# Process Evaluation of the Disadvantaged Communities Green Tariff and Community Solar Green Tariff Programs

## Final Report

**March 31, 2021**

**Abstract**

*In response to AB 327, the CPUC created two programs intended to ensure that low-income households within disadvantaged communities (DACs) have opportunities to access clean energy offerings in areas where there are obstacles to the development of renewable generation. The Community Solar Green Tariff (CSGT) and Disadvantaged Communities Green Tariff (DAC-GT) Programs are part of a broader set of efforts based on the Green Tariff/Shared Renewables (GTSR) Program (GTSR) model that focus on low-income customers. While both programs provide discounted "green" rates, the DAC-GT program is focused on grid-scale generation, and the CSGT program is focused on community solar and workforce development. This evaluation assessed program evaluability, developed program logic models and metrics, and assessed early progress of both programs. At the time of this research, no new steel in ground projects were installed and nine Program Administrators were approved to implement one or both programs. Early findings include that solar developers are largely unaware of bid opportunities, and those who are aware point to challenges in finding suitable land to develop. Participating DAC-GT customers report being satisfied with the program thus far and a review of billing data confirmed that bill savings were realized without any significant evidence of post-enrollment increased energy usage.*

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# Executive Summary

The Community Solar Green Tariff (CSGT) and Disadvantaged Communities Green Tariff (DAC-GT) programs are part of a broader set of efforts based on the Green Tariff/Shared Renewables (GTSR) program that are intended to expand access of renewable energy resources to ratepayers and meet customer electrical generation needs with renewable resources. The DAC-GT and CSGT programs are focused on low-income customers whereas the GTSR program focuses on market rate customers. The DAC-GT program is specifically focused on utility-grid-scale generation, and the CSGT program is focused on community solar and workforce development; both programs specifically aim to serve customers that reside in DACs[1] by providing them with a 20 percent bill discount and 100 percent renewable energy. At the start of this evaluation, the California Public Utilities Commission (CPUC) had approved nine Program Administrators (a mix of investor-owned utilities [IOUs] and community choice aggregators [CCAs]) and allocated a maximum amount of solar capacity based on their respective shares of eligible customers.

## Research Objectives

This evaluation is intended to provide early feedback on program implementation and:

- Examine program design elements including the evolving DAC borders and the addition of Program Administrators (PAs) in a system where capacity is already allocated;
- Develop and review program metrics, which are grounded in the study activity of developing logic models for both the CSGT and DAC-GT programs; and
- Assess the evaluability[2] of the programs.

## Methodology

The study approach consisted of the following research components:

1. **Develop logic models, program theories, and metrics for each program.**
2. **Gather secondary information and data:**
   - Program documentation and reports and background documents
   - PA program tracking data and customer information and billing system data
   - Geographic data to support geographic analyses

[1] California Environmental Protection Agency. 2017. "Designation of Disadvantaged Communities Pursuant to Legal Bill 535 (De León)." https://calepa.ca.gov/wp-content/uploads/sites/6/2017/04/SB-535-Designation-Final.pdf

[2] An evaluability assessment focuses on the extent to which the program can be evaluated in the future, with a focus on the ability to measure metrics that are derived from the program's logic model.

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| | ○ Environmental benefit assumptions (such as lookup values for greenhouse gas (GHG) reductions) |
| **3. Conduct primary research:** | |
| | ○ 200 customer surveys |
| | ○ 24 telephone interviews with PAs, community sponsors, and stakeholders |
| | ○ 2 telephone interviews and 61 web surveys with solar developers |
| | ○ Billing analysis of PG&E participants comparing usage and bill amounts to matched non-participants |

# Findings

This evaluation focused on solicitation efforts through the second quarter of 2021 and surveyed DAC-GT customers that had enrolled or been enrolled in the DAC-GT program at that time, solar developers who had received information about the solicitations, and active PAs.

At the start of this research, PG&E had 14,615 customers that were auto-enrolled in the DAC-GT program, and Clean Power Alliance (CPA)[3] had 528 customers that self-enrolled in DAC-GT. All enrolled DAC-GT participants relied on prior Renewable Portfolio Standard (RPS) interim resources (approved by the CPUC) at the time of our research, meaning that no new solar resources had been added to serve the program (which is a main goal of the DAC-GT program). At the time of this research, there were no customers enrolled in the CSGT program.

Findings focused on tracking the programs' progress towards the following goals:

- Increasing installation of solar projects in DACs;
- Replacing higher GHG-emitting generation sources with new non-GHG producing energy generation;
- Presenting opportunities for community-driven solar (CSGT only);
- Reducing burden of energy costs on DAC residents via a 20 percent bill credit;
- Delivering 100 percent renewable energy to DAC residents; and
- Presenting new job opportunities in low-income communities (CSGT only).

[3] Clean Power Alliance is a Community Choice Aggregator in Southern California Edison's service territory and is one of the administrators of the DAC-GT and CSGT programs.

| Summary of Findings by Topic | |
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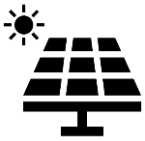
|  Program Eligibility and Geographic Boundaries | The design of the programs is such that geography impacts both customer eligibility and where solar developers can propose projects. For both solar developers and customers, the boundaries are shifting, adding a layer of complexity to program implementation. This includes an update to CalEnviroscreen,[4] the expansion and launch of CCAs, and challenges with siting in certain PA territories reported by solar developers. |
|  Solar Developers | The CSGT and DAC-GT programs are in the very early stages of implementation in part due to challenges with attracting solar developer participation in the Request for Offer (RFO) process.<br><br>**Use of interim resources:** To date, the solar resources that have been allocated to the DAC-GT program are based on previously developed RPS-eligible projects that are intended to be used as interim resources until new projects come online through the PA solicitation processes. This means that at the time of this research, no "steel in ground" projects had yet occurred.<br><br>**Status of contracting:** As of August 2021, only two PAs (PG&E and CPA) have enrolled customers in DAC-GT using only interim RPS resources, and no customers have been enrolled in CSGT at the time of this research. For DAC-GT, six contracts have been awarded from two of ten rounds of solicitations. One PA had issued three DAC-GT solicitations, which received no responses. For CSGT, four contracts have been awarded, and five of the nine solicitations had no responses.<br><br>**Low awareness of bid opportunities:** Telephone interviews and a web survey with solar developers indicated that there is low awareness of solicitation opportunities, and there are challenges with siting, interconnection, and land costs that are preventing solar developers from responding to solicitations.<br><br>**Differences in land cost and availability across the state:** Further analysis for DAC-GT of land cost and availability show that it is much more favorable for solar developers to work within PG&E's service territory, followed by SCE's and SDG&E's service territories. In SDG&E's service territory, the median cost of living and land cost remain high even if additional DACs were added (above the top 25% as currently designed) or the pollution burden threshold is increased.<br><br>For CSGT, changing current program eligibility thresholds (i.e., expanding beyond the top 25% of DACs or increasing the buffer zone around each DAC) |

[4] CalEnviroscreen identifies census tracts that are disproportionately burdened by multiple sources of pollution and other environmental and health indicators (e.g., lead exposure).

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| | increases the area available for solar development in DACs, but the most attractive areas for developers in terms of cost are rural. |
|  DAC and Low-Income Customers | **Satisfied customers:** Participating DAC-GT customers reported being satisfied with the program and value the electricity bill discount first and foremost. An analysis of PG&E customer billing data confirmed that bill savings were realized by PG&E customers (with a 19% electricity bill reduction on average) with no significant evidence of increased energy usage.[5] This is meeting the goal of protecting participants from the additional bill costs associated with adding clean energy to the grid.<br>**Additional eligible customers:** The recent revision to CalEnviroscreen has increased the number of customers who are eligible to be served by these programs.<br>**Customer enrollment:** The first two PAs to enroll customers took different enrollment approaches; PG&E auto-enrolled customers, and CPA allowed customers to self-enroll. PG&E's approach allowed it to target customers at risk of disconnection.<br>**Benefits compared to NEM 2.0 customers:** Assuming customers were served with the same amount of kW as an average NEM 2.0 customer system or as a DAC-SASH participant PV system, both programs would only be able to serve a very small portion (0.5% to 6%) of the eligible population with the allocated MW.[6] This is likely a low estimate given that the participants for DAC-GT and CSGT may have smaller loads given smaller building size than the single-family homes participating in DAC-SASH. This analysis also assumes that NEM 2.0 and DAC-SASH have appropriately sized systems and does not account for the fact that a portion of the goal of 100 percent clean energy for DAC-GT and CSGT customers can come from existing utility generation. |
|  Environmental Benefits | A portion of participants reported feeling good about being able to use cleaner energy and believe that the DAC-GT program offers value in terms of environmental benefits. Analysis showed that had the resources been new rather than interim, there would have been 29,717 metric tons of avoided $CO_2$ emissions and estimated solar generation of 130,753 MWh. |

[5] This analysis will be done for the other PA with enrolled customers (CPA) for a later draft of the report or in a follow-up memo.

[6] https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/net-energy-metering-nem/nemrevisit/nem-2_lookback_study.pdf

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|  Workforce Development | Beyond interviewing a third-party workforce development partner, the early stages of the CSGT program implementation (with no enrolled customers) limited our ability to assess the number of local job hires linked to the CSGT program and the number of trainees and job outcomes, but this should be investigated in future evaluations of the CSGT program. |
|  Evaluability Assessment | For the first step of the evaluation, Evergreen developed logic models for each program. We then identified metrics that would measure progress towards the expected program outcomes identified in the logic models. We were able to measure and evaluate over two-thirds of the identified metrics fully or partially. Where we were unable to evaluate the metrics, we recommend suggestions for clarifying metrics or what additional information should be tracked in future evaluations. |

# Recommendations

Based on our findings, we developed recommendations for program modifications, improving program evaluability and for further research.

| Recommendations for Program Modifications | |
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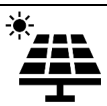
|  Centralize and Coordinate Solar Developer and Community Organization Outreach | The CPUC and/or the administrators should assign one organization to serve as a central coordinating body for the programs to market solicitations, match solar developers to community organizations, and provide best practices to community organizations who want to sponsor CSGT projects.<br>This coordinating organization should:<br>○ Centralize marketing and outreach to inform solar developers of bid opportunities across the PAs to increase awareness of and response to RFOs.<br>○ Invest time and resources into engaging with the solar developer market to increase awareness of the programs and expand developer contact lists.<br>○ Conduct solicitations for solar resources on a predictable schedule that allows time for the development of the siting and interconnection processes (such as a minimum of six to eight months as suggested by two interviewed solar developers).<br>○ Inform and engage with potential community sponsors about CSGT bid opportunities and to help pair community sponsors with interested solar developers. |
|  | The PAs should devote additional marketing and outreach efforts towards informing solar developers of bid opportunities to improve engagement and bid response. This may be more efficiently done by a centralized entity. |

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| Increase Solar Developer Engagement | PAs should invest time and resources into further developing their contact lists for potential solar developers. They could also coordinate efforts and share contacts to maximize their reach. |
| | The PAs should conduct solicitations for solar resources on a predictable schedule that allows time for the development of the siting and interconnection processes (such as a minimum of six to eight months as suggested by two interviewed solar developers). |
| Use Auto-Enrollment | Consider using auto-enrollment for all PAs going forward for the DAC-GT program. Auto-enrollment allows money spent on marketing and outreach to instead become available to pay for the customer bill discount and allows for targeting of customers who are at higher risk of disconnection or who have higher bills. Auto-enrollment also allows a way around participation barriers that may make it harder for some customers to learn about the programs. |
| Collect Additional Job Training Information | The PAs should add information about hiring and training metrics, goals, and outcomes to workforce development attestations. |
| Expand to Federally Recognized Tribal Region | We recommend that similar to DAC-SASH (another solar program that focuses on DAC customers in single-family homes), the DAC-GT and CSGT programs should expand such that residents in California Indian Lands (i.e., lands within the limits of an Indian reservation and under the jurisdiction of the US government) are eligible for program offerings. This will better align the program with AB 327. |
| Consider CSGT Intent | We recommend that the CPUC look to other community solar models in the United States to understand how community is defined. |

This first evaluation was intended to develop an evaluation framework. This process included developing a logic model for each program that documents the intended program theory and identifying metrics to measure progress towards intended program outcomes. We were able to measure two-thirds of the evaluation metrics through this research. To improve the success of future evaluations, we recommend that the PAs collect additional data to track, and we also list questions that the CPUC could help to answer to clarify expected measurements. We also suggest future research and evaluation priorities.

| Recommendations for Improving Evaluability | |
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| PAs Should Track Additional Data to Facilitate Future Evaluability of Program Achievements | • Both the number of conforming and non-conforming bids differentiated by the number of submitted offers vs. the number of proposed selected projects from those offers that are not available across all PAs.<br>• Any outreach done with potential sponsors, messaging and materials used for that outreach, and sponsors contacted.<br>• Attrition rates for program enrollees.<br>• Location of DAC-GT and CSGT generation where not already provided by PAs.<br>• Customer information regarding participation in other cross-promoted clean energy programs and indicating which customers are master metered (for CSGT only).<br>• Cost of installed MW to allow for comparisons to similar programs.<br>• Job training programs used in the process of solar project development, including the training dates, curricula, and the number of trainees engaged with given programs. This may need to be tracked first by workforce development partners.<br>The same coordinating organization that handles the solar developer coordination could also take on a centralized data collection effort, or another organization could (e.g., one of the PAs or IOUs). We recommend the CPUC weigh the pros and cons of such a coordinator. |

In some cases, there is still a lack of clarity on the expectation for the measurements. As an example, for the metric of "capacity procured and online by program PA," it would be helpful to set an expectation as to how much capacity should be procured and online by the end of an evaluation period. A list of similar clarifications that will help solidify the expected measurements for certain metrics is included in Appendix H.

This evaluation was intended to be an initial effort to develop an evaluation framework and provide interim feedback early on in the programs' implementation. As such, the evaluation was conducted when it was too soon to address the following evaluation activities, which we recommend **making a priority in future evaluations**:

- On-site verification of solar project performance through methods such as monitoring energy generation;
- An economic and job impact assessment; and
- An assessment of the impacts from the changes in funding sources that will begin in 2022.

