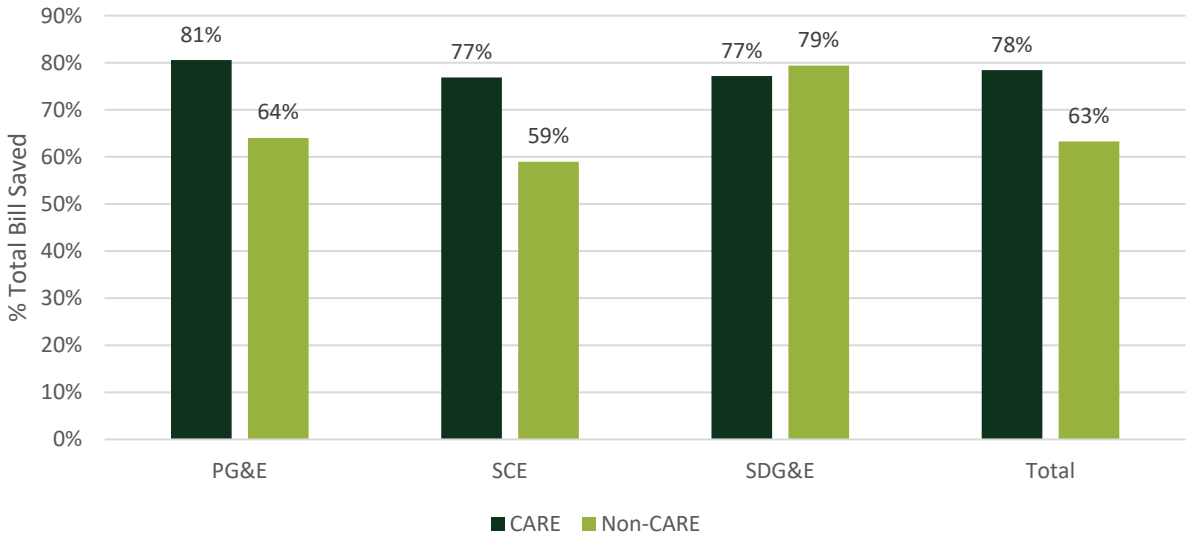
Beneficiary Type	Utility	Average Monthly Bill Savings	Average % of Monthly Bill Saved	Average Monthly Bill Savings per kW Allocated Capacity (CEC-AC)	Average Bill Savings per kWh Generated
Common Area[79]	PG&E	$1,643	77%	$50	$0.46
	SCE	$2,389	58%	$27	$0.26
	SDG&E	$1,737	69%	$43	$0.39
	Total	**$1,977**	**68%**	**$39**	**$0.36**
Tenant	PG&E	$65	76%	$45	$0.42
	SCE	$49	72%	$27	$0.25
	SDG&E	$47	76%	$34	$0.30
	Total	**$58**	**75%**	**$38**	**$0.35**

7.5.3 CARE Budget Impacts

Estimated bill savings in 2024-2025 are broken out here by whether tenants were CARE customers. CARE rates are made available to customers whose total household income is at or below specified income limits set by household size. Customers may also be eligible for CARE if they are enrolled in certain public assistance programs. Figure 7-14 shows the bill savings as percentage of average monthly bill broken out by CARE participation.

[79] Many SOMAH properties have multiple common area accounts. The common area results shown in this section are shown in aggregate for all common area accounts within a property. The common area results shown in section 7.5.1 Year-over-Year Utility Bill , are presented by account.

FIGURE 7-14: AVERAGE NON-CARE AND CARE PER-TENANT SAVINGS AS PERCENTAGE OF AVERAGE MONTHLY BILL



Additional bill savings results by CARE participation and utility are presented in Table 7-14, including the average monthly bill savings, the average monthly bill savings per kW allocated capacity, and the average bill savings per kWh generated.

TABLE 7-14: CALCULATED PER-TENANT BILL IMPACTS BY CARE PARTICIPATION AND UTILITY

Beneficiary Type	Utility	Average Monthly Bill Savings	Average % of Monthly Bill Saved	Average Monthly Bill Savings per kW Allocated Capacity (CEC-AC)	Average Bill Savings per kWh Generated
CARE	PG&E	$40	81%	$27	$0.25
	SCE	$44	77%	$25	$0.23
	SDG&E	$41	77%	$31	$0.27
	Total	**$42**	**78%**	**$27**	**$0.24**
Non-CARE	PG&E	$61	64%	$43	$0.39
	SCE	$61	59%	$34	$0.31
	SDG&E	$64	79%	$43	$0.39
	Total	**$61**	**63%**	**$40**	**$0.36**

The total impact on the CARE budget from completed projects with PTO dates before July 1, 2024 was estimated based on the average monthly calculated bill savings presented above. The effective CARE discount for each utility was determined from each utility's CARE rate details. The savings to the CARE budget in 2024-2025 are shown in Table 7-15 below. Overall, assuming tenants participated in CARE for the entire year, the SOMAH program reduced CARE budget spending by over $2.79 million over the evaluation period.

TABLE 7-15: SOMAH PROJECT IMPACTS ON CARE BUDGET BY UTILITY

Utility	CARE Participant's Average 2024-2025 Annual Bill Savings	CARE Discount	# of Total Tenants	% of Tenants on CARE[80]	Savings to CARE Budget in 2024-2025
PG&E	$477	35.0%	6,676	70.4%	$1,206,964
SCE	$528	32.5%	6,273	69.6%	$1,110,239
SDG&E	$492	32.5%	2,856	70.0%	$473,881
				SOMAH Total	**$2,791,084**

7.5.4 Arrearage Analysis

As part of our participation characterization efforts, we explored the number of tenants with arrearages from nine properties. These properties were selected as they were completed in Q4 2024 and had confirmed bill credits by early 2025. This allowed for a one-year comparison of arrearages post solar installation. We used two snapshots of arrearages for the tenants: one snapshot in Q1 of 2025 (when bill credits would have mostly started) and one snapshot in Q1 of 2026 (for the one-year comparison). We used this data to determine a count and median arrearage value for tenants in arrears at the first snapshot and compared that to the same quantification at the second snapshot. It is important to note that this analysis does not quantify how participation in SOMAH impacts arrearages as compared to non-participants as we did not have a control group and did not use a comprehensive model to explore arrearage changes. The analysis does allow a qualitative comparison of how arrearages change at two distinct time points for a subset of tenants with completed projects and provides an initial understanding to support hypothesis testing for future work.

Table 7-16 shows that for both PG&E and SDG&E, the number of people in arrearages increased over time. PG&E has three properties where the number of tenants in arrears was greater in Q1 2026 than 2025 and two properties also show an increase in median arrears in Q1 2026. While SCE doesn't have an overall increase in tenants in arrears, we did find one property where there is an increase in the number of people in arrearages and one property with an increase in median arrears, though the remaining SCE properties and the one SDG&E property show a decrease in median arrears through time.

[80] This is the percentage of tenants from properties with completed SOMAH projects on CARE rates as July 31, 2025.

TABLE 7-16: TENANT ARREARAGES PRE-AND POST INTERCONNECTION

IOU	Project Number	Tenants in Arrears Q1 2025			Tenants in Arrears Q1 2026			Bill Credit Start Date
		N (Tenants)	Total Arrears ($)	Median Arrears ($)	N (Tenants)	Total Arrears ($)	Median Arrears ($)	
PG&E	Project1	26	$17,652	$252	29	$7,513	$137	2/6/25
	Project2	21	$3,794	$77	28	$4,054	$67	3/26/25
	Project3	10	$808	$37	4	$181	$36	2/7/25
	Project4	7	$1,348	$71	29	$6,571	$99	3/27/25
	Project5	3	$123	$25	3	$182	$34	3/24/25
	Total	**67**	**$23,724**	**$107**	**93**	**$18,501**	**$98**	
SCE	Project6	6	$2,678	$309	4	$2,064	$389	4/1/25
	Project7	2	$2,137	$1,068	3	$252	$38	1/13/25
	Project8	1	$245	$245	1	$57	$57	10/7/24
	Total	**9**	**$5,060**	**$339**	**8**	**$2,373**	**$153**	
SDG&E	Project9	30	$21,308	$176	45	$12,191	$129	11/13/24
	Total	**30**	**$21,308**	**$176**	**45**	**$12,191**	**$129**	

*Note: the results are exploratory and were not calculated using a control group or modeling

As Table 7-16 above can have individuals who were not in arrears in Q1 2025, but who were in arrears in Q1 2026 (or vice versa), we wanted to better understand what happens to a consistent cohort of participants who have arrearages in both periods. Table 7-17 below shows the arrearage changes for 45 tenants who were in arrears during both snapshot periods. Both PG&E and SCE have one property that shows an increase in arrearages over time. While the remaining properties all show a decrease in arrearages, median arrears can still be quite high in some cases (e.g., $438).

TABLE 7-17: ARREARAGE CHANGES FOR TENANTS IN ARREARS PRE-AND POST INTERCONNECTION

IOU	Project Number	N (Tenants)	Q1 2025		Q1 2026	
			Total Arrears	Median Arrears	Total Arrears	Median Arrears
PG&E	Project1	4	$2,238	$584	$1,622	$438
	Project2	9	$2,777	$114	$2,297	$102
	Project4	1	$627	$627	$680	$680
	Total	**14**	**$5,641**	**$452**	**$4,599**	**$336**
SCE	Project6	4	$1,718	$309	$2,064	$389
	Project7	1	$339	$339	$206	$206
	Total	**5**	**$2,057**	**$339**	**$2,270**	**$227**
SDG&E	Project9	26	$8,748	$128	$5,912	$164
	Total	**26**	**$8,748**	**$128**	**$5,912**	**$164**

*Note: the results are exploratory and were not calculated using a control group or modeling

It's important to note that tenants in SOMAH buildings are not allowed to participate in the Arrearage Management Program (AMP) per AMP program rules. This program is specifically designed to help lower income utility customers to reduce their arrearage balance through time. As documented here, arrearage

amounts are still quite high for some tenants and it's very possible that arrearages are growing for another subset of tenants, but tenants' inability to participate in key arrearage reduction programs leaves them with no way to get direct help to fight their debt. While this evidence is preliminary, it should be used as a cautionary warning to explore 1) why tenant arrearages are increasing as it's possible that tenants don't know they have to pay their bills with solar and 2) how widespread both consistent and growing arrearages are among SOMAH tenants. Additionally, to ensure that SOMAH tenants are not being negatively impacted for decisions made by their property owners to participate in SOMAH, tenants should be allowed to participate in arrearage reduction or support programs like AMP.

7.6 PROGRESS ON PRIOR IMPACT RECOMMENDATIONS

The previous SOMAH evaluation provided recommendations related to improving impact findings. Below we present these recommendations and the progress made to address them.

TABLE 7-18: IMPACT PRIOR RECOMMENDATIONS AND PROGRESS

Prior Recommendation	Progress Made to Address Recommendation
Increase the SOMAH PA monitoring threshold that flags underperforming systems to 90% which aligns with the system warranties and performance guarantees that third-party owners are required to include in contracts with customers. (19)	The fleet monitoring system put in place currently calculates the Percentage of Estimate (PoE) for each project monitored. From this, they currently track and flag every project with less than an 70% PoE, and greater than a 100% PoE. Each project within these categories are tracked by month, determining the contractor type, purchase type, inverter type, and issue type, along with additional notes about the project. More details about these projects can be found in Section 7.1.
Track and report SOMAH bill credits as a secondary measure of data quality and system performance. The evaluation team recommends that utilities track and report SOMAH bill credits. This reporting would allow confirmation of system performance and enable identification of systems with potential NGOM data issues that could affect bill credits. (20)	D.24-11-006, issued in November 2024, ordered that IOUs provide the SOMAH PA and Energy Division staff a confidential quarterly memo about the VNEM billing status for SOMAH projects that have received PTO. According to our discussions with the SOMAH PA, this process has helped identify underlying issues with setting up bill credits for certain projects. Additionally, the time from interconnection to bill credit setup has decreased since the last evaluation by an average of 30 to 96 days depending on the utility (Table 4-12). However, there is still no process set up to verify the bill credit amounts that customers receive, as a secondary measure of data quality and system performance.
Consider additional system performance enforcement measures. The SOMAH PA monitoring system is an excellent first step in ensuring oversight of system performance. However, if alerts to property owners and contractors do not lead to performance	As discussed in Section 7.1, there are over 80 projects being monitored, and flagged, in the SOMAH PA fleet monitoring system that have been underperforming for over 6 months, with most of them underperforming for 12-18 months. There are currently no additional performance enforcement measures in place.

Prior Recommendation	Progress Made to Address Recommendation
improvements then more enforcement measures may be needed. (21)	
Research changing incentive calculations away from EPBB calculator which is based on PVWatts v2. (22)	D.24-11-006, issued in November 2024, ordered that the EPBB methodology and calculator be suspended for certain projects in Northern PG&E territory and all tribal projects in PG&E territory.
The interconnection inspection should include a check for configuration errors, such as a backwards utility meter that could lead to PV generation being read as consumption. (23)	During an interview with the SOMAH PA, we learned that improvements have been made to the onsite field inspection process. They now check that the system is operational and output is reasonable at the time of inspection.

VERDANT

8 COST EFFECTIVENESS ASSESSMENT

The cost-effectiveness results for the standard practice manual (SPM) tests are shown below by utility. Generally, programs focused on serving low-income and disadvantaged communities are not subject to the same cost-effectiveness requirements as programs for the general population. SOMAH is an equity-focused program for which cost-effectiveness is not a primary goal. There are equity benefits of SOMAH which are not captured by the SPM cost-effectiveness tests and may not be easily quantifiable.

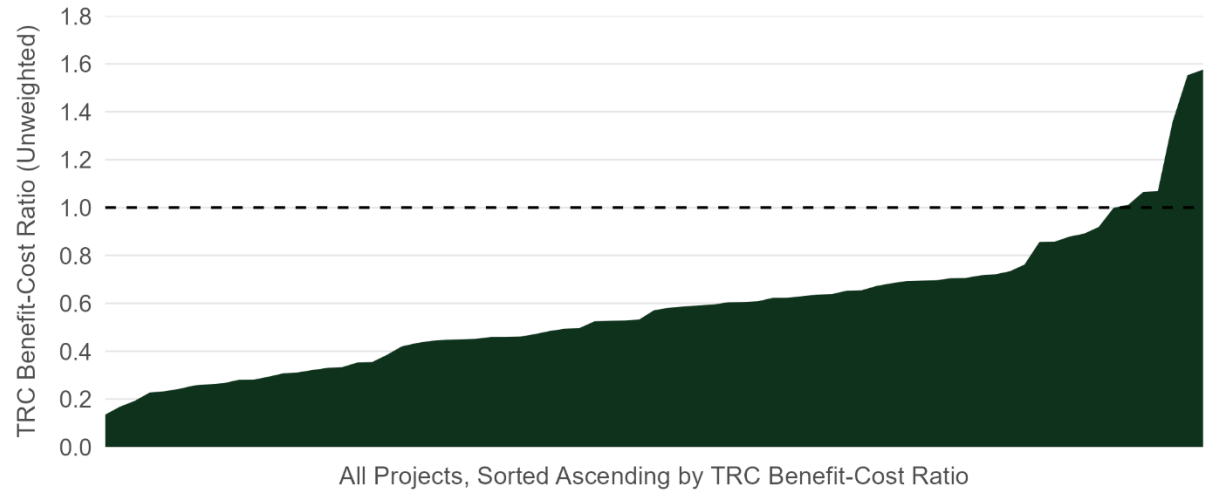
Overall, the SOMAH benefit-to-cost ratios were 0.55 for the TRC, 0.62 for the SCT, and 0.15 for the RIM. Program administration costs contribute to the total costs under the TRC and SCT. If SOMAH was able to lower administrative costs, that would improve these cost effectiveness ratios. RIM costs include reduced revenue; since SOMAH PV systems contribute to customer bill savings this leads to higher RIM costs and lower overall RIM benefit-to-cost ratios. While the TRC and SCT include federal tax credits as part of overall benefits, the RIM does not. This too leads to lower RIM benefit-to-cost ratios in comparison to the TRC and SCT.