We also recommend further research to understand which of these challenges identified by solar developers (siting, interconnection, and land costs) pose the largest barriers to increased RFO response and to identify ways to address these barriers.

| Recommendations for Future Research | |
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|  Additional Research Covering Non-Participant Solar Developers | A study of the broader market of solar developers focused on sharing the range of possible RFO features with respondents to assess what the major challenge points are that limit RFO participation such as land costs, siting, and interconnection barriers. Our research focused on a subset of solar developers that reviewed DAC-GT and CSGT solicitations; this group was much smaller than expected, with just a quarter of survey respondents reporting having reviewed at least one program RFO. |

# 1 Introduction

## 1.1 Program Background

The Disadvantaged Communities Green Tariff (DAC-GT) and Community Solar Green Tariff (CSGT) programs are part of the California Public Utilities Commission's (CPUC's) broader strategy to develop alternatives to increasing adoption of renewable generation in DACs.[7] The CPUC was directed by the California legislature to do so in Assembly Bill 327, and guided by Pub. Util. Code § 2827.1(b)(1), which requires them to:

> Ensure that the standard contract or tariff made available to eligible customer-generators ensures that customer-sited renewable distributed generation continues to grow sustainably and include specific alternatives designed for growth among residential customers in disadvantaged communities.

These programs are also part of the CPUC's Environmental and Social Justice Action Plan, which seeks to advance equity in its programs and policies for Environmental Justice and Social Justice Communities.

The DAC-GT and CSGT programs, along with complementary programs such as the Solar on Multifamily Affordable Housing (SOMAH) and the Disadvantaged Communities Single-Family Affordable Solar Homes (DAC-SASH) programs, are intended to ensure that low-income households within DACs have opportunities to access clean energy offerings (including successors to net energy metering tariffs). The programs are specifically designed to address obstacles to the development of renewable generation in DACs, several of which are identified in the California Energy Commission's (CEC's) *Low-Income Barriers Study, Part A: Overcoming Barriers to Energy Efficiency and Renewables for Low-Income Customers and Small Business Contracting Opportunities in Disadvantaged Communities*.

The DAC-GT and CSGT programs promote the installation of renewable generation in DACs—with the DAC-GT program focused on grid-scale generation and the CSGT program focused on community solar. The DAC-GT program is modeled after the Green Tariff portion of the Green Tariff/Shared Renewables (GTSR) program, which allows customers that may not own their own property and/or are unable to or do not wish to install their own distributed renewable energy

[7] Defined in D.18-06-027 as the top 25 percent of communities statewide using CalEnviroScreen 3.0 plus 22 census tracts in the highest 5 percent of CalEnviroScreen's Pollution burden, but that do not have an overall CalEnviroScreen score because of unreliable socioeconomic or health data.

generation system to choose a clean energy rate option. The Enhanced Community Renewables (ECR) portion of the GTSR program allows utility customers to subscribe to a developer's local, purpose-built renewables project.

The CSGT program, similar to the DAC-GT program, is also a variation on the GTSR program, and supports community-based solar projects and provides the opportunity for DAC customers to gain a sense of ownership from locally generated solar power. The CSGT program relies on local non-profit or government sponsors, which may leverage other funding sources available to the community including state and local funds for clean energy projects. Both the DAC-GT and CSGT programs are required to use a competitive bid process (e.g., Power Purchase Agreements between the Program Administrators [PAs] and solar developers).

Subscribing DAC-GT and CSGT customers receive a bill credit of 20 percent off their applicable rate. Since the programs are intended as equity programs, total program costs are not required to equal total benefits. The PAs use balancing accounts to track costs. Greenhouse gas (GHG) auction proceeds are the primary funding source, supplemented by public purpose program (PPP) funds as needed. During the course of this evaluation, the CPUC has been working to address the California Air Resources Board (CARB) regulation that GHG auction proceeds cannot be used for programs that give proportional discounts. In response to this requirement, SCE and PG&E submitted advice letters in fall 2021 specifying that any program budget supporting the 20 percent bill discount will be funded exclusively through PPP funds.[8]

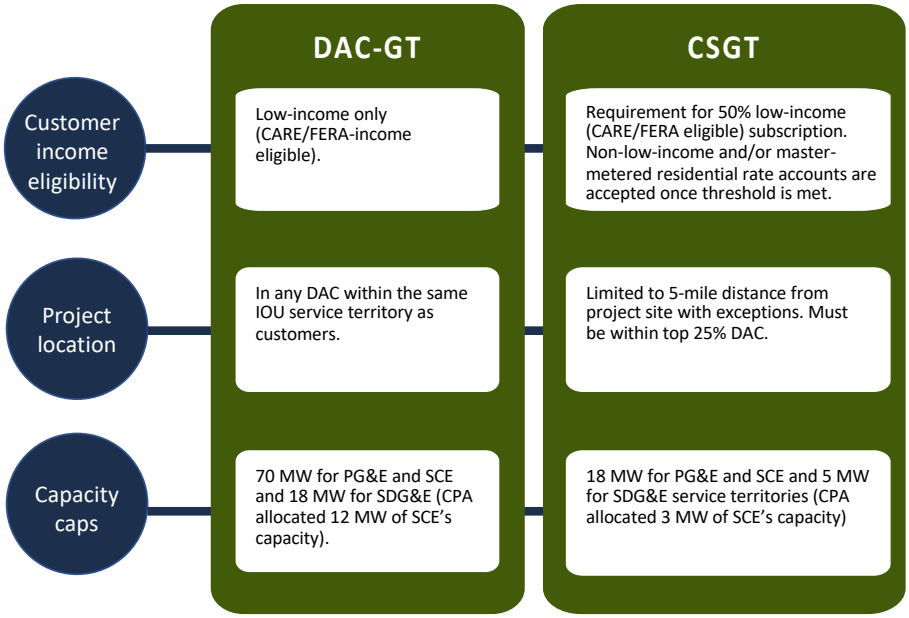
At the outset of this evaluation, the three California electric IOUs—Pacific Gas and Electric (PG&E), Southern California Edison (SCE), and San Diego Gas & Electric (SDG&E)—administered the programs, with the addition of six community choice aggregators, or CCAs[9] receiving CPUC approval in Resolutions E-5102 and E-5124 to administer the programs for their customers. Each PA is allocated a maximum amount of solar capacity based on the number of eligible customers served.

The PAs are authorized to serve DAC-GT customers through existing Green Tariff or Renewable Portfolio Standard (RPS) projects that meet the eligibility requirements of the DAC-GT program on an interim basis. The CPUC permitted IOUs to serve DAC-GT customers with interim RPS resources in Resolution E-4999 approving the IOUs' implementation advice letters, two of which proposed to serve customers with interim resources. While selected bids are in contract for "steel in ground" projects to replace interim resources, no installations had begun at the outset of this evaluation.

[8] Specifically, Advice Letters 6308-E (PG&E) and 4613-E (SCE).
[9] Includes Clean Power Alliance [CPA] in SCE's service territory and CleanPowerSF, East Bay Community Energy, Marin Clean Energy, Peninsula Clean Energy, and San Jose Clean Energy in PG&E's service territory

The programs have some key differences concerning eligible customers and projects and capacity caps (Figure 1).

**Figure 1: Key Differences Between DAC-GT and CSGT Programs**




The CSGT program is also intended to provide local economic benefits, which include job training and workforce development. The CPUC directs the PAs to prioritize job training and workforce development factors (such as local hiring targets) through the competitive bid process for solar projects, and community project sponsors to include these components in their efforts, to ensure that local low-income jobs are created.

At the start of the research phase of this evaluation, PG&E and CPA were the only PAs that had enrolled customers in the DAC-GT program. Our ability to evaluate the CSGT program was limited as no PAs had enrolled customers in it. Table 1 shows the allocated and awarded capacity for each program as of Q2 2021.

**Table 1: Allocated and Awarded DAC-GT and CSGT Capacities as of Q2 2021**

| | Allocation (MW) | # Awarded Projects | New Capacity Contracted (MW) | Customers Enrolled* | Prior RPS Capacity (MW) |
|---|---|---|---|---|---|
| DAC-GT | 156.68 | 6 | 28.76 | 14,228 | 67.01 |
| CSGT | 40.76 | 5 | 12 | 0 | 0 |

*Source: PA 2021 Q2 program reports to the CPUC. Note that the number of PG&E customers enrolled reported in the quarterly report is slightly different than the number of customers we reviewed for our billing analysis given that the time periods of the summation did not align perfectly.

## 1.2 Development of Program Goals

When establishing program policies and goals, the CPUC and stakeholders grappled with a number of issues including:

- How to best provide alternatives to customers that are unable to benefit from traditional Net Energy Metering by installing solar on their rooftop.
- How to ensure that growth of solar projects happens specifically in DACs while minimizing the cost burden placed on non-participants. The mechanism that was ultimately decided upon was placing caps on the capacity that could be developed as part of these programs.
- How to define a DAC.
- How to ensure that programs are "customer driven," particularly for CSGT.
- How to design rules such that projects will appeal to solar developers and ultimately increase solar project growth in DACs while avoiding increasing bills for customers.

Program goals also overlap with those set forth in the CPUC Environmental & Social Justice (ESJ) Action Plan including:

- Promoting economic and workforce development opportunities in ESJ communities; and
- Increasing investment in clean energy resources to benefit ESJ communities, especially to improve local air quality and public health.

In the next section, we include the settled-upon program goals identified through a review of program documentation and through interviews with PAs.

## 1.3 Defining Program Goals

To assist with the process of connecting program activities to intended outputs and outcomes, Evergreen created a logic model for each program, which can be found in Appendix B. The activities and goals of the program were developed through a review of program documents and

in-depth interviews with 10 Program Administrators. While the full logic model can be found in Appendix B, we summarize the program goals in the table below.

| Program Mid- and Long-Term Goals | |
|---|---|
| Solar Installations | Increase in installation of solar projects in DACs<br>New non-GHG producing energy generation eventually allows higher GHG-emitting generation sources to be phased out. |
| DAC and Low-Income Customers | DAC residents receive 100 percent renewable energy<br>Burden of energy costs are reduced for DAC residents via a 20% bill credit<br>CSGT allows opportunities for community-driven solar projects.<br>A substantial portion (50%) of solar projects installed through CSGT is set aside for low-income customers |
| Environmental Benefits | DAC customers see environmental benefits associated with solar projects |
| Workforce Development (CSGT only) | New job opportunities are created in low-income communities<br>Community sponsors of solar projects receive financial benefits via a 20% bill credit<br>Skilled labor force is developed in DACs |
| Evaluation | Evaluations conducted every three years to assist in continuous program improvement |

Outcomes/goals in logic model developed from:

**Review of program documents** including CPUC Decisions, AB327, Low-Income Barriers Study Part A, Advice Letters, public solicitations, and executed Power Purchase Agreements

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**In-Depth Interviews** with 10 Program Administrators

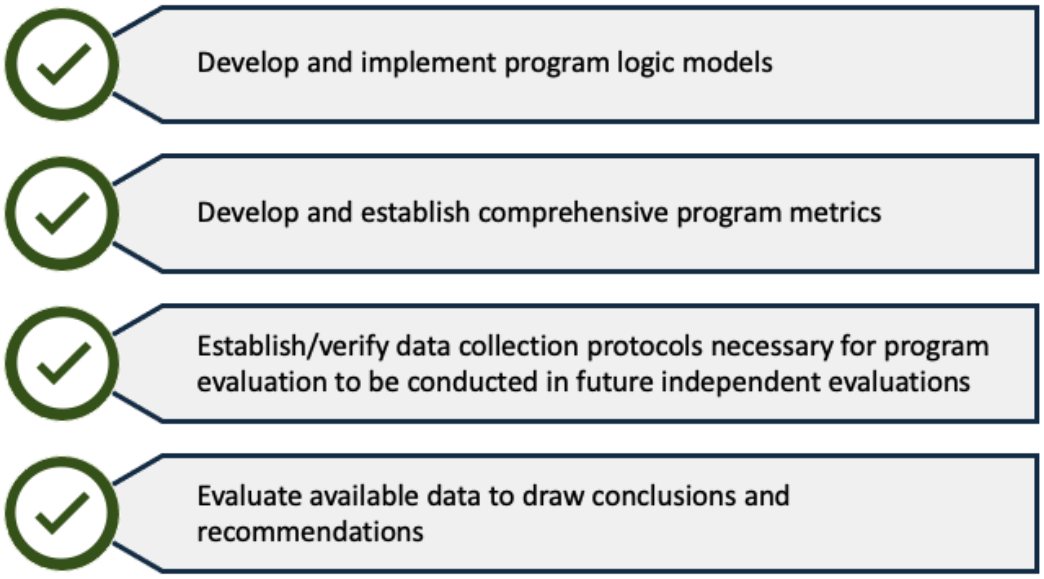
Not included in the logic model was a goal specifically serving the PAs' interest in using the program as an educational opportunity to help inform customers about where their energy is coming from. Also note that cost effectiveness is not an explicit goal of the program.

Evergreen developed a set of metrics that can be used to identify if the program is meeting the goals identified in the logic model. The approach supports early evaluation by facilitating

assessment of intended program outputs and near-term outcomes, which indicate likely success in achieving intended longer-term outcomes and goals. Appendix F presents the study findings organized by each metric, and Section 4.7 assesses each metric to determine if we are able to evaluate the program at this time and what will need to change for the program to be evaluated as it progresses in the future.

## 1.4 Study Objectives

The CPUC in D.18-06-027 directed the Energy Division to select an independent contractor to conduct an evaluation of the DAC-GT and CSGT programs every three years, beginning in 2021. The DAC-GT and CSGT evaluation report includes the following objectives:




This initial evaluation provides an opportunity to collect, combine, and summarize data on program administration and ensure the PAs are complying with CPUC directives and will support the development of recommendations for adjusting program design. The benefits of early evaluation are that it provides the opportunity to identify issues and recommend changes that may improve a program's ability to spend resources more efficiently and meet goals more effectively. By using a theory-based evaluation approach, flaws or gaps in a program's stated goals and theorized outcomes may also be identified (in addition to issues with how it is implemented), facilitating more comprehensive and impactful updates in program design.

# 2 Methodology

The study approach consisted of the following research components:

1. **Develop logic models, program theories, and metrics for each program.**

2. **Gather secondary information and data:**
   - Background documents including relevant CPUC Decisions and Resolutions, the Low-Income Barriers Study, and the Environmental and Social Justice Action Plan
   - Program documentation and reports including program implementation plans, marketing and outreach plans, competitive bid documentation and results, budgets and expenditures
   - PA program tracking data (on customers and solar projects)
   - PA customer information and billing system data
   - Geographic data to support geographic analyses
   - Environmental benefit assumptions (such as lookup values for GHG reductions)

3. **Conduct primary research:**
   - 200 customer surveys with PG&E and CPA customers. Only CPA had non-participant interviews.
   - 24 telephone interviews with PAs/community sponsors/stakeholders
   - Two telephone interviews with solar developers who bid on projects and a web survey with 61 contacts who were on PA distribution lists for Green Tariff solicitations

Table 2 illustrates how our study research aligns with the initial set of metric categories identified by the RFP. The first column lists the categories of metrics, with the following columns showing the research components. In the table, an "S" indicates that a particular secondary research component was used to address the corresponding metric category. A "P" indicates primary research was used.

**Table 2: Evaluation Metrics and Data Sources**
**(P=Primary, S= Secondary Research)**

| Metric Category | Program Documents | Program Tracking Data | PA Customer Information System (CIS) and Billing Data | Participating Customer Surveys | Non-Participating Customer Surveys | Interviews with PAs/ Stakeholders | Other Data Sources |
|---|---|---|---|---|---|---|---|
| Program administration | S | S | | | | P | |
| Program marketing | S | | | P | P | P | |
| Program enrollment | S | S | | P | P | P | |
| Customer participation | S | S | S | P | P | P | Geographic data |
| Capacity procured and online | S | S | | | | | |
| Customer bill impacts | | | S | P | | | Customer payment history (arrearages, defaults, payment extensions) |
| Environmental benefits | S | S | | P | P | P | Secondary data on environmental benefits |
| Local jobs and training | S | S | | | | P | Modeling of job impacts |

## 2.1 Logic Models and Program Theories

Evergreen reviewed program materials concurrently with drafting the research plan, and that information informed the development of logic models that reflect how the programs are being implemented. These logic models were then updated after additional document review and after interviews with PAs. This process included expanding upon and modifying metrics used to measure progress of the programs. These logic models may be found in Appendix B.

## 2.2 Secondary Information and Data

### 2.2.1 Document Review

Evergreen requested and reviewed the following information for each Program Administrator (PA)/program:

- Program organizational and management structure;
- Program information systems, including the various PA workflow management systems;
- Existing PA databases for applicable information;
- Marketing, Education, and Outreach efforts and plans;
- Internal administrative procedures and quality controls;
- Accounting and disbursement methods, including contractor payment/compensation processes;
- CARB Compliance Advice Letters;
- Data processing and record retention; and
- Program costs.

Evergreen also reviewed the following publicly available documents:

- AB 327; CPUC decisions (D.) 18-06-027, (D.) 18-10-007, (D.) 18-12-015, (D.) 20-04-006, and (D.) 20-07-008; as well as CPUC Resolutions E-4999, E-5034, E-5102, and E-5124;
- California Energy Commission *Low-Income Barriers Study, Part A: Overcoming Barriers to Energy Efficiency and Renewables for Low-Income Customers and Small Business Contracting Opportunities in Disadvantaged Communities;*
- Advice Letters (containing initial PA marketing and outreach and implementation plans);
- Joint Capacity Transfer Request Advice Letters;
- IOU Applications for Review Extension;

- Budget Advice Letters;
- Quarterly and Semi-Annual Reports;
- Solar project bid solicitations;
- CPUC and PA program websites;
- PA implementation plans and budgets;
- PA quarterly and semi-annual reports; and
- Procurement Advice Letters.

Evergreen also reviewed the CPUC's Environmental and Social Justice Action Plan. This review informed the development of PA/stakeholder interview guides, as well as assessments of program administration, marketing and outreach, enrollment, and the competitive bid solicitation process.

### 2.2.2 PA Customer Information Systems/Billing Data

Evergreen requested data from the PAs to support the following:

- Development of customer survey sample frames;
- Contact information for customer surveys;
- Location of eligible customers (both participating and non-participating);
- Summary of customers on CARE/FERA;
- Geographic analysis of participation; and
- Analysis of participating customer bill impacts.

We requested data for all participating customers (CIS and billing data from PG&E and CPA) and eligible non-participating customers (only available from PG&E) early in the study research planning phase.

Where possible, Evergreen requested PA arrearage and late payment history for participants to support the assessment of how the bill discount may have impacted customers' abilities to pay their bills. Evergreen was able to review arrearage data for PG&E participants only. We also reviewed customer self-reported changes in bill payment data from CPA and PG&E DAC-GT survey respondents.

All of these PG&E participants in DAC-GT were auto-enrolled in the program based on the following criteria outlined by the CPUC:

- Located in a top 15 percent DAC census tract in PG&E's service territory;
- Received eight or more late payment notices triggering three to six collection processes per year;

- Less than three "Return to Maker" payments (i.e., returned checks);
- Less than three disconnections within the last 12 months; and
- "Total Balance Owing" is greater than $0, with no credit balance on account.[10]

Additional detail on the billing data analysis is in Appendix C.

### 2.2.3 Geographic Data

Evergreen accessed geographic data used to define DACs through CalEnviroScreen,[11] which identifies census tracts that are disproportionately burdened by pollution. The CPUC defines a DAC as any community that scores in the top 25 percent on the latest CalEnviroScreen report[12], is a state recognized tribal boundary, or is one of the 22 tracts in the highest 5 percent of CalEnviroScreen's Pollution Burden indicator. Use of geographic data allowed for:

- A comparison of eligible customers and land available between CalEnviroScreen 3.0 and 4.0 for solar developers to propose in project solicitations;
- An investigation into reported program barriers of land cost and availability;
- A map of existing PAs and additional CCAs that may be interested in becoming PAs in the future, examining the challenge of potential reallocation of allocated program capacity (MW); and
- A map of participating customers to assess where DACs are served by early implementers.

### 2.2.4 Environmental Benefits

To assess environmental benefits derived from the DAC-GT and CSGT programs, Evergreen reviewed available data to estimate avoided $CO_2$ emissions attributable to any new capacity installed and/or participation in the DAC programs. At the outset of the evaluation, no new capacity had been installed nor was any capacity expected to be installed prior to or during the evaluation period. Therefore, Evergreen focused its attention on estimating the avoided emissions resulting from enrolled customers served by existing eligible Green Tariff or RPS resources. Note that this calculation represents an estimate of avoided emissions that would have occurred if the resources were new rather than existing solar projects.

To commence the enrollment process prior to the installation of new capacity, the CPUC permitted PAs to enroll customers by allowing the use of existing Green Tariff or RPS projects that

[10] Decision 20-07-008. *Decision Implementing Automatic Enrollment of Disadvantaged Communities Green Tariff.* July 23, 2020. CPUC. https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M344/K058/344058812.PDF

[11] https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30

[12] CalEnviroScreen 4.0 was released to the public on October 13, 2021.

comply with program eligibility requirements on an interim basis. PAs using this approach must comply with the California Air Resources Board's (CARB's) Voluntary Renewable Electricity Program by retiring greenhouse gas allowances associated with renewable energy purchases through the program and tracking renewable energy credit retirements through Green-e Energy Certification protocols.[13] These interim project resources are to be discontinued for use in the DAC-GT and/or the CSGT programs as new capacity is installed and brought online.

Evergreen estimated the achieved program-avoided emissions using the following data:

- WREGIS[14] reporting and solar project specifications;
- Estimated program participation and participant billing data;
- Solar annual hourly load profile modeled in PVWatts;[15] and
- 2020 marginal $CO_2$ emissions signal developed by WattTime.[16]

The evaluation of estimated environmental benefits avoided emission impacts for program years 2020 and 2021. For the 2020 program year, WREGIS reporting associated with interim resources was available to derive total solar generation based on the reported number of retired RECs. These reports were not available for the 2021 program year at the time of reporting. Therefore, Evergreen leveraged 2021 participation data as well as participant billing data to estimate total consumption during the 2021 program year, which served as the proxy for total solar energy generated through the program.

Having established total solar generation, Evergreen allocated the generation across each program year based on the PVWatts output to estimate solar generation at hourly intervals. PVWatts modeling was based on the location and performance of the interim resources used in 2020 and 2021. Finally, Evergreen converted the WattTime emissions data to hourly intervals and matched these data to the amount of solar generation to estimate avoided emissions. This analysis method aligns with the SOMAH [17] impact evaluation with the intent to create comparable avoided emission impacts across programs. In addition to analyzing avoided emissions using the process described above, Evergreen also calculated emissions based on CARB's annual average emissions factor and the total solar generation.

[13] Resolution E-4999, Order sub-section (s.) (p.65).
[14] Western Renewable Energy Generation Information System. www.wecc.org
[15] National Renewable Energy Laboratory. PVWatts Calculator version 6.2.4.
[16] California Self-Generation Incentive Program Greenhouse Gas Signal. WattTime. https://sgipsignal.com
[17] Solar on Multifamily Affordable Housing Phase II Report. Verdant Associates, LLC. September 2021.

## 2.3 Primary Research

The customer research included 200 customer surveys (targeting 150 participating and 50 non-participating customers) and 24 interviews with PAs and stakeholders. We also conducted in-depth interviews with two solar developers as well as a web survey for developers who were sent bid opportunities, which resulted in completed surveys from 61 contacts from the PAs' solicitation distribution lists.

### 2.3.1 Customer Surveys

We drew our participating customer sample frame from PA tracking data that recorded enrollment in the DAC-GT program and provided contact information for customers. At the time of sampling, there were no enrolled participants in the CSGT program and only PG&E and CPA had customers enrolled in DAC-GT.

We randomly selected participants from the CPA and PG&E data frame and sent out invitations and follow-up invitations to participants by email in several different batches. For non-participating customers, we drew our sample from CPA customer information system data (screening out the participating customers), filtered for DACs (using CalEnviroScreen 3.0, applying the approved DAC definition from D.18-06-027[18]). We did not survey PG&E non-participating customers as PG&E participants were auto-enrolled, and non-participating customers would not be able to give their opinions on program marketing or why they chose not to enroll in the program.

We took measures to ensure a representative sample. We allocated a subset of participants to be recruited over the phone by filtering out contact profiles with only phone numbers listed. Additionally, our web survey was translated into Spanish. Sixteen out of 196 survey participants took the survey in Spanish (eight CPA customers and eight PG&E customers). Eleven respondents took the survey over the phone. Due to an initially low response rate, we offered participants an incentive to take the survey.

[18] The top 25 percent of communities statewide plus 22 census tracts in the highest 5 percent of CalEnviroScreen's Pollution Burden, but that do not have an overall CalEnviroScreen score because of unreliable socioeconomic or health data.

Table 3: Initial Customer Survey Sample Allocation

| PA | Total Enrolled | DAC-GT Participant Completes / Target | Target Non-Participant Completes / Target | Total Completes |
|---|---|---|---|---|
| PG&E | 15,000+ | 100/100 | 0/0 | 100 |
| CPA | 500+ | 60/50 | 54/50 | 114 |
| **Total** | | **160/150** | **54/50** | **214** |

### 2.3.2 Interviews with PAs and Stakeholders

Evergreen conducted interviews with the following stakeholders in the Green Tariff programs:

- 10 PAs (the electric IOUs and CCAs);[19]
- Four community-based organizations (CBOs) that had promoted or were slated to actively promote the DAC-GT program;
- Six non-profit/local government community solar project sponsors;
- The CPUC Tribal Liaison;[20]
- GRID Alternatives, the workforce development partner for all currently-awarded CSGT projects;[21] and
- Two independent evaluators from three prior IOU procurements.

Evergreen worked with the PAs to determine the appropriate contacts for the interviews. Evergreen staff conducted the interviews (close to one hour each) in an open-ended format using a study team-approved interview guide. The interviews were intended to gather feedback from entities involved in administering, promoting, and sponsoring solar projects.

### 2.3.3 Solar Developer Research

Evergreen reached out to three solar developers who are or will be contracting with the PAs to conduct in-depth telephone interviews, completing interviews with two of the three firms. After the in-depth interviews, Evergreen conducted a web survey targeting 50 completions from organizations on bidder lists or that may have submitted a rejected bid to a PA. Evergreen sent

[19] This evaluation is focused on the nine PAs that were active at the onset of this research, though we interviewed an additional CCA that became eligible to implement both programs.
[20] The CPUC has an office dedicated to outreach and engagement with the Native American Tribes of California. The Tribal Liaison supports the Tribal Outreach and Engagement Office.
[21] We requested workforce development affidavits from project bid packages to find out the target number of interviewees. There has not yet been any job training for CSGT projects.

emails directly to bidder contact lists from PG&E and SDG&E and had PAs (PG&E, SDG&E, SCE, and CPA) send out emails to their bidder pools with links to the web survey. Respondents were not randomly sampled or weighted since the survey was distributed to all available contacts.

Overall, 65 respondents completed the survey; 38 were from solar development firms. The response rates were quite low, with only 1 percent of SDG&E and PG&E contacts responding, no responses from CPA contacts, and 6 percent of SCE contacts responding. These low response rates suggest that an outreach approach relying primarily on e-mail may not be sufficient to fully engage potential solar developers. Not all contacts in any of the PA contact lists were solar developers, so it was expected that some respondents would not be solar developers. For SDG&E, over half of respondents were not solar developers, while 42 percent of PG&E respondents were not solar developers.