TABLE 8-1: SUMMARY OF COST-EFFECTIVENESS RESULTS BY UTILITY

Utility	TRC	SCT	RIM
PG&E	0.54	0.62	0.14
SCE	0.57	0.61	0.20
SDG&E	0.57	0.61	0.08
SOMAH Total	**0.55**	**0.62**	**0.15**
25^{th}-75^{th} percentile range	0.38 - 0.70	0.40 - 0.80	0.12 - 0.19
NPV Total Benefits	$43,968,521	$54,554,716	$42,652,173
NPV Total Costs	$79,901,313	$88,636,289	$283,916,153

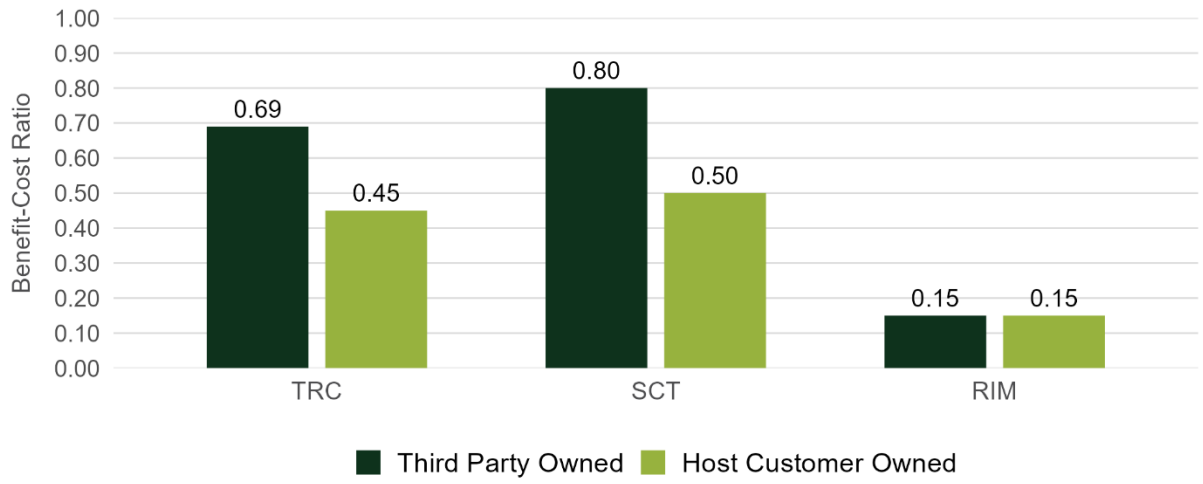
Figure 8-1 shows the unweighted TRC benefit-cost ratio for each project, ranked from lowest to highest. The horizontal line is drawn at the break-even TRC benefit-cost ratio of one. Eighty-one percent of modeled SOMAH projects resulted in a TRC benefit-to-cost ratio less than one (87% of projects had a SCT ratio below one). None of the modeled SOMAH projects broke even on the RIM test.

FIGURE 8-1: TOTAL RESOURCE COST TEST RESULTS, RANKED FROM LOW TO HIGH (UNWEIGHTED)



When viewed by ownership type (see Figure 8-2 below), the TRC cost-benefit ratio for TPO projects is significantly higher than the TRC for HCO projects (0.69 and 0.45, respectively). A similar pattern is observed with the SCT results (0.80 for TPO and 0.50 for HCO). This is likely driven by the ability of TPO to take advantage of the ITC; 82% of TPO completed projects took advantage of the ITC. None of the HCO projects studied used the ITC. The passing of the One Big Beautiful Bill Act (OBBBA) in July 2025 will phase out the ITC for projects that don't begin construction within 12 months of its enactment. Without the availability of the ITC, the difference in cost-effectiveness between TPO and HCO will shrink. Though, it is also important to note that the program's administrative costs are not necessarily equivalent between TPO and HCO projects. However, there is no mechanism to assign administrative costs by ownership type. If we were to assume that TPO administrative costs are lower than HCO (likely due to greater familiarity with the program through high project volume), then the TRC, SCT, and RIM benefit-cost ratios for TPO projects would be higher in comparison to HCO.

FIGURE 8-2: COST-EFFECTIVENESS RESULTS BY OWNERSHIP TYPE



8.1.1 Cost Shift

The lifetime cost-shift of installed projects, represented here in simplified form as the difference between the net present value (NPV) of lifetime avoided costs and the NPV of lifetime bill savings, is presented in Table 8-2 below, by utility.

TABLE 8-2: NET PRESENT VALUE OF LIFETIME COST SHIFT BY UTILITY

Utility	NPV Lifetime Total Avoided Costs	NPV Lifetime Total Bill Savings	NPV Lifetime Cost Shift
PG&E	$21,751,547	$132,007,695	-$110,256,148
SCE	$17,378,280	$69,075,709	-$51,697,429
SDG&E	$3,522,345	$37,725,300	-$34,202,955
SOMAH Total	**$42,652,173**	**$238,808,705**	**-$196,156,532**

The next table presents the average NPV of avoided costs per project, NPV of bill savings per project, and the NPV of the cost shift per project. The average SOMAH project is estimated to save its beneficiaries over $600k (NPV) in bill reductions across the life of the PV system.

TABLE 8-3: AVERAGE NPV OF LIFETIME AVOIDED COSTS, BILL SAVINGS, AND COST SHIFT PER PROJECT

Utility	NPV Lifetime Avoided Costs per Project	NPV Lifetime Bill Savings per Project	NPV Lifetime Cost Shift per Project
PG&E	$96,196	$583,804	-$487,608
SCE	$173,316	$688,901	-$515,585
SDG&E	$76,198	$816,098	-$739,901
SOMAH Total	**$122,607**	**$666,986**	**-$544,380**

The table below presents the NPV of lifetime avoided costs, lifetime bill savings, and lifetime cost shift per kW of capacity (CEC-AC).

TABLE 8-4: AVERAGE NPV OF LIFETIME AVOIDED COSTS, BILL SAVINGS, AND COST SHIFT PER KW OF CAPACITY (CEC-AC)

Utility	NPV Lifetime Avoided Costs per kW Capacity (CEC-AC)	NPV Lifetime Bill Savings per kW Capacity (CEC-AC)	NPV Lifetime Cost Shift per kW Capacity (CEC-AC)
PG&E	$837	$5,077	-$4,241
SCE	$1,110	$4,411	-$3,301
SDG&E	$567	$6,070	-$5,503
SOMAH Total	**$891**	**$4,988**	**-$4,097**

VERDANT

9 FINDINGS AND RECOMMENDATIONS

In this section we summarize the key participation, process, program administration, impact, and cost effectiveness findings presented throughout this report, and offer recommendations to increase the future effectiveness of the SOMAH Program. Findings in this section are numbered and recommendations are highlighted with a light green background. Not all findings have an associated recommendation.

Given that this is our third evaluation cycle for SOMAH, we have identified a mixture of persistent findings, new insights, and routine observations. We have added the following flags to call out both new and noteworthy items as well as re-occurring findings.

 New and Noteworthy Findings or Recommendations

 Re-occurring Findings or Recommendations

The findings and recommendations are organized into the following topical areas below:

- Participation Assessment
- Process Assessment
- Program Expenditure Review
- Impact and Cost Effectiveness Assessment
- Further Research

For each recommendation listed below we identify the SOMAH goal(s) that it supports. The SOMAH program goals, as outlined in CPUC D.24-11-006, are as follows:

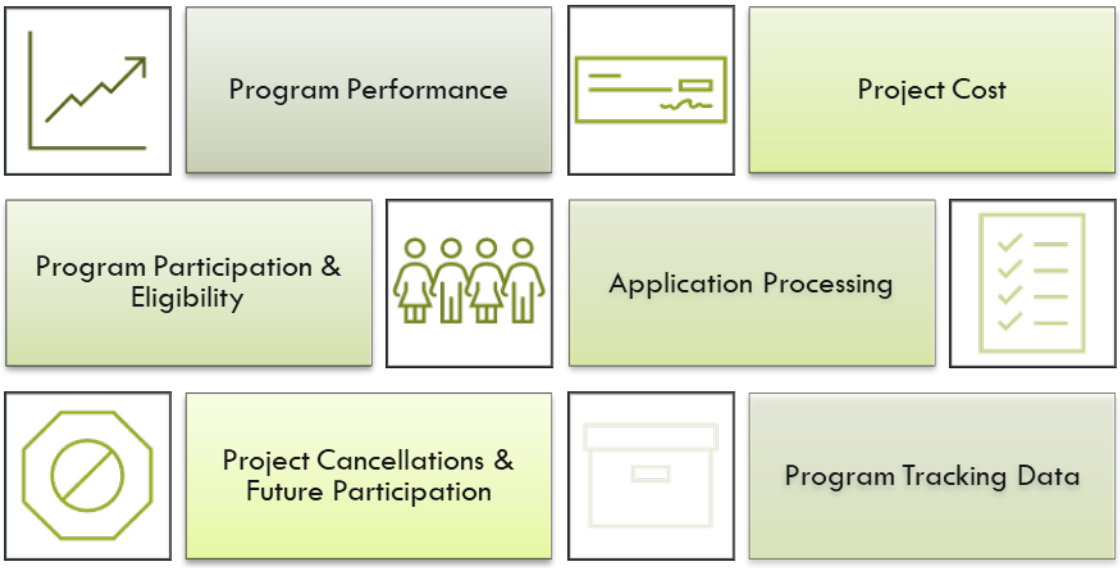
a) Expanding access to solar generation or solar generation with integrated battery storage and its benefits to low-income customers in multifamily housing, where it is typically limited.
b) Incentivizing the installation of at least 300 megawatts (MW) of solar generation capacity.
c) Ensuring financial benefits accrue primarily and directly to tenants, and are not recaptured by other means.
d) Providing greater accessibility to the program for applicants through a single point of contact, full service technical assistance, and coordination with other low-income programs.
e) Promoting local economic development through job training requirements and hiring practices.
f) Facilitating efficient program administration by a single statewide administrator.
g) At least 40 percent of all projects statewide will be in disadvantaged communities by the program's end.

h) At least 30 percent of all projects in each large investor-owned utility's (IOU) territory will be in disadvantaged communities by the program's end.

9.1 PARTICIPATION FINDINGS AND RECOMMENDATIONS

This section summarizes the participation-related findings and recommendations included in Section 4 of this report. We have identified several different findings and recommendations across many aspects of the program, therefore we have organized them into categories as shown below:

FIGURE 9-1: PARTICIPATION FINDINGS AND RECOMMENDATION CATEGORIES



Program Performance

1. **The SOMAH Program continues to appear capable of achieving its 12-year goal of installing 300 MW of solar PV.** Achieving this goal will require maintaining the increased pace of applications entering the program that occurred in 2025. It will also require decreasing cancellations, especially withdraw requests, and optimizing outreach efforts to build a pipeline of future projects. [Section 4.4.3]

2. **Application volume has increased each year since 2022.** SOMAH applications had been declining each year with 2022 (the last year of the last evaluation) having the least number of applications of any program year (49). However, with the increase in SOMAH incentives in March of 2023, applications began to rise again with 127 applications in 2023, 209 applications in 2024, and 222 applications in 2025. [Figure 4-1]

3. **PacifiCorp and Liberty Utilities participation remains low.** There are only three applications total across both utilities with the only PacifiCorp project being cancelled. [Table 4-1]

4. **The average SOMAH project PV capacity is 146 kW_{AC},** generally in line with the last evaluation cycle which averaged 150 $kW_{AC.}$ PV system capacity continues to vary widely across applications, ranging from 10 kW_{AC} to 1,153 kW_{AC}. [Table 4-6, Figure 4-6]

Program Participation and Eligibility

1. **Track A application volumes are slowly increasing with four projects now completed.** As of December 31, 2025, 94 Track A applications have been submitted. While cancellation rates have declined, they are still double that of Track B applications, mainly because projects do not meet SOMAH's eligibility. [Section 4.1.1]

2. **32% of all projects are located in a DAC, falling short of 40% goal** of all participating SOMAH projects in a DAC by 2032. [Section 4.3.3]

3. **TPO systems are still the dominant system purchase type.** There were only 34 HCO applications during the 2023-2025 period with only one HCO project completed during that time. [Section 4.3.1]

4. **Participation continues to be dominated by multi-application property owners.** As of December 31, 2025, 75% of SOMAH applications were submitted by 33 property owners who have submitted ten or more applications each. [Section 4.2.1]

5. **Diversity of participating contractors has increased due to increased subcontracting opportunities.** While participating prime contractors continue to lack diversity, 81% of subcontractors are underrepresented owned, 35% are women owned, 73% are small firms (25 or less employees), and 65% are done by newer companies (25 or less installations). As of December 31, 2025, 29% of all SOMAH projects are utilizing a subcontractor on the project. [Section 4.2.2]

6. **Cross program participation is low for IOU administered stackable and EE programs**. ESA was the only program where we found evidence of cross participation, but only for PG&E and SCE. [Section 4.3.7]

R1. Track non-IOU stackable program participation when possible to evaluate how many property owners and tenants are leveraging non-IOU stackable programs . [Section 4.3.7]

Action by: SOMAH PA (CSE) Supports: Goal d

Project Cancellations, Future Participation

1. **The SOMAH project cancellation rate decreased** from 40% of submitted project cancellations in the last evaluation to 35% during the current evaluation period. [Section 4.1.1]

2. **Primary reason for application cancellation was requesting the application to be withdrawn (48% of cancellations in 2023-2025).** Many of the records that were withdrawn don't record the reason for why the applicant has requested to withdraw their application. [Section 4.1.1]

3. **Program ineligibility continues to be a top cancellation driver despite the addition of the Affordability Pre-screen service.** While the most recent SAPR reports that the pre-screen service identified 11 eligible properties and screened out one ineligible prior to applications, six of the ineligible projects in the tracking data should have been identified by the pre-screening service and screened out. There were an additional five projects that were not in a participating utility territory. [Section 4.1.1]

> **R2. Categorize why "program ineligible" cancellations are occurring and determine what additional actions can be taken to reduce these cancellations**. [Section 4.1.1]
>
> Action by: SOMAH PA (CSE) Supports: Goals f

4. **Ten projects were cancelled because of Fannie Mae issues and three were cancelled because of HUD delays.** The SOMAH PA reported meeting with Fannie Mae representatives in May of 2024 (as well as on subsequent occasions) and found "Fannie Mae was not amenable to implementing a blanket exemption for SOMAH projects.". [Section 4.1.1]

> **R3. Identify Fannie Mae funded projects early in the application process and alert property owners of potential issues and guide towards other funding solutions**. [Section 4.1.1]
>
> Action by: SOMAH PA (CSE) Supports: Goals a, d

> **R4. Identify what is causing HUD document delays** and work with HUD and property owners to resolve these issues. [Section 4.1.1]
>
> Action by: SOMAH PA (CSE) Supports: Goals a, d

Project Cost

1. **84% of completed projects and 90% of active projects are leveraging the ITC. Only 1% of completed and 1% of active projects plan to use LIHTC.** This is likely to change as the ITC becomes unavailable for most projects that begin construction after July 4, 2026. [Section 4.4.1]

> **R5. Verify the ITC amount claimed by projects leveraging the ITC.** This will help the SOMAH PA better understand how the ITC fits into the financial picture of these projects, including how projects benefit from bonus credits, and whether projects claim fair market value project costs that exceed costs reported to the SOMAH program. [Section 4.4.1]
>
> Action by: SOMAH PA (CSE) Supports: Goals e, f

2. **Completed project costs have decreased from the previous evaluation.** Both HCO and TPO overall and system component costs have decreased. The only exception is the cost of carport installations. [Section 4.4.2]

3. **Contractors report prevailing wage requirements increase labor costs, when required.** Contractors report that current incentive levels are not adequate when projects require prevailing wage. [Section 5.1.3]

> **R6. Explore the impact of prevailing wage requirements on overall project costs.** If research warrants it, consider increasing incentive levels or offering a higher incentive level for projects that require prevailing wage. [Section 5.1.3]
>
> Action by: CPUC & Future Research — Supports: Goals a, b

Application Processing

1. **Participation timelines continue to be long but are improving.** The average time to complete a SOMAH project (final incentive paid) is 1,249 days (around 3 ½ years). However, timelines are improving with applications moving through each SOMAH application step faster than the previous program years, except for the incentive claim package (ICP) step. It's likely that longer time within ICP is driven in part by long interconnection timelines (average of 269 days to interconnect) which data suggest may be getting worse and are outside of the SOMAH PA's control. [Sections 4.1, 4.3.6]

2. **Project interconnection timelines are long and burdensome to contractors and property owners.** Interconnection still takes, on average, between eight months to over a year. While VNEM systems take longer to interconnect in general, SOMAH projects have longer interconnection times than other VNEM projects. [Sections 4.3.6, 5.1, 5.2.1]

> **R7. Create an escalation process where the SOMAH PA can flag long PTO delays to the IOUs who will investigate and support processing**. [Section 4.3.6]
>
> Action by: SOMAH PA (AEA) & IOUs — Supports: Goals a, d, f

3. **The timeline from interconnection to bill credits is improving.** All three IOUs show a reduction in the average time to bill credit setup. The average time from PTO to bill credit setup decreased in PG&E from 152 to 69 days, in SCE from 111 to 15 days, and in SDG&E from 52 to 23 days. [Section 4.3.6]