**Table 4: Summary of Solar Developer Survey Respondents**

| Program Administrator | Invitations Sent | Responses Received | Response Rate | Solar Developer Responses | % Responses from Solar Developers |
|---|---|---|---|---|---|
| PG&E | 2,067 | 31 | 1% | 18 | 58% |
| SCE | 155 | 10 | 6% | 9 | 90% |
| SDG&E | 1,868 | 24 | 1% | 11 | 46% |
| CPA | 525 | 0 | 0 | 0 | 0 |

# 3 Reliability Assessment

We identified the following items through our research and design that may have impacted the certainty of the findings presented in this report. Where possible, we made efforts to reduce bias and increase response rates.

**Sampling**: We took measures to ensure a representative sample. Billing data matching for participants and non-participants proved to be less precise than expected as there were inherent differences between the groups observed – specifically, participants had consistently higher summer and winter energy usage than non-participants; this likely stems from PG&E's criteria for selecting customers to enroll in DAC-GT (e.g., customers with an unpaid balance on their account). We allocated a subset of participants to be recruited over the phone by filtering out contact profiles with only phone numbers listed. A survey only conducted via the web could bias our results in several ways, including towards those who possess technological literacy or those who have access to fast, reliable internet and hardware. For the phone recruitment effort, contacts were called multiple times at different times of the day to give customers an opportunity to respond at a time that would be most convenient for them.

**Self-selection bias**: The customer survey was fielded both via web and phone to ensure that customers were not prohibited from participating if they did not have a valid email address or access to the internet. We also offered the online version of the survey in both English and Spanish. Sixteen out of 196 survey participants took the survey in Spanish (eight CPA customers and eight PG&E customers) though Spanish is the primary language spoken in close to or more than half of customers who are eligible for the program in those two territories.

**Low response rates from solar developers**: Our solar developer web survey utilized contact lists provided by the PAs that were used for outreach regarding RFO opportunities. We received very low response rates from these groups and requested that PAs also share information about this study and a link to the survey with the same group of contacts. Ultimately, we heard from 1 percent of contacts from SDG&E and PG&E, 6 percent of SCE contacts, and 0 percent of CPA contacts. The response rate from solar developers was also impacted by lists containing contacts from non-solar developer organizations who were not the target of this research. The solar developer findings in this report are limited to those who were on the PA lists and the small percentage who responded to our research. We are not certain that the feedback we have included in this report reflects how the target market of solar developers feels about the program. There has been low interest from developers in the programs' RFOs, which has made it difficult to engage them in research related to the programs. Future research efforts could direct more resources to developing a sample of solar developers outside the PA lists and using more than one approach (such as incentives and/or focus groups) to attempt to get a higher response rate and ensure the results reflect the broader target market.

**Low response rate from PA customers**: When we first fielded the web survey with customers, we had very low response rates. This was more pronounced amongst PG&E customers since the program was not explicitly marketed to them. We added an incentive for completing the survey to help improve the response rate. Ultimately, the response rates were 3.7 percent for PG&E participants, 6.5 percent for CPA participants, and 0.5 percent for CPA non-participants.

# 4 Findings

This section presents the study findings. After a brief summary of program progress to date, we describe issues related to program eligibility and geographic boundaries. Next, we present findings related to solar developers, low-income customers in DACs, and workforce development. For those results, we frame the findings in the theory-based evaluation framework, where metrics are used to measure the programs' progress in achieving expected outcomes, which ultimately should lead to achieving long-term objectives. Appendix F provides more detail on the study results for each metric. The last subsection in Section 4 presents the evaluability assessment that will inform improvements to data tracking to ensure successful program evaluation in the future. This study was conducted early in the program implementation process with the goal that future evaluations will be guided by this framework and able to more completely assess program outcomes.

### 4.1.1 Program Progress

**DAC-GT:** At the time of this research, a total of nine Program Administrators (PAs) had been approved and were allocated solar capacity by the CPUC for the DAC-GT program. CPA and PG&E were the only two PAs that had begun enrolling customers in DAC-GT, and both PAs were using interim renewable resources to serve these customers while they worked with developers on six contracts to bring new capacity online. The two active PAs used different enrollment strategies. PG&E auto-enrolled customers who it identified as having had challenges paying past electricity bills based on their billing history, and CPA marketed the program more broadly to low-income DAC customers who had to self-enroll.

**CSGT**: At the time of this research, eight PAs had been approved and were allocated solar capacity by the CPUC for the CSGT program. Four PAs had issued a total of nine solicitations, with four of those solicitations yielding responses from bidders. Due to challenges bringing in sufficient bids, only two PAs had awarded contracts, and none had enrolled customers. CSGT targets customers in phases: before enrolling any non-low-income or master-metered residential rate accounts, they must enroll half of their target customers from low-income DACs. CSGT has an added workforce development program element associated with solar installations that we were unable to evaluate due to the program being in the very early stages of implementation.

Table 5 documents the eligible renewable energy system capacity currently under contract for each PA relative to total capacity allocations as of the end of the second quarter of 2021.

**Table 5: Allocated and Awarded DAC-GT Capacities by PA as of Q2 2021**

| PA | DAC-GT | | | | | | CSGT | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Allocation (MW) | # Awarded Projects | # of Solicitations Ran | New Capacity Contracted (MW) | Customers Enrolled* | Prior RPS Capacity (MW) | Allocation (MW) | # of Solicitations Ran | # Awarded Projects | Capacity Contracted (MW) |
| Pacific Gas and Electric (PG&E) | 54.82 | 6 | 2 | 28.76 | 13,760 | 54.82 | 14.20 | 2 | 4 | 9 |
| Southern California Edison (SCE) | 56.5 | | 3 | | | | 14.63 | 3 | 1 | 3 |
| San Diego Gas & Electric (SDG&E) | 18 | | 3 | | | | 5 | 3 | | |
| Clean Power Authority (CPA) | 12.19 | | 1 | | 528 | 12.19 | 3.13 | 1 | | |
| East Bay Community Energy (EBCE) | 5.726 | | | | | | 1.5625 | | | |
| Marin Clean Energy (MCE) | 4.646 | | | | | | 1.2825 | | | |
| CleanPowerSF (CPSF) | 1.826 | | | | | | .5525 | | | |
| San Jose Clean Energy (SJCE) | 1.736 | | | | | | | | | |
| Peninsula Clean Energy (PCE) | 1.236 | | | | | | .4025 | | | |

*Source: PA 2021 Q2 program reports to the CPUC. Note that the number of PG&E customers enrolled reported in the quarterly report is slightly different than the number of customers we reviewed for our billing analysis given that the time periods of the summation did not align perfectly.

## 4.2 Program Eligibility and Geographic Boundaries

The design of the programs is such that geography impacts both customer eligibility for the programs and where solar developers can propose projects. For both solar developers and customers, the boundaries are shifting, adding a layer of complexity to program implementation. In this section, we address how the program rules related to eligibility and geographic boundaries are changing and how this has impacted or can impact both customers and solar developers, including:

- **CalEnviroScreen Update:** An update to the tool that is used to define DACs by the CPUC;
- **Tribal Territories**: The consideration of adding tribal territories to the eligibility pool for program participants;
- **CCA Expansion and Launch**: The expansion of community choice aggregators (CCAs) and applications for CCAs to become PAs in areas where it is possible for IOUs to have already met capacity caps; and
- **Siting Challenges in DACs**: Reports from a limited pool of solar developers that DACs present siting and interconnection challenges associated with current eligibility requirements for both programs.

### 4.2.1 CalEnviroScreen Update

As of October 13, 2021, CalEnviroScreen 4.0 was released to the public, replacing version 3.0 and expanding the program boundaries (and therefore, program-eligible land) to include an additional 340 census tracts, while dropping 291 tracts. At the time of this report, CalEPA had proposed to keep all 3.0-qualified DACs in addition to new tracts identified by CalEnviroScreen 4.0 and all areas within federally recognized tribal boundaries. We support this given that this moving target impacts program implementation and because the majority of the 291 tracts (93 percent) that were dropped in 4.0 are still close in the top 40 percent of impacted tracts.

CalEnviroScreen 4.0 features data updates for all indicators (such as ozone, PM2.5, pesticide use, etc.), improved indicator methods, and the addition of a new indicator to account for possible lead exposure from housing.

For the CSGT program, there is a 5-mile buffer area around each DAC, and each San Joaquin Valley Pilot Community has a 40-mile buffer area. The customers enrolled must be within a DAC, but they can be served by solar projects within DACs in the surrounding buffer area. For coastal areas, this additional 5-mile boundary does not always mean additional land is available for siting projects in DACs, as these buffer areas overlap bodies of water.

### 4.2.2 Tribal Territories

At the start of the evaluation process, we conducted an interview with the CPUC's tribal liaison to discuss how the CPUC was considering extending program eligibility to tribal territories[22] and/or making other program design changes to better align with the CPUC's Environmental and Social Justice Action Plan.[23]

Currently, other statewide programs are offered to residents of tribal territories, including DAC-SASH (solar for single-family households in qualifying DACs), and the Self-Generation Incentive Program (SGIP). Both DAC-SASH and SGIP were recently expanded such that residents in California Indian Lands (i.e., lands within the limits of an Indian reservation and under the jurisdiction of the US government) are eligible for program offerings.

On the federal level, the US Department of Energy offers the Tribal Energy Program to federally recognized Indian tribes and tribal entities, rather than providing offerings based on geography.

The Tribal Liaison highlighted that different tribal areas could benefit from different aspects of the programs—for example, some may have more need for the 20 percent bill discount than others, while workforce development and local jobs may be more important to some tribal areas than others. Despite specific tribal community differences, the Tribal Liaison expressed that most tribal communities would benefit from the DAC-GT and CSGT programs to some degree. Since the start of this evaluation, a total of 11 recognized tribal territories have all become recognized as DACs in CalEnviroScreen 4.0, though many others are not included.

We recommend that similar to DAC-SASH (another program that focuses on DAC customers in single-family homes), the DAC-GT and CSGT programs should expand such that residents in California Indian Lands (i.e., lands within the limits of an Indian reservation and under the jurisdiction of the US government) are eligible for program offerings. This places the program in alignment with Decision 20-12-003, which expanded DAC-SASH in the same way, to align that program with the same underlying statute.

A challenge highlighted by the Tribal Liaison to having tribal communities included in program implementation is that federally recognized "tribal areas" do not always include all the tribal members who live in the vicinity of the tribal area and that would benefit from program offerings. In addition, there are many tribes that are recognized by the state of California but are not

[22] There were five tribal areas in areas identified by CalEnviroScreen 3.0, and this extended to 11 in 4.0 according to the 2021 Draft CES 4.0 Presentation by Laura August from the Office of Environmental Health Hazard Assessment. There are a total of 109 federally recognized tribes in California. This has since been updated to a final version of CalEnviroscreen 4.0.

[23] *Environmental & Social Justice Action Plan*, Draft Version 2.0. October 26, 2021. California Public Utilities Commission. Accessed from https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/news-and-outreach/documents/news-office/key-issues/esj/draft-cpuc-esj-2010262021c.pdf

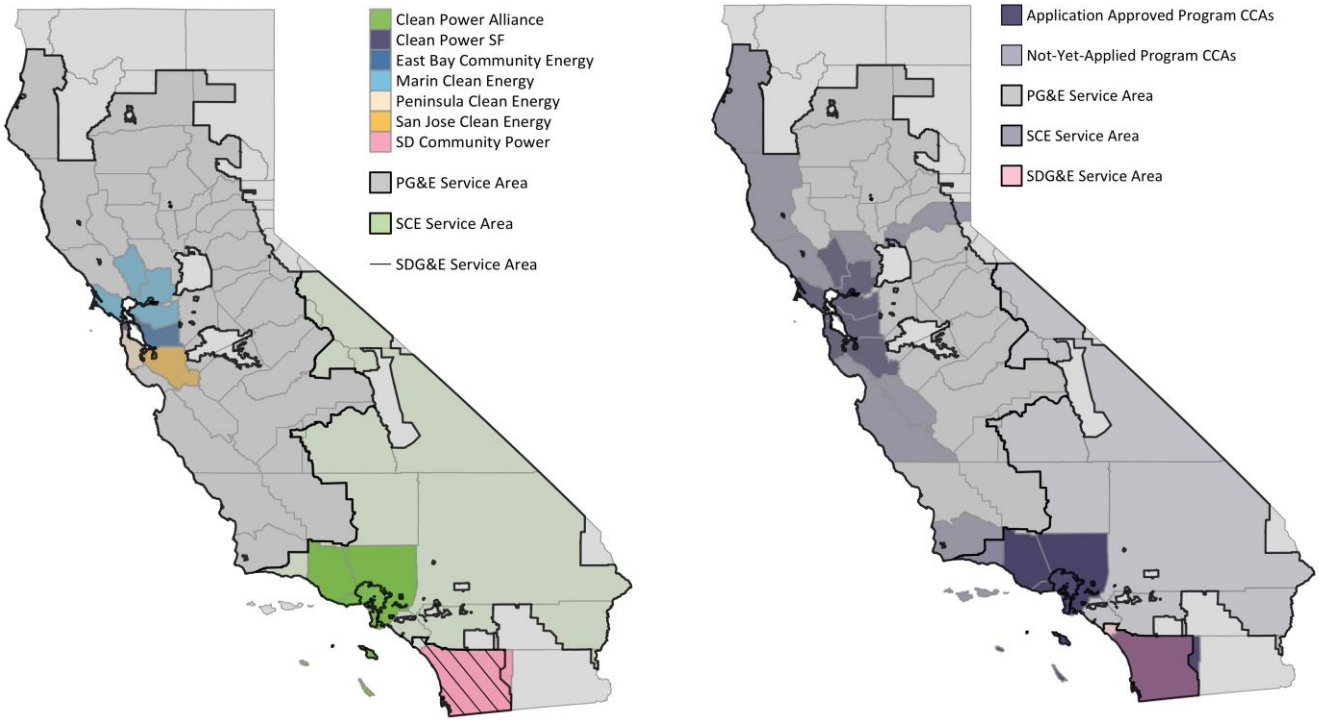
federally recognized, so as a result they do not have physical geographies such as rancherias or reservations. In these cases, tribal affiliation is a matter of cultural affiliation, not strictly a geographic one. These nuances mean that the definition of DACs using CalEnviroScreen 4.0 may be an imperfect fit for the inclusion of all tribal members, as tribal membership need not overlap with residency in a specific geographic area, but inclusion of all federally recognized tribes would be a step in the right direction towards achieving program goals.