4. **21% of the active projects submitted since storage incentives were made available are planning to pair storage with their solar.** This is an increase in projects over the last evaluation where six projects (<2%) were planning to have paired storage systems. [Section 4.3.5]

Program Tracking Data

1. **Program tracking data continues to improve.** Examples include the addition of 'Mechanical Completion Date', 'When Did the Solar Bill Credits Begin', and a field that records when projects switch from Track A to B. [Section 4.3.6]

R8. Continue to improve tracking data with additional fields. The program tracking data could benefit from additional information, including:

- Why projects are being withdrawn (record for all withdrawn projects to allow the PA to identify projects that could potentially be saved and/or program changes that could reduce withdrawal) [Section 4.1.1]
- Detailed battery cost and system information [Section 3.2.6]
- Accurate housing authority data [Section 3.2.6]
- How applicant learned about SOMAH (CBO, solar contractor, another contractor, another property owner, etc.) [Section 5.2.1]
- Did the property owner experience CBO outreach activities [Section 6.2.2]
- Is the project subject to prevailing wage requirements or not [Section 3.2.6]
- Number of building stories should be consistently populated within the tracking data, and not left blank for completed projects [Section 3.2.6]

Action by: SOMAH PA (CSE) Supports: Goals a, d, f

2. **The eligible contractor data is missing key contractor information** (solar experience, number of employees, and diversity status) for multiple contractors, including one main contractor, GRID (impacts 179 SOMAH applications). [Section 3.2.6]

9.2 PROCESS FINDINGS AND RECOMMENDATIONS

This section summarizes the process related findings and recommendations included in Section 5 of this report. We have identified several findings and recommendations across many aspects of the program, therefore we have organized them into categories as shown below:

FIGURE 9-2: PROCESS FINDINGS AND RECOMMENDATION CATEGORIES

Property Owner

1. **SOMAH Program awareness continues to be driven by contractor outreach**. The majority of participating property owners continue to report learning of the SOMAH Program through their contractor or a trusted source and most participating property owners do not recall receiving any program marketing materials from the SOMAH PA. CBOs, whose efforts accounted for 30% of the ME&O budget, have not yet had a significant impact on program participation. [Section 5.2.1]

2. **Numerous challenges from previous evaluations continue to impact property owners during 2023-2025.** The experience between TPO and HCO projects continues to be different with HCO projects facing greater difficulties with navigating the program. Smaller affordable housing organizations continue to report difficulty with finding contractors, property owners are still frustrated with project delays, and challenges around regulatory agreements are still impacting projects. [Section 5.2.1]

3. **Property owners are generally satisfied with their overall SOMAH experience.** [Section 5.2.1]

4. **Some property owners report SOMAH benefits are insufficient.** Property owners report that the benefit was insufficient to justify participation; compounded when expensive upgrades need to be made to participate. Property owners want greater common area allocation for projects to increase benefits. [Section 5.2.1]

5. **Property owners are generally pleased with contractor relationships and experience.** [Section 5.2.1]

6. **Outdated SOMAH-eligible contractor lists have been shared with property owners, and the online SOMAH-eligible contractor directory does not accurately reflect contractor service areas.** [Section 5.2.1]

R9. Review and update the eligible contractor list on a regular basis to ensure that all contact information is up to date and that all businesses are operating. Use this check-in to gauge continued interest in the program, identify reasons for non-participation, and provide updates on program changes. [Section 5.2.1]

Action by: SOMAH PA (CSE) Supports: Goals a, d, f

R10. Update the SOMAH-eligible contractor directory to reflect contractor service areas. [Section 5.2.1]

Action by: SOMAH PA (CSE) Supports: Goals a, d, f

7. **One property owner reported transformative savings by successfully stacking multiple programs; this is the exception but should be the norm.** The property achieved 100% tenant allocation at zero cost to the property by stacking SOMAH with LIWP, TECH, and BayREN programs to complete $900k in building retrofits for only $100k. Almost no other properties are participating in any IOU programs (unknown for non-IOU initiatives) according to cross-program participation assessment. [Section 5.2.1]

R11. Conduct meetings with property owners about stackable programs after the energy efficiency compliance milestone whole-building audit so that the SOMAH PA (AEA) can help property owners decide on additional site upgrades. [Section 5.2.1]

Action by: SOMAH PA (AEA) Supports: Goals a, d, f

8. **Property owners who had experience with the SOMAH PA's technical assistance services reported being very pleased with it.** [Section 5.2.1]

9. **Property owners don't have access to their own system's performance data (for TPO).** Multiple property owners experienced post-installation issues or underperforming systems that they couldn't track; this impacted tenant bills. [Section 5.2.1]

R12. Share monthly performance reports from fleet-wide monitoring with property owners to ensure that all SOMAH participants have insight into how their system is performing. [Section 5.2.1]

Action by: SOMAH PA (AEA) Supports: Goals a, c, f

10. **HCO property owners report having no maintenance plans and being unprepared for the cost**. [Section 5.2.1]

> **R13. Include information and a cost breakdown of cleaning and maintenance fees for HCO systems to ensure that these participants have all the information they need to make smart financial decisions about their systems.** The SOMAH PA should provide these materials and ensure that HCO systems have maintenance plans in place prior to the project being finalized. [Section 5.2.1]
>
> Action by: SOMAH PA (CSE) Supports: Goals a, c, d

Contractor

1. **Contractors new to the program learn about SOMAH through peer organizations (e.g., energy efficiency contractors) rather than direct program outreach.** [Section 5.1.1]
2. **Non-participating contractors aren't getting onboarded effectively,** some are having difficulty finding the eligibility training sessions and others felt there was a lack of clear sales materials and training. [Section 5.1.1]

> **R14. Offer additional contractor eligibility training sessions and continue office hours topics related to how to secure leads and find eligible projects**. [Section 5.1.1]
>
> Action by: SOMAH PA (CSE & AEA) Supports: Goals a, b, d, e

3. **Contractors receive little support from the SOMAH PA in generating leads.** Limitations with the eligible properties map were widely noted. [Section 5.1.1]

> **R15. Update the public facing eligible properties map with additional helpful information.** (1) Does the property already have solar? (2) Is the property master metered? (3) Does the property owner belong to an umbrella company (4) Does the property require prevailing wages (or building story count). Additionally, properties that have active or completed SOMAH applications should be removed. [Section 5.1.1]
>
> Action by: SOMAH PA (CSE & CHP) Supports: Goals a, d

4. **Contractors who do submit applications generally find the SOMAH PA responsive and supportive.** [Section 5.1.1]
5. **Some Tribal properties can't qualify under current deed restriction documentation requirements and Tribal councils would need to adopt specific legal language to participate.** The SOMAH PA

member organizations ran a legislative bill, SB 1118, to increase deed-restriction requirement flexibility for Tribal projects. The bill was vetoed in 2024. [Section 5.1.2]

R16. Continue to pursue alternative documentation pathways for Tribal properties to demonstrate they serve low-income tenants without requiring standard deed restriction documentation. [Section 5.1.2]

Action by: CPUC & SOMAH PA (CSE) Supports: Goals a, d

6. **Battery storage interest is high among property owners, but implementation faces barriers**: program rules make backup configurations for common areas challenging, equipment availability is limited, fire code and space constraints apply, and storage projects are not financially viable without solar tax credits at current incentive levels. [Section 5.1.2]

Tenant

1. **Most surveyed tenants (78%) were aware that solar panels were installed at their building through SOMAH**, though awareness varied by utility territory and property size. [Section 5.3.1]

2. **Tenants most often learned about SOMAH passively by seeing the panels (48%) or hearing from property managers (42%)** rather than through formal program outreach. [Section 5.3.1]

R17. Ensure property managers are aware of and have access to accurate program information and effective communication materials to improve tenant experience. [Section 5.3.1]

Action by: SOMAH PA (CSE) Supports: Goals c, d

3. **Most tenants did not recall the SOMAH program education and outreach.** Fewer than one-third of tenants recalled receiving SOMAH related flyers; only 3% attended tenant education events; fewer than 10% recalled CBO specific outreach. [Section 5.3.1]

4. **More than one-third of tenants were unaware that they would (or do) receive solar credits on their electricity bills prior to taking the survey**. While most tenants ultimately reported seeing lower bills and satisfaction with savings, confusion persists regarding how and when credits appear on utility bills—particularly in SCE territory. [Section 5.3.1]

R18. Deliver clear, utility-specific bill-credit explanations customized to SOMAH tenants when bill credits begin. Coordination with IOUs may be required. [Section 5.3.1]

Action by: SOMAH PA (CSE) & IOUs Supports: Goals c, d

5. **A majority of tenants reported reduced electricity bills and expressed satisfaction with the financial benefits of solar credits**. Many tenants reported using savings to meet essential household needs, demonstrating that SOMAH is achieving its affordability objective. [Section 5.3.2]

6. **Overall tenant satisfaction is high** with around 68% being very or somewhat satisfied. However, a sizable minority expressed neutral views, often corresponding with lower awareness or understanding of program details. [Section 5.3.2]

7. **Around 20% of tenants did not recall receiving SOMAH information in their preferred language.** [Section 5.3.2]

8. **Tenant familiarity with other programs varies.** About a quarter of surveyed tenants recalled receiving information about LIHEAP and CARE/FERA, while ESA had lower recall. [Section 5.3.3]

9. **SOMAH tenants are prohibited from participating in AMP, per AMP program rules**. [Section 5.3.3]

Job Trainees

1. **80% of surveyed job trainees were satisfied with the job training** program and 96% would recommend it. [Section 5.4.1]

2. **Most surveyed job trainees entered through workforce institutions** (about 50% combined), including trade/skill training schools and job placement agencies (32% and 18%, respectively). [Section 5.4.1]

3. The job training component **successfully places trainees into short-term solar employment**, with high satisfaction and recommendation rates, but **long-term retention in the solar workforce is potentially low**. 56% of trainees asserted they were employed or not looking for a job with 44% asserting they were looking for a job (unknown if they were currently employed or not). [Section 5.4.1]

CBO

1. **Three CBOs we spoke with reported that they exited the program** during the evaluation period, citing shifts in program priorities, especially the reduction of tenant education requirements, as a key factor reducing mission alignment. [Section 5.5]

2. **CBO KPIs are activity-based and do not measure whether outreach actually generates applications** or reaches decision-makers. This makes it impossible to assess return on investment for the largest ME&O budget item. [Section 5.5]

R19. **Refine CBO KPIs to include outcome-based metrics** (e.g., application/leads generated, property owners engaged at the decision-making level) rather than activity-only metrics. [Section 5.5]

Action by: SOMAH PA (GRID) Supports: Goals f

Financial Organizations

1. **Financing partner organizations are not being engaged or integrated into the program**. They are not receiving leads from the SOMAH PA. One financing organization stated that the evaluation interview was the first outreach they had received since joining the program. [Section 5.6]

> **R20. Increase education and marketing to contractors and property owners about existing financial organization partnerships and their available project financing products.** [Section 5.6]
>
> Action by: SOMAH PA (CSE & AEA) Supports: Goals a, d

2. **Contractors don't know how to connect customers with financing options.** One contractor stated that they only work with customers that can purchase systems outright, since they have no avenue for offering or connecting customers with financing options. They were not aware of SOMAH's finance partner organizations. Contractors and property owners are unaware that SOMAH has financing partners or of financial products available for their customers. [Section 5.6]

> **R21. Develop more streamlined financing pathways that contractors can offer property owners.** This could be done through increased SOMAH PA engagement with the partner financial organizations to develop marketing materials (for contractors and property owners), strategies, lead pipelines, and potentially custom products. [Section 5.6]
>
> Action by: SOMAH PA (CSE) Supports: Goals a, d

9.3 PROGRAM EXPENDITURE REVIEW FINDINGS AND RECOMMENDATIONS

This section summarizes the program expenditure review related findings and recommendations included in Section 6 of this report.

Overall Spending

1. **Total program implementation spending through the end of 2025 was just under $60M**, averaging ~$7.5M/year since launch, while incentive payments totaled ~$132M over the same period. [Section 6.1.1]

2. **The program has spent 67% of collected program implementation funds but only 16% of collected incentive funds.** At this rate, program implementation spending is **not on track to stay under its 10% cap by 2032**. Participation must increase significantly to bring the ratio of implementation to incentive spending in line with the 10% cap by program end in 2032. Note that the forecast from 2026-2028 includes estimated future incentive payments from Table 13 of the SAER which does not include anticipated future application volume. [Section 6.1.1]

3. Program Administration tasks account for 54% of SOMAH implementation spending; ME&O accounts for 35%; Workforce Development and Technical Assistance each account for less than 6%. **Program Administration, ME&O, and Workforce Development spending have been trending downward since mid-2022, while Technical Assistance spending is trending up**. [Section 6.1.2]

4. **Application processing costs roughly $1,041 per application**, and spending remained relatively stable in 2024 and 2025 despite increases in submitted applications. Per the SOMAH PA, this is attributable to gains in application processing and QA/QC efficiencies allowing the application processing team to "handle more application volume using the same amount of hours." They also point out that "returning applicants with previous practice contribute to more application volume without more admin spending" as "applicants get better at submitting clean applications that move smoothly." [Section 6.1.2]

5. **CSE accounts for 49% of SOMAH PA member spending, mostly on administrative tasks.** GRID accounts for 37%, with the largest share going to ME&O. AEA and CHP account for around 7% of the budget each. [Section 6.1.2]

ME&O Spending

1. **CBOs represent the largest single ME&O expenditure (31%) but their impact is difficult to measure** because their metrics are activity-based rather than outcome-based.[81] [Section 6.2.1]

> **R22. Reassess the level of CBO investment**. Resources may be better directed toward stakeholders who are more equipped to drive property owner participation, given the lack of clear connection between CBO activity and applications submitted. [Section 6.2.1]
>
> Action by: SOMAH PA (CSE) Supports: Goals a, f

2. **Property owner engagement receives 9% of the ME&O budget** (rising to 12% in 2025), despite property owners being the primary decision-makers for program participation and awareness among them remaining low. Currently, property owner engagement is primarily approached through CBO spending, while property owners primarily learn about SOMAH through contractors. [Section 6.2.1]

> **R23. Increase investment in property owner engagement**, through direct outreach campaigns and IOU co-marketing. [Section 6.2.1]
>
> Action by: SOMAH PA (CSE) Supports: Goals a, d, f

3. **Tenant engagement spending is trending upward (likely due to the increased volume of completed projects).** [Section 6.2.1]

[81] Per the SOMAH PA via comments left in an initial review of this report "The SOMAH PA is phasing out CBO partnerships in early-to-mid-2027, when these contracts end."

4. **Contractor engagement and training together receive only ~5% of the ME&O budget**, despite contractors being among the most motivated drivers of program participation. [Section 6.2.1]

> **R24. Increase investment in contractor support and engagement**, as this may represent the highest return-on-investment opportunity within the ME&O budget. Contractor engagement should include participating, eligible but not participating, and not yet eligible contractors. Contractor engagement and training activities should directly support project origination, owner decision making, and application completion. This rebalancing should be achieved through reallocation of existing ME&O funds rather than increases in total ME&O spending. [Section 6.2.1]
>
> Action by: SOMAH PA (CSE) Supports: Goals a, d, f

5. **Administrative spending made up 23% of ME&O budget in 2025.** A significant share of the budget is being consumed by internal and external coordination rather than direct program impact. [Section 6.2.1]
6. **Current administrative setup is fragmented with disparate ownership of outreach outcomes.** [Section 6.2.1]

> **R25. Define outreach outcomes for each SOMAH PA organization that can serve as metrics by which their performance is evaluated.** [Section 6.2.1]
>
> Action by: CPUC & SOMAH PA (CSE) Supports: Goal f

ME&O Effectiveness

1. **Core outreach strategies were similar to previous years with some notable tweaks.** A campaign to capitalize on incentive increases, storytelling around the first completed Tribal project, and website updates were among some of the marketing updates. [Section 6.2.2]
2. **2025 marketing efforts changed in response to D.24-11-006.** The decision introduced the high priority properties list, new CBO requirements, dedicated ME&O budget for Liberty and PacifiCorp territories, and expanded tracking data requirements. [Section 6.2.2]

9.4 IMPACT AND COST-EFFECTIVENESS FINDINGS AND RECOMMENDATIONS

This section summarizes the impact and cost-effectiveness related findings and recommendations included in Sections 7 and 8 of this report.