### 4.2.3 CCA Expansion and Launch

Since the CPUC's original decision establishing the DAC-GT and CSGT programs in 2018, numerous CCAs have been established, leading to changes in capacity allocations. The expansion of CCAs adds complexity to the allocation of program capacity between IOUs and CCAs. Thus far, capacity allocations for CCAs have been determined by the share of customers in DACs who are served by CCAs or IOUs, and CCAs' share of capacity was reallocated from the IOUs' original share. Thus far, reallocation has occurred before any capacity had been contracted by the IOUs. This process will present a challenge in the future if an IOU has awarded bids for all of its capacity.

Figure 2 shows how current CCAs overlap with IOU service territories and how additional CCAs that may apply or have applied but not yet been approved to become PAs overlap with existing IOU service territories.

**Figure 2: Existing Approved Program CCAs and Not-Yet-Applied CCAs as of November 2021 [24]**




There is currently a lack of clarity about the long-term allocation of capacity to CCAs; for example, if CCA enrollment grows, so too potentially would their share of customers in DACs, warranting an increase in capacity. However, it becomes more likely in the future that the IOUs' will have enrolled participants using all of their capacity by the time such a scenario occurs, and contracts may already be in place for "steel in ground" projects. IOUs could also be deterred from championing the programs and trying to get capacity under contract if they are concerned that it may be reallocated to another PA.

### 4.2.4 Siting Challenges in DACs

Enrollment in the DAC-GT and CSGT programs has been slower than expected, in part because PAs have faced difficulty in getting responses to their solicitations. For DAC-GT, only six contracts have been awarded from two of the ten rounds of solicitations. One PA has held three DAC-GT solicitations, with no responses. For CSGT, four contracts have been awarded, and five of the nine solicitations received no responses.

[24] Due to legibility at the scale shown, the map of CCAs on the left does not explicitly denote the locations of three approved CCAs (Lancaster Choice Energy, Pico Rivera Innovative Municipal Energy, and San Jacinto Power).

Through this research, we obtained input from 38 solar developers that are on PA solicitation distribution lists, but only a quarter of that group was able to give us feedback on solicitations based on having reviewed at least one RFO. This likely indicates that a major challenge in getting projects under contract is that the PAs have been unable to engage solar developers as a first step.

The design of both programs takes into account that siting projects in DACs may pose unique challenges, as the cost containment thresholds are greater than those for other GTSR programs. Current cost containment thresholds limit contract awards to DAC-GT or CSGT projects whose bid price is at or below the higher of 200 percent of the maximum executed contract price in either the Renewable Auction Mechanism's as-available peaking category or the Green Tariff program. For other GTSR programs, the cost cap is 150 percent.

Siting for DAC-GT and CSGT projects thus far has been more successful in PG&E's service territory compared to other IOUs. PG&E has the largest geographic coverage and the highest capacity cap due to the relatively higher number of eligible customers in its service territory. Since DAC projects can be sited within any other DAC within the PA's territory, it may be the case that there is a higher likelihood that a solar developer has a site in mind and may have even started to look at interconnection in one DAC that can serve customers across the territory in another DAC. One solar developer who decided not to bid in PG&E's service territory noted that "Sites we had under development were not in DACs." This was the case for at least one of the winning bidders that we interviewed—they had the land already under development, and that land was in a DAC. That specific developer reported that if they had not already had the land in their portfolio and undergoing the interconnection process, there would not be enough time to prepare those resources for a potential bid.

We heard from solar developers that land cost is contributing to the inability to bid on both DAC-GT and CSGT projects. One developer noted that where land is expensive, solar projects cannot compete with other types of land use. To better understand where land costs are higher, we used population density as a possible indicator of affordable land availability. That analysis showed that in PG&E's service territory (where PG&E has been more successful in contracting projects), there is a higher percentage of very low to low density areas (Figure 3).

In Figure 3,[25] we used the number of people per square mile within each DAC from CalEnviroScreen 4.0 to create four proxy categories for density:

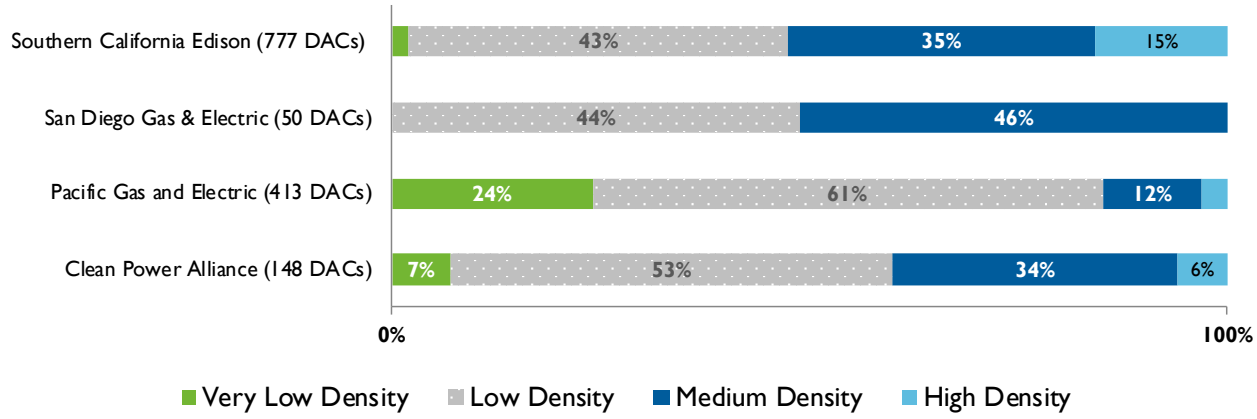
- Very Low Density: 1,000 or less people per square mile
- Low Density: 1,001 – 10,000 people per square mile

[25] California Public Utilities Commission. 2021. *Environmental & Social Justice Action Plan*, Draft Version 2.0.

- Medium Density: 10,001 – 20,000 people per square mile
- High Density: 20,001 or more people per square mile

This distribution shows that the majority of DACs fall within either the low density or medium density bins. PG&E is the PA with the most very low density or low density DACs; 85 percent of its 413 DACs fall into these two categories. Meanwhile, the PA with the largest proportion of high density DACs is Southern California Edison (15% of its 777 DACs). This reflects DACs in SCE's, SDG&E's, and PG&E's service territories only.

**Figure 3: Population Density Distribution of DACs by PA**




Beyond the above initial analysis on density, Evergreen looked at siting requirements for both programs and ran a sensitivity analysis to identify how land cost, land availability, proximity to transmission, and cost of living may impact the decision solar developers make on whether or not to bid on a project. As a reminder, we include the current rules for each program in Table 6.

**Table 6: Current Solar Siting Eligibility Requirements**

| Program | DAC-GT | CSGT |
|---|---|---|
| DAC Siting | Solar developers can site projects within any DAC within the same IOU service territory | Solar projects must be in DACs within a 5-mile radius of a given DAC where subscribing customers reside. |
| Buffer | None | 5-mile radius of given DAC where customers reside or 40 miles for SJV pilot communities |
| DAC Threshold | Top 25 percent of Census tracts identified by CalEnviroScreen statewide, as well as 22 census tracts in the highest 5 percent of CalEnviroScreen's Pollution Burden, but that do not have an overall CalEnviroScreen score because of unreliable socioeconomic or health data | |
| SJV Pilot Communities | Not included unless fit DAC threshold above | All are included |

For each IOU territory and program, Evergreen identified the differences in land cost, availability, distance to transmission, and cost of living. Based on comparing these metrics across IOU service territories under the current program rules, it appears that a solar developer would be much more drawn to developing projects in PG&E's service territory, less so in SCE's service territory, and even less so in SDG&E's service territory.

In two sub-sections below, one for each program, we present the estimated metrics for each IOU service territory under the current rules, and then show how using program levers changes the appeal of developing from the perspective of solar developers through a sensitivity analysis. Table 7 shows the levers explored through our sensitivity analysis.

**Table 7: Program Levers Explored through Sensitivity Analysis**

| Program | DAC-GT | CSGT |
|---|---|---|
| DAC-Siting | Solar developers can site projects within any DAC within the same IOU service territory | Solar projects must be within a 5-mile radius of a given DAC where customers are served.<br>**Increasing the 5-mile buffer zone to 10 and 15 miles** |
| Buffer | None | 5-mile radius of given DAC |
| DAC Threshold | Top 25 percent of Census tracts identified by CalEnviroScreen statewide, as well as 22 census tracts in the highest 5 percent of CalEnviroScreen's Pollution Burden, but that do not have an overall CalEnviroScreen score because of unreliable socioeconomic or health data<br>**Increasing percentage of top DAC scores from 25% to 30 and 40%** | |
| | **Increasing the top pollution burden DACs from 5% to 10% (DAC-GT only)** | |
| SJV Pilot Communities | Not included unless fit DAC threshold above | All are included |

These levers were increased to create different scenarios with which to compare the following metrics shown in Table 8.

**Table 8: Metrics Evaluated in Sensitivity Analysis**

| Metric | Source |
|---|---|
| **Avg Eligible Customers** per 100,000 people | Program eligibility estimates are provided by the seven PAs that responded to our data request: Marin Clean Energy, East Bay Community Energy, CleanPowerSF, Clean Power Alliance, Pacific Gas and Electric, SCE, and SDG&E. These data are limited in that each PA chose the exact method for which it estimated the count of eligible customers in its service area. These were supplemented by American Community Survey 2019 five-year population estimates to determine average eligibility by census tract summed across service area. |
| **Median Land Cost** ($/Acre) | Project location land value estimates are provided by the 2017 USDA Census of Agriculture. The Census of Agriculture is a complete count of U.S. farms, ranches, and the people that operate them. This dataset includes assessment of land values on a dollar per acre basis delivered at the county level. While this metric is an imperfect representation of all developable land and current values, it does represent a coarse estimate that is suitable for regional comparison. Additionally, while real estate markets and land uses are dynamic in nature, substantial changes in land use or valuation would not be expected to be seen five years on. |
| **Total Solar Land** (Acres) & **Total Solar Capacity** (MW) & **Median Distance to Transmission** (Miles) | National Renewable Energy Laboratory (NREL) provides the estimated quantity and quality of solar photovoltaic resources across uniform 4 by 4-kilometer gridded areas for the entire country in the Solar Supply Curves dataset. We derive total solar land acreage, solar megawatt capacity, and median distance to transmission from these data. These data are a combination of the National Solar Radiation Database and the renewable energy potential model, both developed in part or solely by NREL. These data are provided under three different land development constraint levels from open to limited access. Land area exclusions considered include physical constraints (such as building footprints or incompatible land use) and protected lands. For the purposes of this analysis, the most restrictive land area exclusion dataset was utilized. |
| **Median Cost of Living Index** | To approximate regional cost of living differences, we used the Bureau of Economic Analysis' Regional Price Parities dataset. This dataset allows a comparison of purchase power across all metro areas in the country. The values reported in this dataset represent the percentage of the overall national price level. This dataset is combined with the Census Bureau's combined statistical area to represent metropolitan areas spatially. While not all solar projects occur in combined statistical areas across California, they occur close enough to these areas to be influenced by them. This dataset presents a suitable estimate of prices across different regions of the state. |

The metrics shown above share rough approximations meant to help the CPUC consider the validity of using certain levers to modify the program. More granular data are available in certain areas such as the UCLA California Center for Sustainable Communities Community Solar Opportunities Mapping Tool.[26]

Ultimately this analysis led us to the following conclusions and recommendations shown in Table 9. The findings for each of these are further demonstrated below the table.

**Table 9: Conclusions from Sensitivity Analysis and Recommendations**

| Program | Land Eligibility Conclusions and Recommendations |
|---|---|
| DAC-GT | It is much more favorable for solar developers to work within PG&E's service territory, followed by working in SCE's and SDG&E's service territories. In SDG&E's service territory, the median cost of living and land cost remain high even when additional DACs are accepted (beyond the top 25% to 40%) and when the pollution burden rules are extended. |
| CSGT | As is, the CSGT program does not meet the stated goal of increasing solar within a community given that census tracts (which are used to identify DACs) are too granular and often represent just a small portion of a community (such as just a portion of Chula Vista in San Diego County). To address this, the program added a 5-mile buffer zone, but this allows for a project to be built outside of what one might consider to be a community.<br>Our sensitivity analysis showed that if the program increased the thresholds for DACs (e.g., from 25% to 40%), that this increases available land, and in particular, more rural land becomes eligible (specifically in SDG&E's service territory). It is likely that solar developers will choose to site projects where there are fewer barriers to development and costs and that more urban DACs will be less likely to see the benefits of the CSGT program. |

While there were no participants in the CSGT program at the time of this research, a total of 11 project sponsors have given their support across both PG&E's and SCE's contracted CSGT projects. The types of organizations currently acting as community sponsors are primarily educational entities (e.g., public school districts and community colleges), chambers of commerce, and community service districts. The locations of the sponsors identified to date do not neatly align with the current program boundaries of a community (a DAC and the 5-mile surrounding buffer zone), suggesting a mismatch between the CPUC's goal of community visibility and co-location and the entities expressing interest in sponsoring projects. Per R.14-07-002:

> *"… the purpose of community solar is to link the community that is served with the site of the project. This allows the community to have an "ownership" in the sense of*

[26] https://solar.energyatlas.ucla.edu/

*associating themselves with the project (although not a direct financial ownership) because community members can see or easily get to the location of the project. Many California counties are very large; San Bernardino County is the largest in the nation. Allowing a project to be located anywhere in a county could place the project dozens of miles, or even more than one hundred miles from the community it serves. This would defeat the purpose of community solar."*[27]

## *Sensitivity Analysis Findings*

This section provides a series of hypothetical scenarios where project siting eligibility is expanded across the DACs (from CalEnviroScreen 4.0) in the three electric IOU service areas. Across these scenarios, key project siting metrics are summarized at the service area-level including average rates of customer eligibility, median land costs, estimated solar land, solar megawatt capacity, median distance to electricity transmission, and cost of living differences.

For each program, we show a set of scenarios where program levers vary to illustrate changing metrics.

### *DAC-GT Sensitivity Analysis Findings*

We look at the following scenarios in the following five tables:

**Table 10: Scenario Summary**

| Lever | | Baseline | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 |
|---|---|---|---|---|---|---|
|  | DAC Score | Top 25% of DACs | 30% | 40% | 30% | 40% |
|  | Pollution Burden | DACs in the highest 5 percent of CalEnviroScreen's Pollution Burden, but that do not have an overall CalEnviroScreen score because of unreliable socioeconomic or health data | 5% | 5% | 10% | 15% |

[27] R.14-07-002 COM/MGA/mal page 66, https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M216/K789/216789285.PDF

In all scenarios, **median cost of living is much higher in SDG&E's service territory, and median land cost never gets close to the median land cost for PG&E's service territory** in the baseline scenario. A sizable increase in total acres of land available for solar projects in SDG&E's service territory occurs when the DAC percentage is at 40 percent.

**Table 11: DAC-GT Baseline (Top 25% & Pollution Burden [PB] 95%) Project Eligibility Summary**

| PA | Avg Eligible Customers per 100,000 People | Cumulative Eligible Customers | Median Land Cost ($/Acre) | Total Solar Land (Acres) | Total Solar Capacity (MW) | Median Distance to Transmission (Miles) | Median Cost of Living Index |
|---|---|---|---|---|---|---|---|
| PG&E | 9,838 | 160,462 | $9,800 | 2,360,449 | 305,677 | 3.58 | 104.9 |
| SCE | 11,248 | 456,356 | $14,900 | 433,456 | 56,132 | 1.92 | 103.7 |
| SDG&E | 11,659 | 25,287 | $23,200 | 71 | 9 | 0.15 | 113.4 |

**Table 12: DAC-GT Scenario 1 (Top 30% & PB 95%) Project Eligibility Summary**

| PA | Avg Eligible Customers per 100,000 People | Cumulative Eligible Customers | Median Land Cost ($/Acre) | Total Solar Land (Acres) | Total Solar Capacity (MW) | Median Distance to Transmission (Miles) | Median Cost of Living Index |
|---|---|---|---|---|---|---|---|
| PG&E | 8,485 | 175,865 | $9,500 | 2,534,355 | 328,198 | 3.88 | 104.9 |
| SCE | 10,152 | 491,486 | $14,900 | 454,410 | 58,846 | 1.83 | 103.7 |
| SDG&E | 9,612 | 28,559 | $21,200 | 71 | 9 | 0.15 | 112.6 |

**Table 13: DAC-GT Scenario 2 (Top 40% & PB 95%) Project Eligibility Summary**

| PA | Avg Eligible Customers per 100,000 People | Cumulative Eligible Customers | Median Land Cost ($/Acre) | Total Solar Land (Acres) | Total Solar Capacity (MW) | Median Distance to Transmission (Miles) | Median Cost of Living Index |
|---|---|---|---|---|---|---|---|
| PG&E | 6,331 | 191,455 | $8,600 | 3,134,218 | 405,880 | 3.77 | 104.9 |
| SCE | 8,345 | 520,700 | $14,900 | 571,115 | 73,959 | 1.66 | 103.7 |
| SDG&E | 5,524 | 30,183 | $18,600 | 12,452 | 1,613 | 0.43 | 107.8 |

**Table 14: DAC-GT Scenario 3 (Top 30% & PB 90%) Project Eligibility Summary**

| PA | Avg Eligible Customers per 100,000 People | Cumulative Eligible Customers | Median Land Cost ($/Acre) | Total Solar Land (Acres) | Total Solar Capacity (MW) | Median Distance to Transmission (Miles) | Median Cost of Living Index |
|---|---|---|---|---|---|---|---|
| PG&E | 8,425 | 176,583 | $9,500 | 2,680,715 | 347,151 | 4.09 | 104.9 |
| SCE | 9,792 | 493,109 | $14,900 | 454,410 | 58,846 | 1.83 | 103.7 |
| SDG&E | 9,195 | 28,561 | $21,200 | 342 | 44 | 1.16 | 112.6 |

**Table 15: DAC-GT Scenario 4 (Top 40% & PB 85%) Project Eligibility Summary**

| PA | Avg Eligible Customers per 100,000 people | Cumulative Eligible Customers | Median Land Cost ($/Acre) | Total Solar Land (Acres) | Total Solar Capacity (MW) | Median Distance to Transmission (Miles) | Median Cost of Living Index |
|---|---|---|---|---|---|---|---|
| PG&E | 6,266 | 192,696 | $8,200 | 3,336,376 | 432,059 | 3.66 | 104.9 |
| SCE | 7,965 | 520,766 | $14,900 | 571,128 | 73,961 | 1.61 | 103.7 |
| SDG&E | 5,259 | 30,185 | $18,600 | 12,723 | 1,648 | 0.59 | 107.8 |

## *CSGT Sensitivity Analysis Findings*

One unique feature of the CSGT program is the creation of the Community Sponsors role, which is intended to be "a catalyst for the community and the project";[28] sponsors receive a 20 percent bill reduction after meeting a threshold of customer enrollment. Sponsors are required to share siting preferences and verify that the chosen site is consistent with community preference.

The current program rules have resulted in challenges in finding engaged community sponsors, which we suspect stem from a lack of engagement from some PAs in the role of connecting potential community sponsors to solar developers, and from the lack of alignment with the program rules in terms of defining a community. To address the lack of engagement on behalf of some PAs, **we recommend that a more centralized marketing, education and outreach (ME&O) effort be undertaken to inform potential community sponsors about the opportunity and to help pair community sponsors with interested solar developers.**

[28] Resolution E-4999. *Pursuant to Decision 18-06-027, Approving with Modification, Tariffs to Implement the Disadvantaged Communities Green Tariff and Community Solar Green Tariff Programs* (2019). California Public Utilities Commission.

For our sensitivity analysis, we focused on how the current boundaries currently match to communities (not just DACs) to understand both challenges with siting and issues with alignment to the program intent of encouraging solar development in communities as defined by the CPUC. To start, we looked at the following scenarios in the five tables that can be found in Appendix G.

**Table 16: Scenario Summary**

| Lever | | Baseline | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 |
|---|---|---|---|---|---|---|
| | DAC Score | Top 25% of DACs | 30% | 40% | 30% | 40% |
| | Buffer Zone | 5-mile buffer | 5-mile buffer | 5-mile buffer | 10-mile buffer | 15-mile buffer |

Increasing the buffer zone uncovered a few concerns with how the current program structure or using the identified levers (increasing DAC percentage and buffer area) depart from the intended goal of the program to develop solar projects inside of communities that cannot otherwise benefit from solar, including:

1. **Increasing the DAC threshold leads to more rural land as an option for development,** which may be more appealing to solar developers but may limit the program serving customers in urban areas.
2. **The 5-mile buffer already allows for projects outside of communities to be included as siting locations**. **Increasing this buffer just exacerbates this issue.** This is in part because a Census designated tract does not always align with a cohesive community and in part because in dense areas, communities may be tightly packed together.

We selected SDG&E's and SCE's service territories to demonstrate these issues below.

### *1. Increasing DAC Threshold Leads to More Rural Land as an Option for Development*

Figure 4 below shows the different project boundaries for CSGT projects in SDG&E's service territory at the current DAC percentage (25%) in red, and for Scenario 2 where the DAC percentage is increased to 40 percent in purple. Figure 5 shows the same change but in SCE's service territory.

By expanding the DAC threshold, more rural land further east in SDG&E's service territory becomes available for solar development (Table 17, total solar capacity). Given that there are fewer space constraints and more affordable land in rural areas, it is likely that serving rural communities would be the preference for solar developers. It is also likely that in this scenario,

there would be fewer solar projects developed in more urban areas as developers would be more drawn to the more affordable land in more rural areas.

**Figure 4: SDG&E CSGT Project Boundaries at 25% DAC (Red) and at 40% DAC (Purple)**

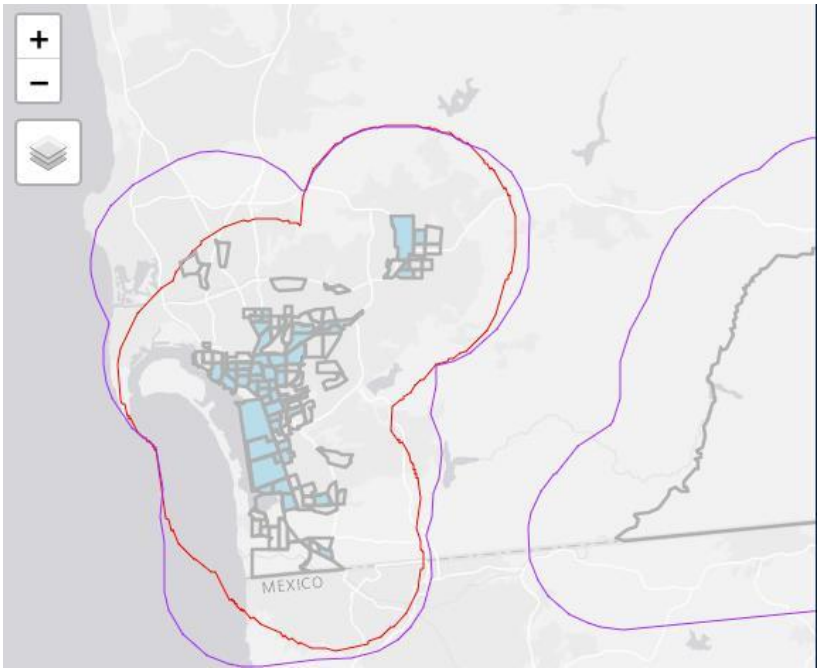



**Table 17: Comparison of SDG&E's Service Territory at 25% DAC and at 40% DAC**

| SDG&E | Avg Eligible Customers per 100,000 People | Cumulative Eligible Customers | Median Land Cost ($/Acre) | Total Solar Land (Acres) | Total Solar Capacity (MW) | Median Distance to Transmission (Miles) | Median Cost of Living Index |
|---|---|---|---|---|---|---|---|
| Baseline (top 25%) | 9,612 | 25,287 | $21,200 | 1,930 | 250 | 0.48 | 112.6 |
| Scenario 2 (top 40%) | 5,524 | 30,183 | $18,600 | 22,835 | 2,957 | 0.51 | 107.8 |

By making the same expansion in SCE's service territory, more land is available in areas such as Murrieta and Laguna Niguel, but comparing metrics (Table 18) reveals that compared to SDG&E, there is not as much of a significant increase in total solar capacity. In SCE's service territory, an expansion from 25 percent of DACs to 40 percent leads to a 10 percent increase in MW, whereas in SDG&E's service territory, the solar capacity expands by more than 10 times the amount of the baseline.

**Figure 5: SCE CSGT Project Boundaries at 25% DAC (Red) and at 40% DAC (Purple)**

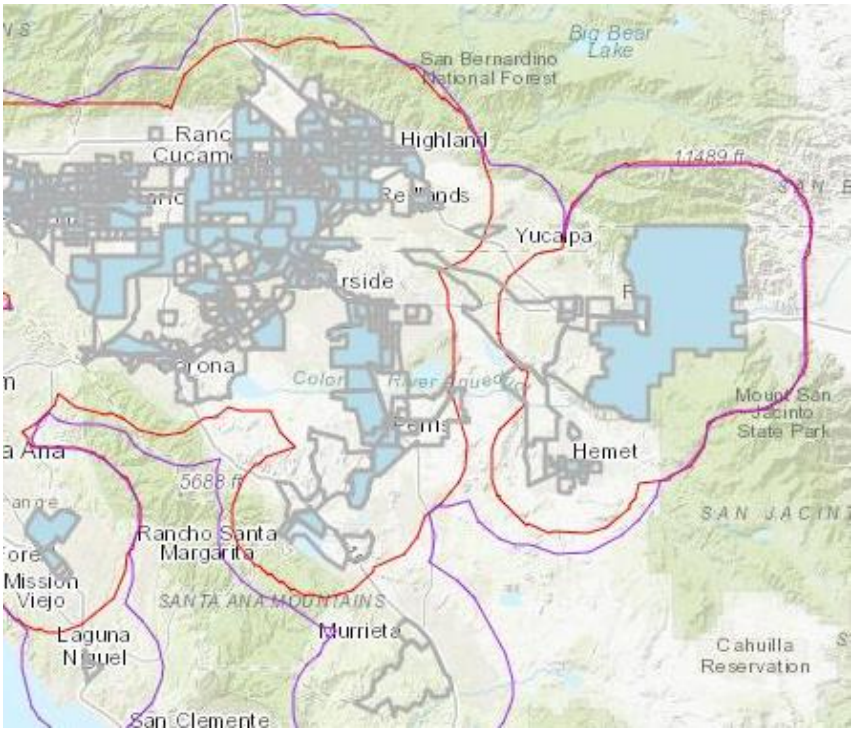



**Table 18: Comparison of SCE's Service Territory at 25% DAC and at 40% DAC**

| SCE | Avg Eligible Customers per 100,000 People | Cumulative Eligible Customers | Median Land Cost ($/Acre) | Total Solar Land (Acres) | Total Solar Capacity (MW) | Median Distance to Transmission (Miles) | Median Cost of Living Index |
|---|---|---|---|---|---|---|---|
| Baseline (top 25%) | 10,152 | 474,184 | $11,700 | 728,910 | 94,393 | 1.69 | 101.8 |
| Scenario 2 (top 40%) | 7,519 | 538,528 | $11,700 | 809,944 | 104,887 | 1.59 | 101.8 |