VERDANT

PV Production and Energy Impact

1. **Observed PV Production**: 21,657 MWh in 2023, 35,036 MWh in 2024, and 58,581 MWh in 2025. The observed capacity factors (DC) were 16.1% in 2023, 15.9% 2024, and 15.5% in 2025. [Section 7.1]

2. **The observed PV realization rate has increased over time**, suggesting fleet monitoring systems and improved inspection protocols have been successful. The 2023 full-year realization rate was 76%. Realization rates rose to 80% in 2024 and then to 88% in 2025. While this is higher than prior evaluations, the program still has a long way to go. For reference, realization rates from the 2022-2024 DAC-SASH program were between 103%-115% when compared with EPBB calculator. [Section 7.1]

3. **Forecasted PV Production**: 64,078 MWh annually from all completed projects, representing a forecasted capacity factor (DC) of 15.5% and a forecasted realization rate of 90%. [Section 7.1]

Customer Electricity Consumption

1. **Estimated average increase in tenant monthly consumption was small in PG&E and SCE. SDG&E customers decreased usage, potentially in response to rate increases**: Following PV installation, average monthly consumption per tenant changes varied by the year the SOMAH project was installed. Weather normalized consumption in PG&E increased in the post period by 2 - 3.8% across cohorts. In SCE, estimated increases across cohort range from 2.5 - 5.7%. SDG&E tenants decreased usage 7.2 - 23%. [Section 7.2]

Demand Impacts

1. **CAISO Gross Peak:** Coincident generation of 3,218 kW in 2023, 4,746 kW in 2024, and 3,586 kW in 2025. Estimated capacity factor of 16.3% in 2023, 13.8% in 2024, and 7.5% in 2025. [Section 7.3]

2. **CAISO Net Peak:** Coincident generation of 168 kW in 2023, 1,298 kW in 2024, and 491 kW in 2025. Estimated capacity factor of 0.8% in 2023, 3.8% in 2024, and 1.0% in 2025. [Section 7.3]

3. **IOU Gross Peak**: Coincident generation ranged from a low of 145 kW in SDG&E to a high of 3,380 kW in SCE in 2023. Coincident generation ranged from a low of 582 kW in SDG&E to a high of 3,249 kW in SCE in 2024. Coincident generation ranged from a low of 201 kW in SDG&E to a high of 3,749 kW in SCE in 2025. [Section 7.3]

Environmental Impacts

1. **Observed Emissions Reductions**: 4,367 metric tons of CO_2 in 2023, 8,054 metric tons of CO_2 in 2024, and 14,219 metric tons of CO_2 in 2025. [Section 7.4]

2. **Forecasted Emissions Reductions**: 16,116 metric tons of CO_2 per year from completed projects and 39,548 metric tons of CO_2 per year from completed and active projects combined. The forecasted monetary value of emissions reductions is $514,000 per year from completed projects and $1,295,000 per year from completed and active projects combined. [Section 7.4]

Economic Impacts

1. **Common Area Bill Impacts:** 68% saved on average monthly bill in July 2024 – June 2025. [Section 7.5.2]

2. **Tenant Bill Impacts:** $58 per month, or 79% saved on average monthly bill in July 2024 – June 2025. [Section 7.5.2]

3. **CARE Tenant Bill Impacts:** $42 per month, or 78% saved on average monthly bill in July 2024 – June 2025. [Section 7.5.3]

4. **CARE Budget**: Spending reduced by over $2.75 million in July 2024 – June 2025 from completed projects (assumes tenants on CARE year-round). [Section 7.5.3]

Cost-Effectiveness

1. **Benefit-Cost Ratios:** 0.55 TRC, 0.62 SCT, and 0.15 RIM. [Section 8]

2. **NPV of Lifetime Cost Shift:** -$196,156,532 for all currently installed projects. [Section 8.1.1]

3. **NPV of Lifetime Bill Savings Per Project:** $666,986 per project. [Section 8.1.1]

System Performance

1. **Ongoing system performance issues were identified in over 150 projects.** There were 32 PG&E, 24 SCE, and 8 SDG&E projects that underperformed for over 6 months. On average these systems underperformed for 12-16 months. Additionally, almost 100 projects with underperformance issues were fixed, but after a few months were found to be underperforming again. While the SOMAH PA does work with contractors and property owners to address underperformance, there are many projects where issues are reoccurring. [Section 7.1]

R26. Continue exploring underlying reasons for consistently underperforming systems. The evaluation team recommends further investigation of re-current underperforming sites to attempt to identify and address any underlying causes driving consistent underperformance. [Section 7.1]

Action by: SOMAH PA (CSE & AEA) Supports: Goal a, b, f

R27. Identify effective strategies (possibly incentive-based or enforcement-oriented) that promote timely system repairs and sustained expected performance levels.

While the program handbook establishes minimum performance thresholds through required warranty and TPO contract terms, it does not include clear enforcement mechanisms to ensure systems continue to deliver the intended tenant benefits over time.

Potential areas for further exploration and discussion should include:

1. Implementing performance-based incentives tied to verified system operation over time
2. Establishing incentive claw back provisions in cases where systems fail to meet performance expectations for a given length of time
3. Offering targeted supplemental incentives to encourage timely repair of underperforming or non-operational systems

These discussions should explicitly consider the balance between improving realized savings and system persistence versus the potential risk of discouraging participation. The goal should be to design a framework that reinforces accountability and long-term performance while remaining cost-effective, administratively feasible, and attractive to market actors. [Section 7.1]

Action by: SOMAH PA (CSE), CPUC & Policymakers Supports: Goal a, b, f

R28. Explore providing additional incentives for extended monitoring and maintenance contracts beyond 2032. The SOMAH program is currently funded through 2032, but without an extended contract, support and funding for monitoring services provided by the SOMAH PA's fleet monitoring will end. To date, the program has demonstrated measurable improvements in realization rates as the SOMAH PA fleet monitoring system has matured and its capabilities have expanded. Continued monitoring would help sustain these gains by enabling ongoing performance verification, early identification of operational issues, and continued optimization of installed measures. Providing incentives for extended monitoring and maintenance contracts would help ensure that the program continues to capture these benefits and maintain improved realization rates over time. [Section 7.1]

Action by: CPUC & Policymakers Supports: Goal a, b, f

2. SOMAH incentive levels and performance expectations are developed using the EPBB Calculator which is driven by NLR's PVWatts v2 Calculator (last updated in 2014). The current version of NLR's PVWatts calculator is now v8.6 (released in February 2026). **More recent versions of PVWatts have been shown to have higher generation estimates by approximately 10%, meaning SOMAH performance expectations are understated for projects using the EPBB method.** Indeed, 2025 realization rates for completed SOMAH projects were 10 percentage points lower (80% versus 90%) when expected generation was estimated in line with PVWATTS v8.6 instead of the EPBB estimates. D.24-11-006, issued in November 2024, ordered that the EPBB methodology and calculator be suspended for certain projects in Northern PG&E territory and all tribal projects in PG&E territory. [Section 3.2.4]

R29. Research changing incentive calculations away from EPBB calculator for all SOMAH projects. Updating the method for performance expectations will increase cross-program consistency and provide a more accurate baseline for comparing realized performance. This recommendation should be taken in concert with increased monitoring and enforcement measures to ensure systems performance is maximized and maintained. [Section 3.2.4]

Action by: CPUC & Policymakers Supports: Goal a, b, f

9.5 RECOMMENDATIONS FOR FURTHER RESEARCH

This section presents recommended areas for further SOMAH research. This research was not conducted during this evaluation as it was deemed outside the scope.

1. **Assess adequacy of incentives relative to size or location of projects** (including battery considerations). Project costs per kW vary by location and size (with smaller projects suffering from no economies of scale) making program incentives potentially inadequate in high cost of labor markets or for smaller projects.
2. **Review the impact of prevailing wage requirements.** The tracking data does not currently record information in a way to identify which projects would be impacted by prevailing wage requirements. We heard in contractor interviews that these new requirements were negatively impacting the feasibility of some SOMAH projects. It would be beneficial to the program to explore if, how, and to what extent prevailing wage requirements are impacting SOMAH.
3. **Review of the SOMAH PA's Salesforce database.** The salesforce database contains contact information for property management companies and housing authorities located within California and supposedly tracks SOMAH PA engagement with these entities. A database and process review could explore how this contact information is collected, stored, and leveraged for future program outreach. Findings from this research could help improve property owner outreach, awareness, and engagement.

4. **Research the VNEM interconnection process at each IOU to understand why SOMAH interconnections take longer than other NEM interconnections**. Longer interconnection timelines are not just a SOMAH issue, overall VNEM interconnection applications take significantly longer than other NEM interconnection applications. Once the source of the timeline delays is well understood, the CPUC and SOMAH PA can then work with the IOUs to minimize the delays associated with the interconnection process.

5. **Examine the financial mechanisms used by third-party solar ownership companies to understand how PPA contracts are structured, monetized, and transferred.** PPA providers often engage in complex financial practices such as bundling and securitizing customer contracts, monetizing tax credits through tax equity financing, or selling portfolios of agreements to investors. Research in this area could explore how these practices affect service continuity and whether current program requirements provide adequate transparency and protections when contracts change hands.

VERDANT

APPENDIX A PU CODE 913.8 REPORTING REQUIREMENTS

The Public Utilities (PU) Code Section 913.8 includes a list of reporting requirements that must be addressed by the SOMAH evaluation. The table below provides a summary of these reporting requirements and how and where they are addressed within the third triennial SOMAH report. The data included in this report reflects the status of the program as of December 31, 2025.

PU Code 913.8 Reporting Requirement	Status as of December 31, 2025
The number of qualified MF affordable housing property sites that have a qualifying solar energy system.	As of the end of 2025, 378 SOMAH projects have been completed and received the SOMAH incentive. An additional ten projects have had their Incentive Claim Approved. A summary of the status of active SOMAH applications is included in Section 4.1 of this report.
The dollar value of the award and the electrical generating capacity of the qualifying renewable energy system.	As of the end of 2025, the PV system capacity of the 378 completed projects is 48 MW_{AC}. The 456 active SOMAH applications have 71 MW_{AC} of capacity. The total value of the submitted/reserved SOMAH incentive for active projects is $164M. The completed projects have received $96M in incentives.
The bill reduction outcomes of the program for the participants.	The average bill reductions for tenants in July 1, 2024 through June 30, 2025 (2024-2025) was $58 per month, or 75% of an average monthly bill. The average bill reduction for common areas in 2024-2025 was $1,977 per month, or 68% of an average monthly bill. Further summaries of the bill reduction analysis can be found in Section 7.5.2 of the report.
The cost of the program.	Section 6 of the report provides the total program expenditures, budget, and incentives paid through December 31, 2025. The total program administrative expenditures were $8.3M in 2025 and $60M in total across all years. Through 2025, $132M of incentives have been paid and $137M are forecasted to be paid in future years.
The total electrical system benefits.	The program produced 21,657 MWh of energy in 2023, 35,036 MWh in 2024, and 58,581 MWh in 2025. The coincident generation from SOMAH systems during the top hour of CAISO Gross load was 3,218 kW in 2023, 4,726 kW in 2024, and 3,586 kW in 2025. This is less than 0.01% of the CAISO gross load peak. Further details on the total electrical system benefits can be found in the report (energy benefits in Section 7.1 and demand benefits in Section 7.3).
The environmental benefits.	SOMAH systems led to greenhouse gas emissions reductions of 4,367 metric tons of CO_2 in 2023, 8,054 metric tons of CO_2 in 2024, and 14,219 metric tons of CO_2 in 2025. Further details on the environmental benefits of the program are found in Section 7.4 of the report.
The progress made toward reaching the goals of the program.	**Goal 1) Expanding access to solar generation or solar generation with integrated battery storage and its benefits to low-income customers in multifamily housing, where it is typically limited.** 87 active and complete projects are/will be paired with energy storage (6 cancelled projects). The 378 completed projects serve 26,436 tenant units (one completed project records 0 tenants), and of these 113 projects are in DACs supporting 7,483 tenant units.

PU Code 913.8 Reporting Requirement	Status as of December 31, 2025
	Goal 2) Incentivizing the installation of at least 300 MW of solar generation capacity. Section 4.1 of the Third Triennial report presents analysis of the SOMAH applications submitted through December 31, 2025. As this analysis shows, the PV system capacity of the 834 active and complete SOMAH applications is 119 MW_{AC} which is 40 percent of the overall program goal of 300 MW_{AC}. **Goal 3) Ensuring financial benefits accrue primarily and directly to tenants and are not recaptured by other means.** Section 4.3.4 of the Third Triennial report presents analysis of the program tracking data through December 31, 2025. While the SOMAH Program requires a minimum 51 percent of a project's electrical output be allocated to offset tenant's load, currently on average across SOMAH applications, the tenant allocation is 83 percent for active applications and completed projects. **Goal 4) Providing greater accessibility to the program for applicants through a single point of contact, full service technical assistance, and coordination with other low-income programs.** The SOMAH Program is administered by the SOMAH PA, a group of four organizations (CSE, GRID, CHP, and AEA), that operates and acts as a single entity ("the SOMAH PA"). Member roles are clearly defined and well understood by both internal staff and external stakeholders. This organizational structure and breadth of services help reduce barriers to participation and minimizes confusion for program applicants. The PA offers a comprehensive range of technical assistance services, spanning from solar feasibility assessments to interconnection support, all of which are thoroughly documented on the SOMAH website. As described in this report, participating contractors and property owners reported high levels of satisfaction with the technical assistance provided by the SOMAH PA. The SOMAH PA provides tenant information to participating IOUs for ESA outreach and provides educational materials regarding ESA and other stackable programs to property owners and tenants Further information regarding cross-program participation can be found in Sections 4.3.7 and 5.3.3. **Goal 5) Promoting local economic development through job training requirements and hiring practices.** SOMAH's job training component has successfully expanded trainee participation over time and has been effective in supporting short-term employment outcomes, with approximately 88% of surveyed trainees reporting that they secured jobs in the clean energy sector following training, most often with their host employer. While immediate placement outcomes were strong, longer-term retention remained a challenge, with

PU Code 913.8 Reporting Requirement	Status as of December 31, 2025
	36% of trainees reporting they were still working in the solar industry at the time of the Q4 2025 survey. Despite these retention challenges, trainee satisfaction was high, with roughly 80% reporting satisfaction with their training experience and 96% indicating they would recommend the program to others. **Goal 6) Facilitating efficient program administration by a single, statewide administrator**. The SOMAH PA is internally aligned on the goals and objectives of the program and is working in the spirit of the legislation. Participating contractors and property owners reported high levels of satisfaction on their interactions with SOMAH PA. The SOMAH PA has been responsive to implementing past program evaluation recommendations. **Goal 7) At least 40 percent of all projects statewide will be in disadvantaged communities by the program's end.** As of December 31, 2025, 32% of all active and completed projects are in DACs. **Goal 8) At least 30 percent of all projects in each large IOU territory will be in disadvantaged communities by the program's end** As of December 31, 2025, PG&E has 29% of active and complete projects in DACs, SCE has 45%, and SDG&E has 13%.
The program's impact on the California Alternate Rates for Energy (CARE) Program budget.	Spending towards the CARE budget was reduced in July 1, 2024 through June 30, 2025 by $2,791,084 (assuming tenants remained on CARE rates the entire year). The CARE budget impact analysis is presented in Section 7.5.3 of the report.
Analysis of pending program commitments, reservations, obligations, and projected demands for the program to determine whether future ongoing funding allocations for the program are substantiated.	SB 355 extended the SOMAH program through 2032. As shown in Figure 4-10 of this report, the SOMAH program can meet the 300 MW goal if program application levels experienced in 2025 persist (28 MW of capacity per year).
A summary of the other programs intended to benefit disadvantaged communities, including, but not limited to, the Single-Family Affordable Solar Homes Program established by the commission in Decision 07-11-045, the Multifamily Affordable Solar Housing Program established by the commission in Decision 08-10-036, and the Green Tariff Shared Renewables Program.	A summary of these programs was provided in Appendix F of the first triennial evaluation Phase I Report (https://www.cpuc.ca.gov/-/media/cpuc-website/files/legacyfiles/s/6442465840-somah-phase1-evaluation-final-report.pdf) DAC-SASH provides funding for installing solar PV systems on existing owner-occupied low-income households, therefore SOMAH tenants are not eligible for this program. MASH and SASH are now closed. DAC-Green Tariff and Community Solar Green Tariff provide bill discounts to customers who live in DACs who are unable to install solar on their roofs. The SGIP offers rebates to lower-income, medically vulnerable, and at-risk for fire communities are at the front of the line to receive competitive incentives for battery storage.

PU Code 913.8 Reporting Requirement	Status as of December 31, 2025
Additional DAC Reporting Requirements	**Status as of December 31, 2025**
Number and percentage of applications received for projects located in a DAC	As presented in Section 4.3.3, as of December 31, 2025, a total of 415 submitted project applications are within a DAC (32 percent of all applications).
Number and percentage of applications for projects located in a DAC that are approved	113 of the 415 submitted projects in a DAC are completed as of December 31, 2025 (27 percent of all submitted DAC applications).
Cost Effectiveness and Cost Shift of installed projects	The benefit-cost ratios of SOMAH installed projects is 0.55 TRC, 0.62 SCT, and 0.15 RIM. The total NPV of the lifetime cost shift is $196,156,532 for all completed projects. The NPV of lifetime bill savings per project is $666,986.

VERDANT

APPENDIX B SOMAH METRICS AND KPI ASSESSMENT

CPUC D.24-11-006 includes a list of metrics and key performance indicators (KPIs) that can be used to track program performance over time against the programs stated goals. The tables below present the assessment of these metrics and KPIs as of December 31, 2025.

TABLE B-1: SOMAH PROGRAM METRICS

#	Metric	Metric Assessment as of December 31, 2025
1	Projects with Reservation Request Approval, Milestone Status, and Incentive Package Submitted in Track A and Track B for active and completed projects.	RR Approval:22 Track A and 32 Track B EECM: 8 Track A and 39 Track B PPM: 0 Track A and 31 Track B PPP: 1 Track A and 5 Track B ICP Submitted: 2 Track A and 316 Track B Project Paid: 4 Track A and 374 Track B
2	Number of job trainees who complete training per number of projects completed (current year's progress and progress since the program's start)	Per job trainee tracking data received from the SOMAH PA on July 14, 2025, there were 142 unique job trainees (569 job opportunities) from 301 projects. From July 2024 to June 2025 the data included 174 completed projects with 42 unique job trainees (320 job opportunities).
3	SOMAH-sponsored Job Trainings Conducted and Attendees	Per SOMAH's January 2026 Semi-Annual Progress Report, there are a total of 95 active JTOs. In addition, 34 new trainees were added to the SOMAH Job Training Portal, bringing the total of 634 job trainees. The SOMAH PA continued to worked with community-based organizations to promote job training opportunities and build local workforce connections. Efforts focused on increasing tenant participation through Tenant Education Services and ongoing engagement with trainees via career development workshops. On December 9, 2025, the Workforce Development Team hosted an O&M-focused webinar highlighting solar career pathways, sector growth, and how to find and apply for relevant training programs and jobs.
4	Projects with Reservation Request Approval, Milestone Status, and Incentive Package Submitted benefiting tenants who are income qualified and/or live in a DAC for active and completed projects.	RR Approval: 53 LI and 24 DAC EECM: 46 LI and 18 DAC PPM: 31 LI and 10 DAC PPP: 6 LI and 1 DAC ICP Submitted: 310 LI and 98 DAC Project Paid: 369 LI and 113 DAC
5	SOMAH Projects with Reservation Request Approval, Milestone Status, and Incentive Package Submitted in HUD & USDA Housing	RR Approval: 8 HUD and 0 USDA EECM: 2 HUD and 0 USDA PPM: 1 HUD and 1 USDA ICP Submitted 21 HUD and 7 USDA Project Paid: 38 HUD and 9 USDA This analysis was based on the Regulatory Agreement Type variable included in PowerClerk.

#	Metric	Metric Assessment as of December 31, 2025
6	Applicants Satisfied with Technical Assistance	Seven of the 16 property owners we spoke with were aware of the SOMAH Program's Technical Assistance offering. Of these seven, four had used it. Those four who used it reported it to be very helpful. When asked about awareness or use of the Technical Assistance, most property owners report relying on their contractors to take care of all technical aspects of the program.

TABLE B-2: SOMAH PROGRAM KEY PERFORMANCE INDICATORS (KPIS)

#	KPIs	KPI Assessment
1	SOMAH Projects with Reservation Request Approval, Milestone Status, and Incentive Package Submitted by Capacity (0-50kW, 50-100kW and over 100kW), Budget, and IOU territory	**SOMAH Projects by stage** (Figure 4-2): - RR Package: 54 - EECM: 47 - PPM: 31 - PPP: 6 - ICP: 308 - ICA: 10 - Complete: 378 **Capacity of active and complete projects:** 71 MW Active and 48 MW Complete (Table 4-1) **Total program expenditures**: $59,724,662 (Table 6-1) **Participation by IOU**: Table 4-1 - Liberty: 2 total, 1 active, 0 complete, 1 cancelled - PacifiCorp: 1 total, 0 active, 0 complete, 1 cancelled - PG&E: 767 total, 265 active, 238 complete, 264 cancelled - SCE: 344 total, 134 active, 94 complete, 116 cancelled - SDG&E: 163 total, 56 active, 46 complete, 61 cancelled
2	Targeted Audiences Aware of SOMAH	Participating contractors reported that awareness of SOMAH is low among property owners (especially among smaller property owners) and many noted that the eligible properties map and PA support for lead generation are of limited usefulness. According to CBOs, awareness of SOMAH among eligible properties ranges from fair to well-known, with some communities still unaware of the program.
3	CBOs Participating in SOMAH	Five CBOs are currently partnered with SOMAH
4	MW of Installed Solar Capacity and MWh of Integrated Storage Capacity in MF Affordable Housing	48 MW of completed solar projects and no completed integrated storage projects.
5	Reduced Electricity Bill Costs among SOMAH Tenants	$58 per month in July 2024-June 2025
6	SOMAH Trainees Hired for Solar Jobs	As of January 2026, there were 150 unique job trainees hired for solar jobs. According to SOMAH PA surveys, 22 job trainees have been hired by contractors for ongoing employment. Based on the evaluation survey of job trainees, 36% of survey respondents were still working at a solar job at the time of the survey (n=9/25).
7	Program cost or savings impact on	$2,791,084 reduced spending to CARE program budget in July 2024-

#	KPIs	KPI Assessment
	the California Alternate Rates for Energy (CARE) program budget	June 2025
8	Energy Savings Assistance (ESA) Program enrollment among SOMAH tenants	ESA enrollments for projects that had reached the reservation request form (RRF) approval date by January 1, 2023 through April 30, 2025 (based on IOU data request): - PG&E: 1 tenant - SCE: 83 tenants - SDG&E: 0 tenants
9	Avoided CO_2 emissions (tons)	4,367 in 2023, 8,054 in 2024, and 14,219 in 2025 from completed projects.
10	Program awareness reached 51 percent of the targeted audience of eligible property owners by 2027	Based on the property owner contact data received from the SOMAH PA, only 20% of properties had email addresses, of those 25% of property owner email addresses were undeliverable. Based on these findings, it is unlikely that 51% of the targeted eligible audience is aware of the SOMAH program.
11	CBO impact on application rates and applicant satisfaction	2 of the 16 property owners surveyed (12.5%) said they interacted with a CBO. According to our tenant survey, 8.5% of tenants recalled CBO outreach. The CBO KPIs are activity-based and applications are not tired back to CBO efforts.

VERDANT

APPENDIX C DATA COLLECTION ACTIVITIES AND INTERVIEW GUIDES

This evaluation included numerous interviews, including in-depth interviews and surveys with a broad range of SOMAH program stakeholders, including the Program Administrators (PAs), investor-owned utilities (IOUs), participating and non-participating contractors and property owners, community-based organizations, financing partners, tax experts, tenants, and job trainees. The evaluation team designed data collection instruments to ensure consistency across respondent groups while allowing for targeted probes to capture stakeholder-specific experiences.

Table C-1 below outlines the data collection activities conducted as part of this evaluation. Further details on each of these research efforts are provided in the sections below.

TABLE C-1: SUMMARY OF IN-DEPTH INTERVIEWS AND SURVEYS

Program Actor	Group	Type	Sample*	Completes	Research Objectives
SOMAH Program Administrator	CSE	IDI	1	1	Discuss recent program changes made to reduce application burden and barriers to participation, status of responding to prior evaluation recommendations, ME&O strategies and recent successes, project pipeline outlook, primary program challenges, cross-program marketing/coordination efforts, assessment of WFD effectiveness, CBOs partnerships, and trends in program implementation spending. These interviews also include discussion of any findings resulting from flagging PV performance below the performance threshold.
	GRID Alternatives	IDI	1	1	
	AEA	IDI	1	1	
	CHP	IDI	1	1	
Contractors and Sub-Contractors	Participants	IDI	21 Prime 32 Sub	4 Prime 4 Sub	Program participation experience and satisfaction, impact of recent program changes, areas in need of additional streamlining and/or improvement, likelihood of future participation, satisfaction with and impact of prime/subcontractor partnerships, and how AB 2143 is affecting their participation in SOMAH.
	Non-Participants	IDI	~157	6	Barriers to participation, awareness/impact of recent program changes, areas in need of improvement, likelihood of future participation, and challenges specific to contractors serving Liberty and PacifiCorp territories.
Property Owners	Participants (including cancelled or withdrawn)	IDI	~138	16	Sources of SOMAH awareness, experience and satisfaction with SOMAH program, drivers and barriers to participation, interactions with CBOs, cross program awareness and participation, installed system performance (including service to remedy low performance), observed bill savings and other system benefits, reason for project cancellation/withdrawal, likelihood of future program participation, areas for additional support or program improvement.
	Non-Participants	IDIs and Web Surveys	~415	Web Survey Census	Level and sources of program awareness, effectiveness of ME&O efforts (including CBO outreach), reasons for non-participation, likelihood and timing of future program participation, barriers to solar adoption, and recommendations for program improvement.
CBOs and Financing Partners	Participants	IDI	10	7 CBOs and 3 Financing Partners	CBO: Role and effectiveness in SOMAH ME&O activities, perception of property owner's barriers to participation, recommendations for program improvement. Financing Partner: Description of financing offers and qualifications, uptake of financing amongst SOMAH participants, recommendations for program improvement.
Tax Experts	N/A	IDI	N/A	1	Understand the evolving tax environment, tax credit options available for LIMF properties installing solar and battery storage.
SOMAH Tenants	Participants	Web Surveys	19,886	293	Level of awareness of SOMAH and the Tenant Education Hotline, effectiveness of tenant education, satisfaction with SOMAH and property (post-PV), EE upgrades made and changes to energy understanding and/or usage post-SOMAH, SOMAH benefits realized, recommendations for program improvement.
Job Trainees	Tenant Trainees	Web Surveys	23	1	Satisfaction with and sources of awareness of SOMAH job opportunities and services, training received on SOMAH projects, effectiveness of SOMAH's WFD with respect to long term job placement, recommendations for program improvement.
	Non-Tenant Trainees		127	27	

*Many affordable housing organizations are responsible for multiple SOMAH eligible properties and thus this sample quantity does not represent the unique number of eligible property owners.

VERDANT

C.1 SOMAH PROGRAM ADMINISTRATOR (PA) INTERVIEWS

All four SOMAH PA members were interviewed as part of the first and second SOMAH evaluation. For this third SOMAH evaluation, follow-up interviews were conducted with each member of SOMAH PA to discuss recent or planned program changes, their assessment of the effectiveness of these changes, and other program implementation successes and challenges. We also dug into the strategies the SOMAH PA is using to address the program's most significant challenge: increasing program participation; and discussed whether the PAs have identified root causes for the low PV performance reported in the second SOMAH evaluation.

C.1.1 PA Interview Guide

SOMAH Program Administrator Intervie

C.2 CONTRACTOR INTERVIEWS

The primary goal of the contractor interviews was to learn from contractors about what aspects of the program are working well, what could be improved, what is driving and/or limiting program participation, and how changes to the program implemented since the last evaluation have impacted their experience with the program. For contractors interviewed in the previous evaluation, we focused specifically on changes to the program or their participation since the last evaluation and the impact of or reasons for these changes. We recruited participating and non-participating contractors for the IDIs via personalized email outreach, selecting a mix of high-volume and low-volume project contractors. Non-participating contractors were defined as those who have attended the Contractor Eligibility Training but either never submitted an application or cancelled all submitted applications.

The Evaluation Team conducted IDIs with eight participating SOMAH contractors (four as primes and four as subcontractors), and six non-participating contractors. Table C-2 below presents the sample design for these IDIs across their participation status, contracting role (prime or sub) and additional considerations that were included in our selection of contractors to ensure we had representation of all types of contractors (which are further detailed below the table).

The interview guide used for the contractor interviews is provided below in Section C.1.

TABLE C-2: CONTRACTOR SURVEY SAMPLE DESIGN

Participation Status	Prime vs. Sub Contractor	Further Sampling Considerations
Participants	Prime	• Small vs large (many projects vs few projects) • Work with tribal entities, HUD, mobile homes, or serving northern counties • Newer participants vs more seasoned participants
	Sub	• Small vs large (many projects vs few projects) • Those who have primed and subbed vs those who only work as a sub • Diversity of prime contractors • Work with tribal properties, HUD, mobile homes or northern counties
Non-Participants	N/A	• Small vs large (many projects vs few projects) • Prime- vs sub-contractors • Remove those surveyed last year • More recently eligible vs eligible for years • Contractors serving different areas (esp. northern counties) • Diverse contractors (women owned, minority owned, small, etc)

C.2.1 Participating Contractors

The participating contractor population included all contractors included within the PowerClerk tracking data. As of June 2025, there were 21 contractors who had participated in the program as a prime contractor and 34 who had been subcontractors.[1]

C.2.2 Non-Participating Contractors

The non-participating contractor population was created by merging the eligible contractors list (N=200) provided by the SOMAH PA to the participating contractor list and then dropping all contractors who had participated in SOMAH as either a prime or subcontractor. The final non-participant list included 157 unique active contractors (plus 10 inactive contractors) who have not participated in a SOMAH project as of June 2025.

C.2.3 Contractor Interview Guide

SOMAH Contractor Interview Guide.pdf

[1] Two contractors were both a sub and prime contractor on different SOMAH projects and are therefore included in both numbers.

C.3 PROPERTY OWNER INTERVIEWS

We conducted interviews with property owners using the Microsoft Teams meeting platform which enables video, screen-sharing, and recording to the cloud for note-taking purposes. We recruited participating property owners for the in-depth interviews via email primarily and followed up by phone as necessary. The non-participating property owner in-depth interview recruitment were done by phone to ensure the interviews are set up with the correct individual. The non-participating property owner web survey was sent out to all the email addresses contained in the eligible property list, that were not found in the PowerClerk tracking data.

The interview guide used for the property owner interviews is provided below in Section C.2.

C.3.1 Participating Property Owners

Interviews were completed with 16 of the 138 unique participant affordable housing property owners/developers who had submitted an application to the SOMAH Program as of June 2025. The sample of participating property owners interviewed represented a diverse set of SOMAH Program participants including for for-profit, non-profit, and government run (public housing agencies) organizations, Track A and Track B participants, prolific property owners and those who have submitted only a single application, property owners who partnered with both large and small SOMAH contractors, and those using third-party and host customer ownership financing.

C.3.2 Non-Participating Property Owners

The sample of non-participating property owners was developed using a list of potentially eligible properties provided by the SOMAH program administrator (PA). Properties were grouped, where possible, by property developer or umbrella company. This list was then merged with the list of participating property owners at the umbrella company level, and also by any contact information provided (i.e. phone numbers and email domains). Properties owned or managed by umbrella companies that had previously participated in the SOMAH program were removed from the sample. All remaining eligible non-participating property owners with an email address on file were invited to participate in the web survey via email.

The eligible property list contained 4,448 records. However, limited contact information made it difficult to group properties into umbrella companies across the full dataset. As email addresses were required for distribution of the web survey, the analysis focused on records that included email contact information. Approximately 20% of records contained email addresses.

These records corresponded to roughly 500 umbrella companies, of which approximately 15% were already participating in the SOMAH program. Excluding participating companies resulted in a survey distribution list of approximately 415 non-participating umbrella companies.

Of the emails distributed, approximately one-quarter were opened, one-quarter were returned as undeliverable, and approximately half remained unopened.

A total of three respondents completed the web survey. Two respondents indicated that they owned or managed properties already participating in the SOMAH program, suggesting limitations in the available data made it difficult to fully exclude participating developers from the non-participant outreach list.

The remaining respondent, who had not participated in the SOMAH program and that four of their buildings may meet program eligibility criteria, identified financial considerations as the primary barrier to participation.

C.3.3 Property Owner Interview Guide

SOMAH Property Owner Interview Guid

C.4 COMMUNITY BASED ORGANIZATION (CBO) INTERVIEWS

The evaluation team interviewed seven participating CBOs to assess their experiences with SOMAH's organizational structure and their ability to carry out program activities effectively. Subcontracted community-based organizations were interviewed by phone. Interviews covered topics including their role and effectiveness in SOMAH ME&O activities, perception on property owner's barriers to participation, and recommendations for program improvement.