Note that our analysis of total solar capacity excludes rooftops. According to a report by the University of California, Los Angeles (UCLA), there are approximately 3.5GW of technical solar potential available "on institutional, government-owned, and community-oriented properties in LA County in SCE territory…"[29] These data are currently only available for Los Angeles County through

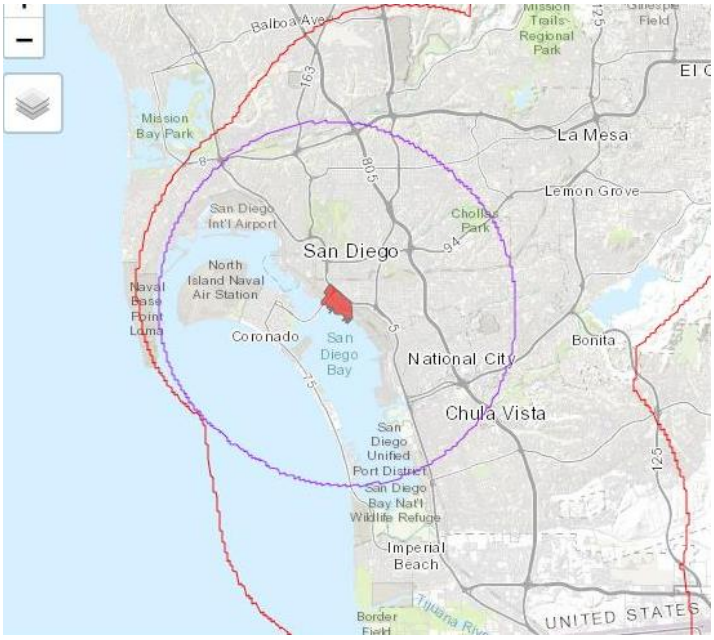
[29] Stephanie Pincetl. "Coupling Community Knowledge with Big Data Tools to Facilitate Equitable Energy Transitions: Project Summary." Los Angeles: UCLA, January 13, 2022.

the Community Solar Opportunities Mapping Tool, which, if expanded, could be a useful tool to provide to Community Sponsors to help identify potential project locations.

### *2. The 5-Mile Buffer Already Allows for Projects Outside of Communities*

The 5-mile buffer around a given DAC allows for projects to be sited in areas that may not be considered to be part of the given community that a DAC is in. DACs are designated based on Census designated areas, which generally contain approximately 4,000 residents. In Figure 6, the red area is a single Census designated area that covers the neighborhood of Barrio Logan in the city of San Diego. The 5-mile buffer around that area (shown in purple) means that a project could be sited in Coronado or in Point Loma, which one could consider to be different communities than Barrio Logan. The roads built to lead to the bridge to Coronado displaced residents of the Barrio Logan neighborhood, creating a further distinction between these two communities.[30]

**Figure 6: SDG&E Single DAC (Solid Red) Boundary (Purple Line) Compared to Broader 5-Mile Buffer for All DACs (Red Line)**




Currently signed-on community sponsors are school districts (4), community service districts (2), chambers of commerce (2), non-profits (2), and a government department (1), which are more likely to map to cities and neighborhoods than to a specific Census tract.

[30] https://coronadotimes.com/news/2020/04/22/a-brief-history-of-chicano-parks-50-years/

## 4.3 Solar Developers

We examined the programs' effectiveness in procuring capacity and in successfully engaging with developers to ensure sufficient bids.

### 4.3.1 Capacity Procured

The CPUC allocated maximum capacities for both programs to the California IOUs in the 2018 decision establishing the two Green Tariff programs, while granting CCAs the opportunity to develop their own DAC-GT and CSGT programs.[31] In a 2019 resolution,[32] the CPUC reserved capacity for both the DAC-GT and CSGT programs for CCAs based on the proportional share of residential customers in DACs served by the CCAs. Since the 2019 resolution, the CPUC has shifted allocations twice to accommodate the creation and approval of new Green Tariff programs by CCAs. Each PA runs its own solicitations to acquire capacity, or they allocate an interim pool of Green Tariff or RPS-eligible projects to serve customers with the DAC-GT program before contracted projects begin delivery. Thus far, PAs have only used RPS-eligible projects.

At the time of this evaluation, there were no newly constructed projects for either the DAC-GT or CSGT programs, meaning that all current customers (only DAC-GT customers were enrolled at the time of this research) are using interim renewable portfolio resources. The programs intend to treat existing resources as interim only, while waiting for steel in ground projects, but 10 rounds of solicitations for both DAC-GT and CSGT have led to only six awarded contracts from two solicitations for DAC-GT and three awarded contracts from three rounds of solicitations for CSGT.

Evergreen worked with PA staff to understand and document both current capacity commitments and future capacity contracting milestones for the programs for both PG&E (Table 19) and SCE (Table 20).

[31] California Public Utilities Commission. 2018. *Decision 18-06-027. Alternate Decision Adopting Alternatives to Promote Solar Distributed Generation in Disadvantage Communities.* https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M216/K789/216789285.PDF

[32] Resolution E-4999. *Pursuant to Decision 18-06-027, Approving with Modification, Tariffs to Implement the Disadvantaged Communities Green Tariff and Community Solar Green Tariff Programs* (2019). California Public Utilities Commission. https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M297/K211/297211380.PDF

**Table 19: PG&E Project Location, Capacity, and Milestones**

| Project Name | Project Location | DAC-GT or CSGT? | Capacity (MW) | Planned Production Date[33] |
|---|---|---|---|---|
| Highway 43 | Shafter | DAC-GT | 2.25 | 9/15/23 |
| Kern Sunset | Bakersfield | DAC-GT | 2.4 | 9/15/23 |
| Beard | McKittrick | CSGT | 2.25 | 9/15/23 |
| Rocha | Bakersfield | CSGT | 2 | 9/15/23 |
| Gonzalez | Reedley | CSGT | 1.75 | 9/15/23 |
| Nachtigall | Wasco | DAC-GT | 4.66 | 3/31/22 |
| Pistachio Road | Lost Hills | DAC-GT | 4.79 | 5/5/22 |
| Terry | Wasco | DAC-GT | 4.66 | 3/29/22 |
| Fresno Disadvantaged Community Solar Project | Fresno | DAC-GT | 10 | 11/10/22 |
| Tulare CSG | Corcoran | CSGT | 2 | 8/31/22 |

**Table 20: SCE Project Location, Capacity, and Milestones**

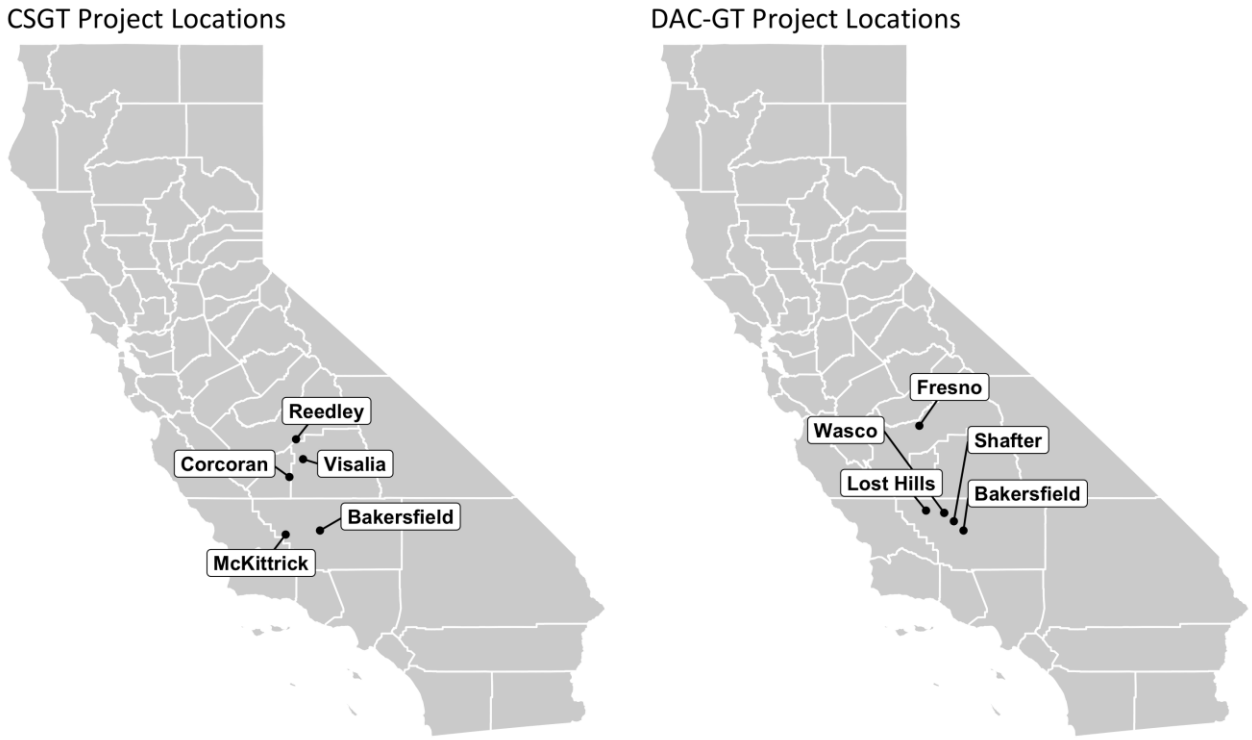
| Project Name | Project Location | DAC-GT or CSGT? | Capacity (MW) | Planned Start Date | Planned Production Date |
|---|---|---|---|---|---|
| Visalia Solar | Visalia | CSGT | 3 | Unknown[34] | 10/1/22 |

Projects are mapped in Figure 7.

[33] Dates are subject to change.

[34] In our interview with the solar developer, we heard that the start date was unknown. Due to required interconnection upgrades that project will not be able to deliver until later than the quoted date.

**Figure 7: Map of Sited Project Locations**




### 4.3.2 Solar Developer Outreach and Bid Process

Interviews with various stakeholders provided additional insight into what might account for the limited responses to solicitations. The two awarded developers who were interviewed highlighted potential barriers that might prevent other firms from bidding, including that:

- Suitable land that can be developed cost-effectively is difficult to find;
- The types of development that would be easier to site (such as rooftop solar) are too expensive;
- Project maximum MW capacities are too small to be attractive for many firms; and
- RFO timeframes are too restrictive unless siting and interconnection are already in progress ahead of time.

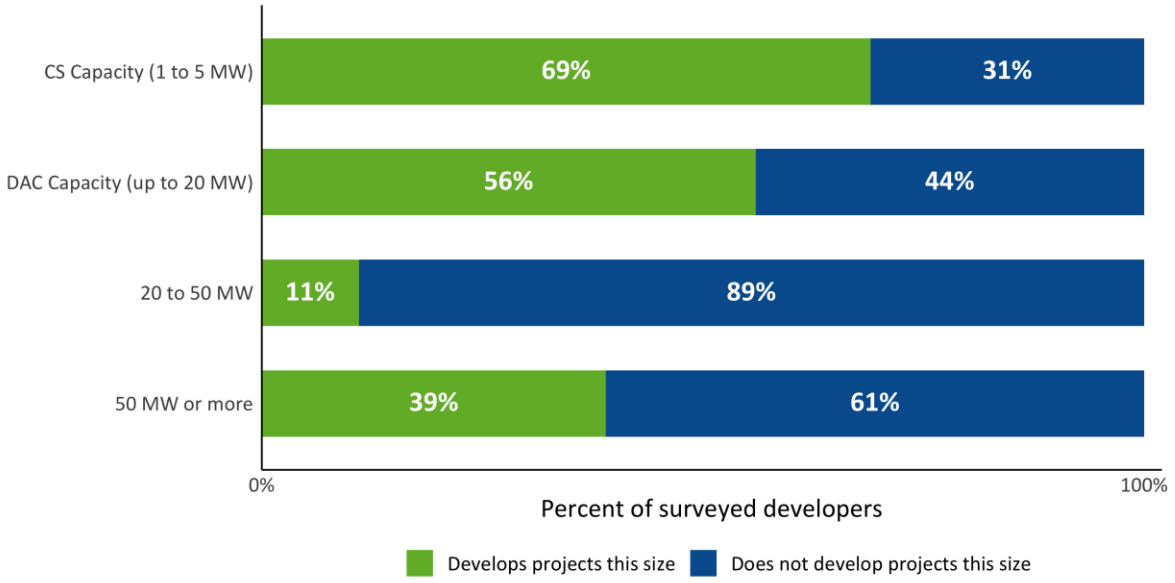
In the web survey with solar developers who were on PAs' contact lists, we aimed to test a number of explanations for why developer responses to solicitations have been limited or absent, including those listed above, as well as the possibility that program outreach and knowledge is not effectively reaching solar developers.

The RFOs released so far by each PA offered the following capacity ranges summarized in Table 21. As shown in Figure 8, nearly 70 percent of surveyed developers indicated that they routinely develop sites within CSGT's capacity range, while 56 percent of surveyed developers routinely develop sites within DAC-GT's capacity range. Of the 16 developers that reported not routinely developing DAC-GT-size projects, nine indicated that they exclusively work on projects of over 50 MW, while seven indicated that they work only on projects under 1 MW. This provides partial support for the claim that developers are drawn to larger projects (at least in the case of DAC-GT), but there may also be trends in the opposite direction. Overall, the data do not show that project capacity is posing a substantial barrier to investments in Green Tariff projects—rather, other factors are at play.