C.5 FINANCING PARTNERS SURVEYS

The evaluation team completed interviews with three financial partners. Financial partners engaged with the SOMAH program bring diverse approaches to financing solar and storage projects for affordable multifamily housing.

C.5.1 SOMAH CBO and Financing Partners Interview Guide

SOMAH CBOs FinancePartners Interv

C.6 TAX EXPERT SURVEYS

To evaluate understanding of tax credit options available to low-income multifamily properties, the evaluation team conducted an in-depth interview with a national tax expert specializing in renewable energy and affordable housing tax credits. The interview explored the current federal tax landscape, recent legislative changes, and implications for SOMAH participants.

C.6.1 Tax Expert Interview Guide

SOMAH Tax Experts IDI Guide.pdf

C.7 TENANT SURVEYS

C.7.1 Data Collection

The tenant survey was administered via Qualtrics using a SOMAH-branded email in English and Spanish. Respondents were initially offered a $25 incentive, which was increased to $50 to address a lower-than-expected response rate.

C.7.2 Tenant Survey Guide

SOMAH Tenant web survey.pdf

C.7.3 Tenant Survey Sample Design and Weighting

A model-based statistical sampling (MBSS) approach was used to design the sample. The tenant population was stratified using a three-way cross-classification of:

- **IOU**: PG&E, SCE and SDGE

- **Installation contractor**: Sunrun vs. all other contractors[2]
- **Property unit size**: ≤100 units vs. >100 units

This yielded 12 strata (3 IOUs × 2 contractor groups × 2 unit-size groups), used to set sample targets and support subgroup comparisons (Table C-3). The sampling frame was limited to tenants with valid email addresses. After data collection, post-stratification weights were calculated to project the achieved sample to the full population.

The post-stratified population totals 19,886 tenants. The design targeted 420 completed surveys; 293 were achieved.

TABLE C-3: TENANT POST-STRATIFICATION RESULTS

IOU	Contractor	Unit Size	Population (N)	Sample Target	Achieved Sample (n)	Weight
PG&E	Sunrun	<= 100 (Small)	6,503	115	78	83
		100 < (Large)	2,696	55	14	193
	Other	<= 100 (Small)	678	15	19	36
		100 < (Large)	888	20	18	49
SCE	Sunrun	<= 100 (Small)	2,652	60	34	78
		100 < (Large)	2,047	45	24	85
	Other	<= 100 (Small)	940	20	13	72
		100 < (Large)	856	20	13	66
SDG&E	Sunrun	<= 100 (Small)	639	15	22	29
		100 < (Large)	1,582	35	46	34
	Other	<= 100 (Small)	261	10	8	33
		100 < (Large)	144	10	4	36

C.7.4 Research Objectives

To measure the effectiveness of the tenant educational services and how residents experienced the SOMAH program, our evaluation included an online survey of tenants living in properties with completed SOMAH projects. The tenant survey assessed residents' awareness and understanding of the program, their perceptions of changes to their electricity bills, and their satisfaction with the information and education they received after installation. The survey also explored whether participation in SOMAH influenced tenants' energy-related knowledge, behaviors, or engagement with other utility programs.

Findings from the tenant survey assess the effectiveness of SOMAH's tenant-facing activities and identify opportunities to improve communication, education, and overall program benefits for residents. The tenant survey aimed to address the following research objectives:

[2] Sunrun was treated as a distinct category due to its relatively large share of installations

- Assess tenants' awareness and understanding of the SOMAH Program
- Evaluate tenants' understanding of their electricity bills and solar-related bill credits
- Examine perceived changes in electricity costs and energy use following solar installation
- Evaluate satisfaction with SOMAH-related communication, education, and information provided to tenants
- Assess awareness and use of tenant-focused SOMAH resources, where applicable
- Identify changes in tenants' energy knowledge, attitudes, or behaviors following participation
- Assess awareness of and participation in other utility or energy-related program
- Identify perceived benefits, challenges, or areas of confusion related to SOMAH participation
- Gather tenant recommendations for improving program communication, education, and overall tenant experience

VERDANT

C.8 JOB TRAINEE SURVEYS

C.8.1 Data Collection

A structured telephone survey was conducted with job trainees who completed a SOMAH training opportunity (Table C-4). The sample frame consisted of 146 unique trainee participants drawn from the program's tracking database. The survey achieved a 22% response rate (n=32). Among them, 28 were aware of their participation and 24 completed the survey in full; four were screened out for being unaware of the training or stated they had not completed it. Based on the findings of other survey respondents, these four respondents were likely enrolled by their employer without their knowledge, as some solar companies registered existing employees already working in the field.

During survey administration, the team encountered several data collection challenges, specifically:

- **Invalid Email Addresses.** The initial email-to-web distribution yielded insufficient responses; prompting a switch to telephone surveys. Many trainee emails used solar contractor domains (e.g. SunRun, Grid Alternatives), and many trainees were no longer employed at those companies. The telephone surveys ultimately proved valuable, surfacing unexpected findings, such as trainees who never visited actual SOMAH projects sites.

- **Invalid Phone Numbers**. Twenty-one percent of listed telephone numbers were disconnected, a higher rate than typically observed, further limiting the team's ability to reach eligible participants.

- **Limited Representation.** The team had planned to compare responses between SOMAH tenants and trainees from partner organizations, but this was not feasible. Tracking data showed only 17% of trainees were SOMAH tenants, and only one survey respondent self-identifying as living in a SOMAH property.

Job trainee survey results are presented as unweighted.

TABLE C-4: JOB TRAINEE SURVEY DISPOSITION

Survey Dispositions	Count	Response rate
Population	n=146	-
Survey respondents	n=32	22%
All surveys, (n=24 completed in full)	n=28	19%
Not qualified, unaware of participation	n=4	2%

C.8.2 Job Trainee Survey Guide

SOMAH Job Trainee Survey.pdf

C.8.3 Research Objectives

The job trainee interviews assess the program's workforce development impact. These interviews explore trainees' experiences working on SOMAH projects, the skills and knowledge they gained, the accessibility of training opportunities, and how participation in SOMAH supports longer-term employment in the clean energy sector. The job trainee survey was structured to address the following objectives:

- Identify sources of awareness regarding SOMAH job training opportunities
- Understand trainees' motivations for participating
- Evaluate the ease of participation in SOMAH training opportunities
- Evaluate the training provided on SOMAH projects
- Identify specific skills and knowledge gained through SOMAH job training
- Assess trainees' experiences working on SOMAH projects
- Measure satisfaction with SOMAH job opportunities and services
- Determine whether SOMAH job training supports longer-term clean energy employment
- Examine how training influences interest in solar or other clean energy technologies
- Assess how participation shapes future career paths
- Assess SOMAH's workforce development effectiveness in supporting long-term job placement
- Gather trainee recommendations for program improvement

VERDANT

APPENDIX D CUSTOMER ELECTRICITY CONSUMPTION REGRESSION METHODOLOGY

Verdant used a two staged regression approach to estimated changes in energy consumption for customers with completed SOMAH projects. The regression stages were as follows:

Stage 1 – PRISM Weather Normalization: The first stage involved weather normalization of customer electricity consumption in the pre and post periods using the Princton Scorekeeping Method (PRISM) approach. CALMAC weather data was used for weather normalization. The intention of normalizing energy consumption is to remove the influence of weather from estimates of changes in energy consumption between the pre and post periods.

Weather normalization of energy consumption relied on individual customer regression modeling and was completed separately for pre and post periods for each customer. The customer and period specific regressions were first used to establish the relationship between the energy consumption and weather (along with other independent variables) and then we used the parameter estimates to weather normalize energy consumption under typical metrological year (TMY) conditions. The first stage model specification is described in Equation 1 below. A range of indices for heating degree hour and cooling degree hours were modeled for each customer, and the best model was chosen based on the R-squared metric.

EQUATION 1 CONSUMPTION FIRST STAGE REGRESSION

$$kWh_{m,d,h} = \beta_0 + \beta_1 Month_m + \beta_2 Hour_h + \beta_3 WeekendHoliday_d + \beta_4 HDHXX_h Hour_h + \beta_5 CDHXX_h Hour_h + \varepsilon_{m,d,h}$$

$Where$:

$kWh_{m,d,h}$	The Net Load in month m on day d in hour h
β_0	The intercept of the regression model
$Month_m$	A dummy variable for each month *m*
$Hour_h$	A dummy variable for each hour *h*
$WeekendHoliday_d$	A dummy variable for weekends and holidays for each day d
$HDHXX_h Hour_h$	The interaction between heating degree hour with index temp (XX) in hour h and the hour of day h
$CDHXX_h Hour_h$	The interaction between cooling degree hour with index temp (XX) in hour h and the hour of day h
ε	The regression error term

Stage 2 – Change in Energy Consumption: The second stage regression utilized a fixed effect panel data model to estimate the impact of the SOMAH PV system on energy consumption, where the dependent

variable is the weather normalized energy consumption from the first stage regression. Equation 2 below describes the second stage regression model. The coefficient tied to the treatment dummy variable represents the estimated change in monthly energy consumption because of the installation of a SOMAH PV system.

EQUATION 2 CONSUMPTION PANEL DATA MODEL

$$MonthlykWh_{mi} = \alpha_i + \beta_1 Treatment_{mi} + \beta_2 Month_m + \varepsilon_{mi}$$

$Where$:

$MonthlykWh_{mi}$	The sum of weather normalized consumption in a month adjusted for days in month m for SOMAH tenant i
α_i	Tenant specific fixed effect for tenant i
$Treatment_{mi}$	A dummy variable equal to 1 during the post installation period and 0 otherwise. For to each month m and tenant i
$Month_m$	A dummy variable for each month *m*
ε	The regression error term

VERDANT

APPENDIX E CALIFORNIA AIR RESOURCES BOARD GREENHOUSE GAS SAVINGS

The estimated lifetime greenhouse gas (GHG) emissions reductions attributable to proceeds were also calculated per the California Air Resources Board (CARB) requirements. The CARB GHG Benefits Estimation Tool[3] was used to develop these estimates, as presented in Table E-1 below. All projects were modeled with a 20-year expected project lifetime and a 0.5 percent annual degradation factor.[4] The CARB GHG Benefits Estimation Tool uses an emissions factor of 0.21 $MTCO_2e$ per MWh. The percentage of SOMAH projects funded with auction proceeds was calculated by year as the sum of the total (submitted or reserved) incentives for the in-scope impact projects and the program expenditures, divided by the total project costs projects (net estimated ITC and LIHTC payments). The total program expenditures through December 31, 2025 were spread out over 2021 through 2025 and planned projects based on the proportion of incentives paid (or planned) in each year.

[3] https://arb.ca.gov/cc/capandtrade/allowanceallocation/ghg_benefits_estimation_tool.xlsx

[4] The GHG Benefits Estimation Tool recommends a default annual degradation factor of 0.5 percent for solar PV projects.

VERDANT

TABLE E-1: ESTIMATED CARB GHG BENEFITS BY UTILITY SERVICE AREA

	Utility Service Area	Percentage of SOMAH Projects' Funding from Auction Proceeds (%)	Total Annual Production (MWh/year)	Estimated Annual GHG Emissions Reductions Attributable to Auction Proceeds ($MTCO_2e$)	Estimated Lifetime GHG Emission Reductions Attributable to Auction Proceeds ($MTCO_2e$)
Projects Completed in 2023	PG&E	93%	2,023	374	7,093
	SCE	93%	2,684	497	9,411
	SDG&E	93%	1,139	211	3,995
Projects Completed in 2024	PG&E	75%	11,813	1,764	33,427
	SCE	75%	4,362	651	12,344
	SDG&E	75%	1,468	219	4,154
Projects Completed in 2025	PG&E	73%	16,329	2,374	45,005
	SCE	73%	4,095	595	11,287
	SDG&E	73%	2,655	386	7,317
Planned Projects	PG&E	84%	51,535	8,627	163,515
	SCE	84%	28,646	4,795	90,890
	SDG&E	84%	7,360	1,232	23,353
	Liberty	84%	82	14	259
TOTAL			**134,192**	**21,738**	**412,052**

VERDANT

APPENDIX F KEY CHARACTERISTICS OF SOMAH PROJECTS

F.1 PROPERTY OWNER CHARACTERISTICS

The PowerClerk tracking data includes the variable “Umbrella Company” which identifies if a property is part of a large affordable housing portfolio. Table F-1 presents a summary of the 33 umbrella companies that have submitted 10 or more SOMAH applications and make up 75% of all applications submitted to date. The last row of this table includes the remaining 122 property owners who have submitted fewer than 10 applications.

VERDANT

TABLE F-1: DISTRIBUTION OF APPLICATIONS ACROSS UMBRELLA COMPANIES

Umbrella Company	Applications Submitted	Applications Active	Applications Completed	Applications Cancelled
BRIDGE Housing	79 (6%)	28 (35%)	22 (28%)	29 (37%)
National CORE	71 (6%)	16 (23%)	40 (56%)	15 (21%)
MidPen Housing	64 (5%)	9 (14%)	41 (64%)	14 (22%)
Burbank Housing Development Corporation	62 (5%)	9 (15%)	39 (63%)	14 (23%)
Fresno Housing Authority	47 (4%)	19 (40%)	22 (47%)	6 (13%)
The Michaels Organization	43 (3%)	14 (33%)	17 (40%)	12 (28%)
Community Housing Works	39 (3%)	18 (46%)	1 (3%)	20 (51%)
Mercy Housing	39 (3%)	21 (54%)	9 (23%)	9 (23%)
ROEM Corporation	37 (3%)	15 (41%)	3 (8%)	19 (51%)
EAH Housing	32 (3%)	10 (31%)	15 (47%)	7 (22%)
Eden Housing	31 (2%)	11 (35%)	16 (52%)	4 (13%)
CHISPA Housing	28 (2%)	0 (0%)	0 (0%)	28 (100%)
Human Good	27 (2%)	4 (15%)	14 (52%)	9 (33%)
Avanath Capital Management, LLC	25 (2%)	15 (60%)	0 (0%)	10 (40%)
C&C Development	25 (2%)	24 (96%)	0 (0%)	1 (4%)
Jamboree Housing Corporation	25 (2%)	5 (20%)	15 (60%)	5 (20%)
Resources for Community Development	24 (2%)	3 (13%)	10 (42%)	11 (46%)
Wakeland Housing	24 (2%)	10 (42%)	10 (42%)	4 (17%)
LINC Housing	21 (2%)	11 (52%)	0 (0%)	10 (48%)
Retirement Housing Foundation	21 (2%)	7 (33%)	5 (24%)	9 (43%)
Santa Clara County Housing Authority	20 (2%)	20 (100%)	0 (0%)	0 (0%)
Visionary Home Builders	20 (2%)	15 (75%)	1 (5%)	4 (20%)
Affirmed Housing	19 (1%)	3 (16%)	2 (11%)	14 (74%)
Community Corporation of Santa Monica	18 (1%)	8 (44%)	7 (39%)	3 (17%)
Related California	17 (1%)	5 (29%)	9 (53%)	3 (18%)
KDF Communities	16 (1%)	16 (100%)	0 (0%)	0 (0%)
Self-Help Enterprises	16 (1%)	1 (6%)	15 (94%)	0 (0%)
Meta Housing Corporation	15 (1%)	15 (100%)	0 (0%)	0 (0%)
Napa Valley Community Housing	13 (1%)	3 (23%)	6 (46%)	4 (31%)
Community Housing Opportunities Corporation	11 (1%)	5 (45%)	1 (9%)	5 (45%)
Housing Authority of the County of Kern	11 (1%)	0 (0%)	0 (0%)	11 (100%)
Tetra Property Management	11 (1%)	2 (18%)	0 (0%)	9 (82%)
Coachella Valley Housing Coalition	10 (1%)	2 (20%)	3 (30%)	5 (50%)
Remaining 122 companies who submitted less than 10 applications each	316 (25%)	112 (35%)	55 (17%)	149 (47%)
Total	**1,277**	**456 (36%)**	**378 (30%)**	**443 (35%)**

VERDANT

F.2 PARTICIPATING CONTRACTOR CHARACTERISTICS

The SOMAH PA provided the evaluation team a list of all SOMAH-eligible contractors. This list contained 177 contractors (up from 153 in the last evaluation), however only 18[5] had an active or completed program application (four more than last evaluation). This indicates that while the SOMAH PA has successfully increased the number of SOMAH eligible contractors, most contractors are continuing not to participate in the program. Contractors' recent experience with the program and other findings from the contractor interviews are presented in Section 5.1 of the main report.

The contractor data included contractor-reported estimates of the total number of solar installations completed by the contractor, the number of staff employed, and company's diversity status (owned by a woman or underrepresented group[6]). The contractor data was compared to the SOMAH application data to assess the representativeness of eligible versus participating contractors. As shown in the tables below, prime contractors continue to be large (87% of projects are done by firms that have 250 or more employees), highly experienced (93% of projects are done by firms that have installed 100 or more PV systems), and not owned by a woman or underrepresented group (87%)—indicating they are not representative of the pool of eligible contractors. The eligible contractor data does have some gaps that could be influencing the tables below. For example, one of the six contractors with SOMAH projects that fall under the 'N/A or Blank' category is GRID Alternatives, a key contractor in the program. It would be helpful if the SOMAH PA would review and update the contractor data to allow for an accurate assessment contractor diversity in the program.

TABLE F-2: SOLAR INSTALLATION EXPERIENCE, APPLICATIONS VS.SOMAH ELIGIBLE CONTRACTORS

Number of Solar Installations	SOMAH Applications to Date		Eligible SOMAH Contractors	
	#	%	#	%
0 – 25	16	1%	65	37%
26 – 50	38	3%	18	10%
51 – 75	2	0%	8	5%
76 – 99	16	1%	13	7%
100 or more	1,026	80%	44	25%
N/A or Blank	179	14%	29	16%
Total	**1,277**	**99%***	**177**	**100%**

*Does not add to 100% exactly due to rounding

5 Five of the 23 who submitted an application have subsequently cancelled that project.

6 These contractors were identified in the SOMAH PA Contractor tracking database as "minority-owned" businesses.

TABLE F-3: NUMBER OF CONTRACTOR EMPLOYEES, APPLICATIONS VS. SOMAH ELIGIBLE CONTRACTORS

Number of Contractor Employees	SOMAH Applications to Date		Eligible SOMAH Contractors	
	#	%	#	%
25 or less	54	4%	101	57%
26 – 99	79	6%	34	19%
100 – 249	10	1%	6	3%
250 or more	944	74%	2	1%
N/A or Blank	190	15%	34	19%
Total	**1,277**	**100%**	**177**	**99%***

*Does not add to 100% exactly due to rounding

TABLE F-4: DIVERSITY STATUS OF PARTICIPATING CONTRACTORS VS. SOMAH ELIGIBLE CONTRACTORS

Diversity Status	SOMAH Applications to Date		Eligible SOMAH Contractors	
	#	%	#	%
Women-owned	15	1%	30	17%
Underrepresented owned	34	3%	73	41%
Non-Women/Underrepresented owned	955	75%	47	27%
N/A	189	15%	38	21%
Prefer not to say	95	7%	12	7%
Total	**1,277**	**101%***	**177**	**113%***

* Sums to more than 100% since some businesses are both women and underrepresented-owned.

Prime contractor diversity continues to be lacking (i.e., 75% of SOMAH projects have been submitted by a non-diverse contractor, whereas only 27% of eligible contractors are non-diverse contractors). Subcontractors, however, greatly increase the diversity of all contractors participating in SOMAH. As of 12/31/25, 81% of projects installed by a subcontractor are underrepresented owned and 35% of projects woman owned. We also found that 65% of subcontracted projects are done by newer companies (25 or less installations) and small firms (73% have 25 or less employees).

F.3 CAPACITY OF APPLICANT PROJECTS

TABLE F-5: AVERAGE KW PER PROJECT BY PURCHASE TYPE THROUGH TIME

Time	Purchase Type	Active & Completed	Cancelled	Overall
Pre-2023	HCO	157	179	172
	TPO	145	197	161
	Undecided	--	128	128
Current Evaluation	HCO	132	121	129
	TPO	143	137	142
	Undecided	187	124	177

F.4 TENANT VERSUS COMMON AREA LOAD ALLOCATION

Tenant load allocation seems to fluctuate slightly over time. Table F-6 shows the average tenant load allocation (weighted by estimated PV production) by application year.

TABLE F-6: TENANT ALLOCATION BY APPLICATION YEAR

Application Year	N	Average Tenant Allocation (percent)
2019	173	82
2020	120	81
2021	81	88
2022	25	85
2023	89	86
2024	143	81
2025	180	86
Overall	811*	83

*23 projects were removed for not having tenant load allocation or PV production information

F.5 SYSTEM INSTALLATION AND INTERCONNECTION

TABLE F-7: COMPARISON OF INTERCONNECTION TIMING METHODOLOGIES

	Estimated Construction end to PTO			Actual Construction end to PTO		
IOU	Min Days	Max Days	Average Days	Min Days	Max Days	Average Days
PG&E	60	956	361	8	822	241
SCE	218	843	581	176	563	361
SDG&E	217	724	422	129	686	388

Table F-7 shows a comparison of the two interconnection timing methodologies used in the evaluation for the same time period. The 'Estimate Construction End to PTO' methodology uses the last evaluation's approach of estimating construction end by adding six weeks onto the construction start date and comparing that to PTO. The 'Actual Construction End to PTO' timing uses the field, 'Mechanical Completion Date' which now records the actual completion date of construction. To compare these two approaches, we only used estimated days in instances where there was a corresponding mechanical completion day (all PTO in 2023-2025).

VERDANT

APPENDIX G SOMAH'S MARKETING, EDUCATION, AND OUTREACH ACTIVITIES

One of the goals of the Program Administration Review was to assess whether SOMAH's ME&O strategy has been successful in increasing customer participation in SOMAH. To do this we reviewed SOMAH's historic ME&O plans to document the planned ME&O activities and challenges. The SOMAH PA reports, 'Direct outreach efforts are tracked and application information is saved in Salesforce outreach logs. It is not a simple report type that can be generated because of the different groupings of information in Salesforce due to COI with GRID.' This means, we cannot assess leads resulting from any of the SOMAH PA's marketing activities. This assessment can only look at how many new leads (and from what segment) were generated in a calendar year in light of the program's planned efforts and ME&O and overall spending to access the "success" of these efforts. Below we present a summary of findings from the longitudinal analysis of the ME&O plans from 2019-2024. Details on 2025 are included in the main body of the report, and an overview of strategic shifts in 2025 and 2026 goals are covered in Appendix H.

G.1 SUMMARY OF HISTORIC ME&O ACTIVITIES

G.1.1 2019-2021: Early Pipeline Formation and Pandemic Adaptation

In 2019 and 2020, ME&O focused on launching the program and converting early market interest into applications. The strategy emphasized awareness-to-adoption marketing, broad stakeholder engagement, and early establishment of CBO partnerships to support tenant outreach and education. Despite the abrupt transition to fully remote engagement caused by the COVID-19 pandemic, **these efforts resulted in a strong initial pipeline, with approximately 160 new applications submitted.** Importantly, early outreach achieved relatively equitable participation, with roughly one-third of projects located in disadvantaged communities and steady enrollment of contractors and job trainees.

In 2021, SOMAH maintained its core ME&O goals while refining strategies based on early experience and evaluation feedback. Outreach became more targeted, particularly toward property owners in disadvantaged communities, public housing authorities, and Tribal entities. The program introduced owner "nurture" campaigns, Solar 101 trainings, and increased use of case studies and testimonials to address credibility and knowledge barriers. As pandemic restrictions eased, selective in-person engagement resumed, including the program's first ribbon-cutting events. These efforts supported continued pipeline growth, with application volumes holding steady and average project sizes increasing (170 applications – representing 21 MW of solar capacity - were submitted in 2021). By the end of 2021, the program had begun converting early applications into completed projects (14 projects were completed by the end of 2021).

TABLE G-1: 2019-2021 APPLICATIONS, COMPLETED, AND CONTRACTORS

Program Year	Applications Submitted		Completed Projects		Unique Contractors
	#	MW	#	MW	Participating
2019	317	58	0	0	8
2020	183	22	0	0	5
2021	170	27	14	3	10
Cumulative	670	107	14	3	16

G.1.2 2022: Program Challenges and Pipeline Contraction

Low application turnout in 2022 (49 applications were submitted in 2022) exposed program growth pain points. For one, many "shovel-ready" projects from early adopters were already in the program; attracting the next tier of participants that required more intensive education and trust-building proved to be more difficult. The PA's 2022 market analysis revealed over 4,300 potentially eligible properties statewide (pre-SB 355) and identified underserved segments to target: smaller 5 to 20-unit buildings, rural properties (358 USDA-financed sites), and tribal housing entities. Each segment faced distinct hurdles, e.g. rural owners lacked solar contacts, and tribal entities often encountered bureaucratic obstacles in accessing clean energy programs. Additionally, by 2022 contractor recruitment had stalled; only one new solar contractor that hadn't previously participated submitted a SOMAH application that year. Contractors cited the intensive process and long project timelines as deterrents.

The SOMAH PA shifted strategies in late 2022 and early 2023 and prioritized implementing SB 355 changes. The SOMAH PA updated program collateral to highlight new eligibility pathways (e.g., mobile homes and properties with more than 66% low-income occupancy) and planned a 2023 campaign to re-engage projects that earlier screening processes had excluded. The SOMAH PA also focused on active pipeline management, following up on stalled or withdrawn applications to "recover" them with extra support (a recommendation from the 2021 evaluation).

TABLE G-2 2021-2022 APPLICATIONS, COMPLETED, AND CONTRACTORS

Program Year	Applications Submitted		Completed Projects		Unique Contractors
	#	MW	#	MW	Participating
2019	317	58	0	0	8
2020	183	22	0	0	5
2021	170	27	14	3	10
2022	49	4	63	10	5
Cumulative	719	111	78	13	17

G.1.3 2023: Recovery and Strategic Re-Engagement

In 2023, SOMAH regained momentum as higher incentive levels took effect and SB 355 expansions began to roll out. The SOMAH PA aggressively re-engaged target audiences, and achieved several key program milestones, including completion of SOMAH's first tribal housing project. ME&O efforts emphasized multichannel engagement that combined data-driven marketing with in-person events.

Applications surged in 2023, with property owners submitting 127 new applications between January and December, totaling 92 MW of capacity, including approximately 2 MW at DAC sites, more than double the volume submitted in the prior year. By year-end, SOMAH's active pipeline reached 532 projects serving 39,221 tenants, roughly returning to pre-2022 levels. Higher incentive rates and policy changes approved in early 2023 drove much of this rebound by increasing program attractiveness for property owners and solar developers. To amplify these changes, the SOMAH PA launched the "Step Up to SOMAH" marketing campaign, which highlighted features such as the elimination of annual incentive step-downs and expanded federal Investment Tax Credit opportunities. The SOMAH PA reinforced this messaging through webinars, email campaigns, and other digital outreach.

The SOMAH PA and its partners significantly expanded in-person outreach during 2023. SOMAH staff and CBO partners hosted and attended dozens of events, including affordable housing conferences such as Housing California and SCANPH, as well as regional forums in historically underrepresented areas. The SOMAH PA reported that these efforts generated new leads; for example, at the SCANPH conference, SOMAH staff connected with multiple housing providers in Los Angeles and the Inland Empire, regions that previously showed lower participation. The SOMAH PA also strengthened stakeholder engagement by briefing local government staff in cities with low SOMAH uptake, including Fresno and Bakersfield, and enlisting their support to promote the program among housing developers.

A highlight of 2023 was the completion of SOMAH's first tribal housing project: a 49-kW solar installation at the Bishop Paiute Tribe's 24-unit apartment community. The SOMAH PA celebrated the project with a ribbon-cutting event and used it as a case study to support outreach to other tribal entities. To build on this success, the SOMAH PA expanded storytelling efforts by publishing success stories, press releases, and social media content featuring projects such as Bishop Paiute and a 780-kW installation in Carlsbad that delivers average monthly bill savings of approximately $60 for 344 families. Partners including the California Energy Commission and local media further amplified these narratives, increasing broader awareness of SOMAH's benefits.

Despite strong overall performance in 2023, the program did not meet all targets. The share of projects located in DACs remained near 30%, below program ambitions. The SOMAH PA initiated targeted efforts, such as a DAC-focused property owner call campaign and additional CBO-led events in the Central Valley and San Bernardino County, but these efforts will likely affect participation in future years. Contractor

capacity also emerged as a constraint: the surge in new projects generated more than 40 Technical Assistance requests in 2023, exceeding prior-year levels. In response, the SOMAH PA prioritized high-impact leads, including larger portfolios and DAC-located projects, to allocate staff resources more effectively.

Marketing conversion timelines also remained lengthy. In 2023, paid media campaigns generated 83 new property owner email subscribers, but many did not convert immediately into applications, underscoring the need for sustained follow up. Workforce development presented another challenge, as a 2023 contractor survey identified hiring and training capacity as a bottleneck for some firms. To address this issue, the SOMAH PA completed a Workforce Needs Assessment and began developing webinars focused on inclusive hiring practices to help contractors onboard trainees more efficiently.

TABLE G-3: 2021-2023 APPLICATIONS, COMPLETED, AND CONTRACTORS

Program Year	Applications Submitted		Completed Projects		Unique Contractors
	#	MW	#	MW	Participating
2019	317	58	0	0	8
2020	183	22	0	0	5
2021	170	27	14	3	10
2022	49	4	63	10	5
2023	127	11	32	4	3
Cumulative	846	122	109	17	17

G.1.4 2024: Scaling Up with Expanded Eligibility

In 2024, SOMAH scaled up implementation as expanded eligibility rules took full effect and the SOMAH PA focused on converting these changes into a strong project pipeline. The SOMAH PA pursued proactive marketing, education, and outreach (ME&O) efforts that engaged new participant segments, such as public housing agencies, while continuing to support core audiences.

The SOMAH PA built on successful practices from prior years, particularly by emphasizing Technical Assistance as a conversion tool. SOMAH completed its first Track A (owner-led) project, a 101-unit affordable housing property in Oakland that used upfront technical assistance and delivered full tenant bill credits, saving households approximately $35 per month. The SOMAH PA promoted this project extensively through webinars and media outreach to encourage broader use of pre-construction support. Outreach to newly eligible public housing authorities also proved effective, as 241 PHA properties entered the pipeline following SB 355 implementation. In parallel, the SOMAH PA launched a Tribal Housing microsite and targeted communications that increased engagement among tribal housing entities.

In 2024, the SOMAH PA balanced digital and in-person outreach. Website traffic increased by 28%, driven by new content such as a dedicated Tribal Housing page and interactive lead-generation maps. The SOMAH PA also introduced paid search advertising to attract qualified traffic to CalSOMAH.org. At the local level, CBO partners expanded regional workshops in collaboration with city governments, including joint SOMAH information sessions in Orange County. These partnerships helped activate owners who had previously remained difficult to reach. The SOMAH PA also strengthened cross-program coordination by working with national partners such as NLR and the National Community Solar Partnership to align SOMAH strategies with emerging best practices for multifamily solar.

TABLE G-4: 2021-2023 APPLICATIONS, COMPLETED, AND CONTRACTORS

Program Year	Applications Submitted		Completed Projects		Unique Contractors
	#	MW	#	MW	Participating
2019	317	58	0	0	8
2020	183	22	0	0	5
2021	170	27	14	3	10
2022	49	4	63	10	5
2023	127	11	32	4	3
2024	209	32	120	13	8
Cumulative	1,055	154	229	31	20

VERDANT

APPENDIX H STRATEGIC SHIFTS IN THE OBJECTIVES & GOALS FROM 2025 TO 2026 (SMARTIE)

In the above section we discussed the historic changes to ME&O for the SOMAH Program. Here we discuss the five SMARTIE (specific, measurable, achievable, relevant, time-bound, inclusive, equitable) Objectives, Activities/Outcomes and Objective Result. In this section we present a comparison of the detailed (sub) SMARTIE goals from 2025 to 2026 and identify again the Activities/Outcomes and Objective Result along with the Key Changes as decided by the program, and our Assessment for the sub goals. The 2026 ME&O Plan introduces several key changes and refinements to improve cost-effectiveness and program impact, building on lessons and evaluation results from prior this year and years prior. The SMARTIE objectives sit under the following five broad 2026 goals:

1. Engage property owners to build and maintain a multiyear pipeline of diverse projects.
2. Retain a robust and diverse contractor base and support eligible contractor participation with new application submissions.
3. Ensure sufficient job trainee participation and preparation for SOMAH job training opportunities and relevant careers.
4. Support property owners by providing the resources needed to educate tenants about the benefits of participating in the program, answering frequently asked questions, staffing the tenant hotline, and offering other forms of assistance upon request.
5. Ensure stakeholders are informed and actively co-marketing the program.

Goal 1: Property Owners: Engage Owners for a Pipeline of Projects Evaluation findings indicate that most SOMAH project participation is initiated through solar contractors, while historical ME&O spending has been concentrated in awareness-oriented activities such as community-based outreach, communications, and general marketing. Despite sustained investment in these areas, application and installed capacity outcomes have remained below long-term targets in multiple program years. Future ME&O budgets should be rebalanced to increase investment in contractor engagement and training activities that directly support project origination, owner decision-making, and application completion. This rebalancing should be achieved through reallocation of existing ME&O funds rather than increases in total ME&O spending.

The program refined the SMARTIE objectives for 2026 to align with ME&O plan changes. For Goal 1, the 2026 plan maintained broad outreach expectations while recalibrating tactics to emphasize quality and feasibility. The plan redesigned Tribal outreach, moving away from broad, low-yield contact attempts and toward targeted engagement through IOU Tribal Liaisons, based on participation results from 2025. The plan reduced technical assistance and Solar Preview targets to reflect actual demand and increased expectations for co-marketing partnerships to expand reach in under-served regions. The plan also

formally integrated CBOs into owner outreach for the first time and assigned clear deliverables for conferences, presentations, and direct contacts to leverage trusted local networks and improve conversion rates.

TABLE H-1: SMARTIE GOAL 1: OBJECTIVES & KEY CHANGES AND ASSESSMENT, PY2025 VS. PY2026

2025 SMARTIE Objectives	Draft 2026 SMARTIE Objectives	Key Changes & Assessment from 2025 to 2026 This column uses *italics* to reflect our assessment of the key changes specified by the program documents.
1. Outreach to ≥200 housing orgs (incl. 30 PHAs), prioritizing DACs & newly eligible properties.	1. Outreach to ≥200 housing orgs (cover all 39 prospective projects in Liberty/Pacific Power regions). Emphasize new offerings (solar+storage) using IOU "high-priority" leads.	• Adds a marketing emphasis on new offerings (e.g., solar+storage) • *As part of direct outreach, partner with Sunrun to make connections and potentially pre-screen for eligibility.*
2. Outreach to ~180 Tribes; build ≥3 Tribal relationships.	2. Coordinate with all 5 IOU Tribal Liaisons to identify eligible Tribal properties and directly contact each lead.	• Tribal outreach reframed to targeted engagement via IOU liaisons . • *This is a more practical, relationship-based approach (appropriate given only 76 tribes engaged in 2025).*
3. Secure ≥100 TA requests & ≥40 Solar Preview Reports.	3. Secure ≥50 TA requests & ≥35 Solar Preview Reports.	• TA requests target halved (from 100 to 50) after low uptake in 2024-25. Change in Solar Previews from 40 to 35 reflects realistic usage rates. • *This reduction is prudent to set achievable goals, though the PA should still encourage TA through improved marketing.*
4. Follow up with 100% of inquiries (Check Eligibility forms, new subscribers).	4. Follow up with 100% of new inquiries (Check Eligibility, listserv sign-ups) via intro emails.	• No major changes.
5. Present SOMAH at ≥2 owner-focused events (webinars, panels).	5. Present on SOMAH at ≥1 owner/PHA event (with ≥20 attendees), then follow up with all attendees.	• Owner events reduced (2 to 1) but with added quality metrics (≥20 attendees + follow-ups). • *Focusing on fewer, well-attended events is sensible, given limited staff and the success of targeted webinars.*
6. Form ≥2 new co-marketing partnerships in gap regions (e.g. Central Valley, LA, Inland Empire, San Diego, rural/Liberty/PacifiCorp, Tribal).	6. Establish ≥3 new-owner co-marketing partners in gap regions and use their networks for outreach.	• Co-marketing partners increased (2 to 3 new) to expand regional reach. • *This is a reasonable modification since 2025's target was met and more partnerships (17 by 2024) are feasible.*

2025 SMARTIE Objectives	Draft 2026 SMARTIE Objectives	Key Changes & Assessment from 2025 to 2026 This column uses *italics* to reflect our assessment of the key changes specified by the program documents.
7. Participate in ≥2 affordable housing conferences (statewide or regional).	7. PA staff to attend ≥2 housing conferences (targeting SoCal, Central Valley, rural, Liberty/Pac, Tribal audiences).	• Slightly refocused by maintaining broad outreach goals but with strategic emphasis on Liberty/PacifiCorp regions, tribal leads, and quality engagements. • *These adjustments make the objectives more attainable and aligned with new program expansions (e.g. storage incentives).*
N/A	8. Leverage CBOs to engage owners: a. CBOs attend ≥5 housing conferences (regional priority areas). b. CBOs host ≥3 SOMAH presentations for owners externally. c. CBOs conduct outreach to ≥300 housing organizations (in their communities).	• New objective added in 2026

Goal 2: Contractors: Retain a Robust, Diverse Contractor Base; Spur New Participation. The program replaced region-specific contractor outreach quotas with consistent, statewide quarterly engagement of inactive but eligible contractors. The plan set a more realistic goal for new contractor enrollment while retaining training and subcontractor-matching objectives that consistently delivered results in prior years.

TABLE H-2: SMARTIE GOAL 2: OBJECTIVES & KEY CHANGES AND ASSESSMENT, PY2025 VS. PY2026

2025 SMARTIE Objectives (by Nov 2025)	Draft 2026 SMARTIE Objectives (by Nov 2026)	Key Changes & Assessment from 2025 to 2026 This column uses *italics* to reflect our assessment of the key changes specified by the program documents.
1. Targeted outreach (emails/calls) to potential contractors in gap areas: Liberty (~6 firms), PacifiCorp (~10), Central Valley (~21), Tribal lands.	1. Conduct quarterly outreach (emails & calls) to all non-participating eligible contractors statewide, to update them on new program improvements (Track A bidding process changes, cleaned-up Eligible Properties Map data, storage/roof incentives from D.24-11-006, etc.).	• The 2025 ME&O plan's specific numeric targets by region are replaced in 2026 by ongoing quarterly outreach to all inactive contractors. • *This ensures consistent engagement and allows the PA to communicate program updates. It acknowledges that simply hitting numeric quotas by region didn't yield many new participants and focuses on building relationships and awareness instead.*

2. Re-engage contractors via 2 refresher training sessions (e.g. Office Hours webinars).	2. Host 2 Contractor "Office Hours" webinars (refresher trainings) to re-engage and inform contractors.	• No major changes.
3. ≥4 new (never-before participating) contractors submit SOMAH applications.	3. Get ≥1 new SOMAH-eligible contractor to submit an application.	• In 2025, only one new contractor actually applied despite dozens becoming eligible. • *Setting a single new-participant target for 2026 is a cautious recognition of ongoing barriers to contractor entry.*
4. Hold 4 Contractor Eligibility Trainings (quarterly).	4. Hold 4 Contractor Eligibility Trainings (maintain quarterly trainings).	• No major changes.
5. Match subcontractors to 100% of projects that request one (third-party installation support).	5. Continue to facilitate subcontractor matches for all projects that request subcontractor help.	• No major changes

For Goal 3. Job Training: Ensure ample, well-prepared job trainee participation the program reduced the number of formal SMARTIE targets and narrowed geographic focus to Liberty, PacifiCorp, and Tribal areas where workforce participation gaps remain. The program plan consolidated webinar requirements, lowered survey response expectations to realistic levels, and adjusted the local/targeted hire goal to reflect data limitations. These changes allow the program to prioritize equity and workforce outcomes while directing staff time and resources to the highest-impact activities.

TABLE H-3: SMARTIE GOAL 2: OBJECTIVES & KEY CHANGES AND ASSESSMENT, PY2025 VS. PY2026

2025 SMARTIE Objectives (by Nov 2025)	Draft 2026 SMARTIE Objectives (by Nov 2026)	Key Changes & Assessment from 2025 to 2026 This column uses *italics* to reflect our assessment of the key changes specified by the program documents.
1. Each quarter, engage at least 1 Job Training Organization (JTO) in each of 4 priority areas: Northern CA, Central Valley, Central Coast, and Tribal communities.	• Goal removed	• Instead of mandating quarterly JTO engagement in broad regions, the 2026 plan focuses on Liberty and Pacific Power areas and Tribal-serving JTOs. Please see 2026 goal #4 for more details.
2. Host ≥2 contractor-focused job training webinars (program requirements, safety, labor law, best practices).	1. Host ≥2 contractor-oriented Job Training Overview webinars (covering trainee requirements, jobsite safety, labor laws, etc.).	• No major changes

2025 SMARTIE Objectives (by Nov 2025)	Draft 2026 SMARTIE Objectives (by Nov 2026)	Key Changes & Assessment from 2025 to 2026 This column uses *italics* to reflect our assessment of the key changes specified by the program documents.
3. Host 2 webinars for job seekers/trainees on solar career pathways & soft skills.	2. Host ≥1 dedicated job seeker/trainee webinar (on solar career pathways and valuable soft skills).	• Trainee webinars reduced to a single event. • It's a reasonable adjustment to avoid over-allocating resources. • *Consider working with community colleges to offer a solar job training facility that provides textbooks and mock installations. This will ensure consistency in the quality of training experience which is highly variable.*
4. Ensure ≥30% of job trainees on the SOMAH Portal have a resume uploaded.	• Goal removed	• The 30% resume-upload target was dropped, likely because it proved challenging. Instead of a SMARTIE goal, resume engagement is addressed through ongoing activities (e.g. email reminders, portal improvements). • *This change is sensible, as the PA can still encourage resume uploads without counting it as a formal objective.*
5. Ensure ≥80% of hired SOMAH trainees are local or targeted hires, via outreach to local JTOs & those serving targeted populations.	3. Ensure ≥50% of hired SOMAH trainees are local or targeted hires, via outreach to local JTOs & those serving targeted populations.	• The local/targeted hire rate target was lowered from 80% to 50%, likely reflecting a change in measurement rather than reduced ambition. Historically, nearly all hired SOMAH trainees have been targeted, while less than half were local, plus incomplete demographic reporting complicates tracking. • *The new 50% target accounts for these data gaps by ensuring at least half of all hires are confirmed local or from disadvantaged groups.* • *Ensure trainees are hired from JTOs vs. placed into the program by their existing solar contractors.*
6. Conduct targeted outreach to JTOs serving DACs (disadvantaged communities).	4. Conduct focused outreach to JTOs in Liberty and PacifiCorp territories, and to JTOs serving Tribal communities, securing at least 1 partnership in each of these regions.	• Instead of mandating quarterly JTO engagement in broad regions, the 2026 plan focuses on Liberty and Pacific Power areas and Tribal-serving JTOs, with a goal of one new partnership in each. • *This change is a direct response to participation gaps and CPUC direction to invest in those territories. It narrows the scope to harder-to-reach regions, which is appropriate.* • *Continue to monitor success (annually) given the sparce population in their region and limit eligible projects for reasonable solar production (heavy tree coverage in some counties).*
7. Ensure ≥25% of SOMAH job trainees	5. Achieve a 15% response rate on the job-trainee experience survey.	• Trainee survey response target reduced from 25% to 15%.

2025 SMARTIE Objectives (by Nov 2025)	Draft 2026 SMARTIE Objectives (by Nov 2026)	Key Changes & Assessment from 2025 to 2026 This column uses *italics* to reflect our assessment of the key changes specified by the program documents.
complete a feedback survey.		• *This change acknowledges the difficulty in getting trainees to complete surveys after their placement.* • *Introduce intermediary feedback surveys, e.g., during the training process and at the conclusion of each training session. This approach is expected to facilitate timely feedback and identify training quality issues and inconsistencies.* • *Add to the program: random onsite audits of job training programs to verify that subcontractor-led training emphasizes technical skill development rather than primarily labor-focused skills, as indicated by findings from the tenant survey. Use intermediary feedback surveys to help select contractor jobs to audit. This task should be performed by an auditor trained in solar installations.*

Goal 4: Tenant Education: Support tenants in understanding SOMAH benefits Consistent with the revised framing of Goal 4, the plan removed fixed quotas for tenant workshops and engagement from the 2026 SMARTIE objectives. Instead, the program committed to providing tenant education materials and support on an as-needed basis, consistent with the removal of mandatory tenant education requirements. The plan continues to promote tenant participation in workforce opportunities but no longer ties that effort to rigid numeric targets. This approach reduces administrative burden while preserving support for projects that request assistance.

VERDANT

TABLE H-4: ME&O SMARTIE GOAL 4: OBJECTIVES & KEY CHANGES AND ASSESSMENT, PY2025 VS. PY2026

2025 SMARTIE Objectives (by Nov 2025)	Draft 2026 SMARTIE Objectives (by Nov 2026)	Key Changes & Assessment from 2025 to 2026 This column uses *italics* to reflect our assessment of the key changes specified by the program documents.
1. Ensure property owners/contractors know about available tenant-ed resources and PA/CBO support – via biannual tenant education webinars, listserv updates, public forums, and emails.	1. Provide tenant education resources and support to host customers (owners/PMs) as needed.	• The 2026 goal is reworded to "support property owners in educating tenants." • *Targeted education and collateral for property managers—delivered at key points before solar installation and when the bill credits start—represents a more efficient and appropriate use of ME&O resources.*
2. Revise and disseminate SOMAH tenant materials (based on feedback), including specialized resources for youth, seniors, persons with disabilities, and those with limited tech access.	2. Facilitate tenant education workshops on request (and as capacity allows), rather than on a fixed schedule.	• Instead of guaranteeing one workshop per quarter and contacting half of all tenants, the PA will offer workshops "as needed or upon request". • *Importantly, all property owners still receive tenant education materials and can request CBO assistance, so tenants aren't left without resources.*
3. Conduct 1 tenant workshop per quarter (4 per year) for tenants at SOMAH properties.	3. Sustain tenant outreach to support workforce goals: collaborate with the SOMAH job training team to encourage contractors in hiring tenants as trainees (promote local hiring in webinars, integrate workforce info into tenant communications).	• The 2026 objectives don't explicitly mention updating tenant materials for diverse audiences (whereas 2025's did. In 2026, maintaining up-to-date materials remains a given, but it's treated as a standard activity rather than a goal.

2025 SMARTIE Objectives (by Nov 2025)	Draft 2026 SMARTIE Objectives (by Nov 2026)	Key Changes & Assessment from 2025 to 2026 This column uses *italics* to reflect our assessment of the key changes specified by the program documents.
4. Aim for ≥10% of hired SOMAH job trainees to be tenants of SOMAH properties (by collaborating with the workforce team and encouraging local hiring by contractors).	• Goal removed	• Both plans encourage tenants to join SOMAH's job training. The 2026 objective pushes this through collaboration and webinars, without a strict percentage. • *This is appropriate given the limited uptake by tenants.*
5. Engage ≥50% of tenants with at least one SOMAH touchpoint (e.g. attending a workshop, receiving a call or direct assistance) to help them maximize their benefits.	• Goal removed	• *Given the removal of the tenant education requirement, this is an appropriate modification, however the program should offer door-hangers, mailers, emails, or posters at property manager locations.*

Goal 5: Co-Marketing: Inform stakeholders and get them to co-promote SOMAH For Goal 5, produce stronger results than cold outreach. Although this approach may reach fewer government offices, the plan expects higher-quality engagement. The plan maintains the co-marketing goals with energy partners and IOUs, reflecting the maturity of these relationships and their ongoing value without requiring higher numeric targets.

TABLE H-5: ME&O SMARTIE GOAL 5: OBJECTIVES & KEY CHANGES AND ASSESSMENT, PY2025 VS. PY2026

2025 SMARTIE Objectives (by Nov 2025)	Draft 2026 SMARTIE Objectives (by Nov 2026)	Key Changes & Assessment from 2025 to 2026 This column uses *italics* to reflect our assessment of the key changes specified by the program documents.
1. Direct outreach to 10 local government offices (cities, counties, etc.) in areas with many eligible properties, to seek co-marketing partnerships.	1. Have each CBO partner conduct ≥1 outreach meeting with a local government office in its region.	• The 2026 plan assigns the CBOs with each tapping its local government connections at least once. • *This is an appropriate strategy shift, focusing on relationship-building. During interviews, CBOs have cited these types of interactions with city councils and city managers, which can help improve the program's exposure and credibility by turning them into advocates.*
2. Collaborate with energy/efficiency partners on 4 co-branded marketing efforts (e.g. joint webinars, cross-promotions).	2. Execute 4 co-marketing or co-branding engagements with new or existing energy efficiency industry partners (e.g. joint outreach with multi-family energy retrofit programs).	• This goal remains unchanged. • *Co-branding marketing materials with lenders should be considered.*
3. Work with all 5 IOUs to co-market SOMAH (e.g. utility newsletters, co-branded content) and have each participate in at least one SOMAH project ribbon-cutting event.	3. Collaborate with all five utilities to co-market SOMAH, and ensure IOU reps attend at least one ribbon-cutting event (per utility) for completed SOMAH projects.	• This goal remains unchanged. • *Collaborate with all utilities to education tenant on bill credits once applied.* • *Ribbon-cutting events have been cited as effective by Sunrun coordinate and assign budget to allow them to conduct their own. Ensure local newspapers are made aware of events for article development.*