**Table 21: IOU Program Project Capacities**

| Program Administrator | DAC-GT Capacity Range | CSGT Capacity Range |
|---|---|---|
| PG&E | 0.5 – 20 MW | Up to 4.26 MW |
| SCE | 0.5 – 20 MW | Up to 4.39 MW |
| SDG&E | 0.5 – 18 MW | Up to 5 MW |

**Figure 8: Typical Project Capacities of Surveyed Developers (n=36)**




Four of the six DAC-GT non-bidders highlighted time constraints as important to some degree in their decision not to bid, with two respondents describing timelines as "extremely important" and two describing timelines as "moderately important." When elaborating on these ratings, one respondent explained that more time is necessary to prepare a bid:

- "It is difficult to know ahead of time how many MWs will be available at the next RFO. We don't want to spend the time and money to control a site and develop a site plan without know[ing] how many MWs will be available months ahead of time." (SCE contact list)

This comment suggests that unless appropriate sites are already controlled ahead of time by a developer, there is not sufficient time for developers to control a site after an RFO has already been released. When asked for ideal RFO timelines, two of the non-bidders who indicated that timelines are important quoted **three to five months** as a preferred timeline, while one indicated **six to eight months.**

Through the interviews with selected bidders and the web survey of solar developers, this evaluation identified the following barriers to implementing new steel in ground projects:

- **Not all contacts on any of the PA contact lists are solar developers**. For SDG&E, over half of survey respondents were not solar developers, while 42 percent of PG&E respondents were not developers.
- **PA contact lists rarely overlap,** suggesting that solar developers are only seeing opportunities in one service territory despite interest in working throughout the state.
- **Solar developers on the PA outreach lists for solicitations were largely unaware of bid opportunities for CSGT and DAC-GT.** Only a quarter of surveyed solar developers were familiar with either of the two programs.
- **Solar developers who were aware of the bid process struggled with siting, interconnection, and cost**. At least three solar developers who bid on one or more solicitations reported that more time would have helped to address interconnection and siting issues. Solar developers suggested that they would want between three to eight months to develop a bid. The average number of months allotted to developers by PAs was approximately two months.

Given solar developers' limited awareness of the programs and the programs' solicitations as reported in the solar developer web survey, we believe further research is needed to determine what the barriers identified are that most limit the response to solicitations. We have developed recommendations for increasing responses and propose further ways in which barriers could be studied:

| Barriers Identified in Study | Recommendations to Address Barriers and Suggested Future Research |
|---|---|
| Awareness of solicitations | To increase bid awareness, **we recommend that marketing and outreach efforts be put towards informing the solar developer communities of these bid opportunities. It may help to collectively market both programs across all PAs** as |

| Barriers Identified in Study | Recommendations to Address Barriers and Suggested Future Research |
|---|---|
| | our comparison of distribution lists showed that there was not much overlap between PA email distribution lists. |
| Land development costs and availability in DACs | Land availability for projects is related to a number of factors, one of which could be population density within the borders of the DACs.<br>We took an initial look at density in DACs, and it appears there is low-density land available within DACs.<br>The cost of land may be more of a factor in the difficulty in finding locations to include in bids. Further analysis of land cost showed that for DAC-GT, each IOU service territory has unique challenges siting solar. For CSGT, there is a risk that solar developers will be more interested in projects in more rural areas and that urban DACs will be less likely to be served. |
| Siting and interconnection | **We recommend that solicitations be done on a timeline that allows for the development of siting and interconnection processes.** Currently, solicitations are released semi-annually by the IOUs and once or as needed by the CCAs, but releasing solicitations annually may lead to an increase in the number of responses. Additional marketing and outreach should be used to help clarify solicitation timelines, expectations, and eligible locations to encourage a larger set of conforming bids submitted to the PAs. Currently, PA outreach to potential developers consists of a public webpage with information about the RFO, emails sent to a distribution list, and a webinar where potentially interested developers can ask questions regarding the solicitation.<br>Because siting and interconnection issues are unique to each PA, and because we only heard feedback on the solicitation process from the small portion of respondents who had reviewed a solicitation, **we recommend conducting a survey with a broader pool of solar developers where they are asked to share feedback on a variety of the components of the DAC-GT and CSGT solicitations including possible issues with siting, interconnection, and land costs**. This study focused on feedback on the bid process only from those who were familiar with program solicitations, but this ended up limiting the significance of our findings due to the low number of solar developers who reported to have reviewed at least one solicitation. |

For CSGT solicitations, solar developers must pair with a community sponsor. Currently, there is mixed success for developers attempting to reach sponsors. More data are required to know whether PA involvement could help reduce this barrier.

## 4.4 DAC and Low-Income Customers

The evaluation included a review of the programs' effectiveness in marketing to eligible customers, levels of customer participation and satisfaction, and bill impacts accrued to eligible customers.

### 4.4.1 Program Marketing

In most cases, both the CSGT and DAC-GT programs are marketed to eligible customers by some combination of PAs, CBOs, and/or developers, with dedicated community sponsors assisting in outreach specifically for CSGT. However, some PAs (PG&E, CPSF, and MCE) auto-enroll customers or plan on auto-enrolling customers specifically for DAC-GT, reducing the need for marketing and outreach to encourage enrollment.

Marketing strategies outlined by PAs in program documentation and interviews include:

- Direct mail (such as postcards and letters);
- Email blasts;
- Digital marketing (such as social media and search ads);
- Grassroots outreach with community organizations;
- Leveraging relationships with customers from other programs; and
- Community events and gatherings, when deemed to be safe.

CPA had customers self-enroll whereas PG&E customers were auto-enrolled. So far, PG&E has been the only PA to go through the auto-enrollment process. The CPUC requires the following criteria for customers to be auto-enrolled:

- Located in a top 15 percent DAC census tract in PG&E's service territory;
- Received eight or more late payment notices triggering three to six collection processes per year;
- Two or fewer "Return to Maker" payments (i.e., returned checks);
- Two or fewer disconnections within the last 12 months; and
- "Total Balance Owing" is greater than $0, with no credit balance on account.[35]

[35] Decision 20-07-008. Order Instituting Rulemaking to Develop a Successor to Existing Net Energy Metering Tariffs Pursuant to Public Utilities Code Section 2827.1, and to Address Other Issues Related to Net Energy Metering. And Related Matter. July 16, 2020. CPUC.

The different approaches to enrollment in the DAC-GT program for PG&E (auto-enrollment) and CPA (self-enrollment) allow for a comparison of program outcomes. These enrollment decisions ultimately ended up being associated with:

- Differing levels of customer awareness of the enrollment process: 46 percent of responding PG&E participants were aware that they were auto-enrolled compared to 76 percent of CPA participants who were aware that they enrolled in the program.
- Higher awareness of program elements by CPA participants: CPA participants reported being more aware of various prompted elements of the DAC-GT program compared to PG&E participants by a margin of 8 to 12 percent.
- Higher reporting of bill challenges before program enrollment: Auto-enrolled participants from PG&E were more likely to report having difficulty with their bills before participating in the DAC-GT program. This is to be expected, given the targeted way that auto-enrolled customers were selected.

Awareness of the DAC-GT and CSGT and the programs' features are not explicit objectives of either program, nor is it for participating customers to feel like they are contributing to a shift to renewable energy. The explicit goal of DAC-GT as stated in the original decision is to "provide low income customers in DACs the opportunity to access the benefits of GTSR programs and provide multiple green energy options for these customers,"[36] and access need not imply awareness or engagement (especially in the case of auto-enrollment). It may be the case for CSGT that awareness and a sense of contribution are implicit goals, since an explicit goal of the program is to provide an "indirect community 'ownership' opportunity," which might imply engagement and connection with local solar projects.[37]

If the PAs and/or CPUC would like to place greater emphasis on making participating customers aware and engaged, then the PA(s) would need to expand outreach and education efforts particularly for customers who are auto-enrolled.

When considering whether to auto-enroll or self-enroll customers in the future, PAs should also take into consideration the advantages of auto-enrollment to:

- Limit participation barriers;
- Limit the cost of enrollment from a marketing perspective;
- Use enrollment funding to provide bill savings instead; and

[36] D.18-06-27. *Alternate Decision Adopting Alternatives to Promote Solar Distributed Generation in Disadvantaged Communities* (2018). California Public Utilities Commission.
[37] D.18-06-27. *Alternate Decision Adopting Alternatives to Promote Solar Distributed Generation in Disadvantaged Communities* (2018). California Public Utilities Commission.

- Ensure the DAC-GT program targets customers with a high level of need in terms of bill assistance.

### 4.4.2 Customer Participation

We examined customer participation in a number of ways, described in the following subsections.

#### *Number and Location of Eligible Customers Enrolled*

To get a sense of where the DAC-GT program is already impacting customers in the early stages of program rollout, Evergreen mapped all eligible customers (Figure 9), and mapped the percentage of eligible customers who are already enrolled in either PG&E's or CPA's DAC-GT programs (Figure 10 and Figure 11). At the time of our research, more than 500 CPA customers were enrolled in DAC-GT and more than 15,000 PG&E customers were enrolled in DAC-GT.

Figure 9 eligibility estimates for both the CSGT (purple) and DAC-GT (orange) programs. We also visualize program eligibility estimates across the service territories for PG&E, SCE, and SDG&E in Appendix E.

For the maps presented below, Evergreen first combined addresses from the Customer Information System (CIS) data for participating and non-participating customers. These addresses were then geocoded to identify specific locations. Note that eligibility estimates include the following PAs that provided eligibility estimates[38] in response to our data request: Marin Clean Energy, East Bay Community Energy, CleanPowerSF, Clean Power Alliance, Pacific Gas and Electric, SCE, and SDG&E.

[38] Program eligible estimates are derived by each of the seven PAs that responded to Evergreen's data request based on program location requirements (within top 25% DACs for DAC-GT or top 25% DACs and San Joaquin Valley Pilot Communities for CSGT) and income eligibility (CARE or FERA enrolled). Additionally, these PAs provided the following notes about their data:

- SCE: "Based on 2020 year-end customer data, the estimated eligible Residential customers for the DAC-GT program not served by the census tract are reflected in the table below. Please also note that customers participating in Net Energy Metering (NEM), in Community Choice Aggregation (CCA), in Direct Access (DA) or not currently enrolled in CARE/FERA are not included in the count below since they are not eligible for SCE's DAC-GT program."
- SDG&E: "Customer account totals are estimates based on accounts that meet the program eligibility criteria as of 7/26/21, including demonstrated CARE and FERA eligibility."

## Figure 9: Total Estimated Program Eligible Customers by Census Tract

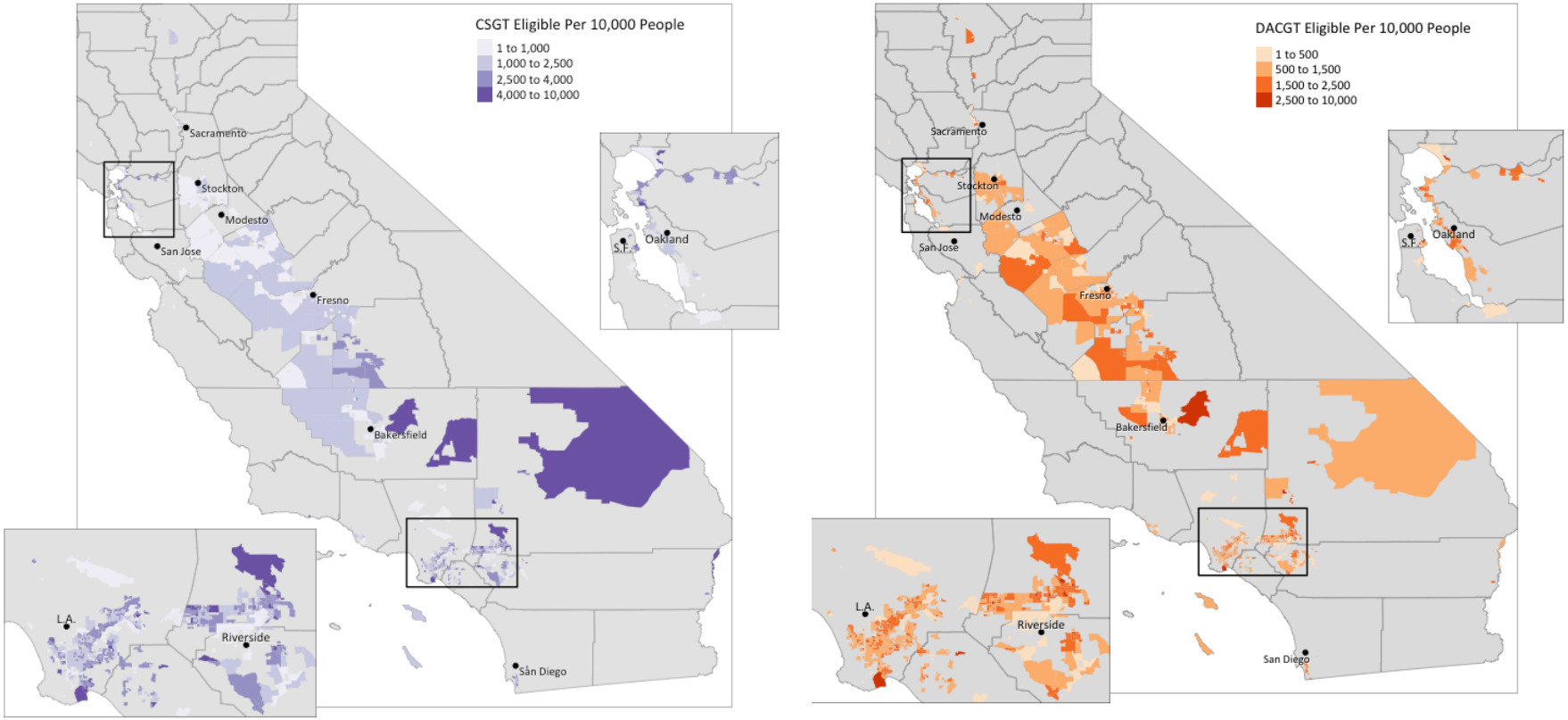


Figure 10 shows that DAC-GT-enrolled customers in PG&E's service territory are spread throughout the territory, with higher concentrations of the population enrolled in Merced, Madera, and Kern counties. Auto-enrollment selection covered a wide swath of DACs in PG&E's service territory. Out of an eligible population estimate of 155,428 PG&E customers, 15,130 are DAC-GT participants enrolled in 102 unique cities.

**Figure 10: Percentage of Eligible PG&E Customers Enrolled DAC-GT by County**

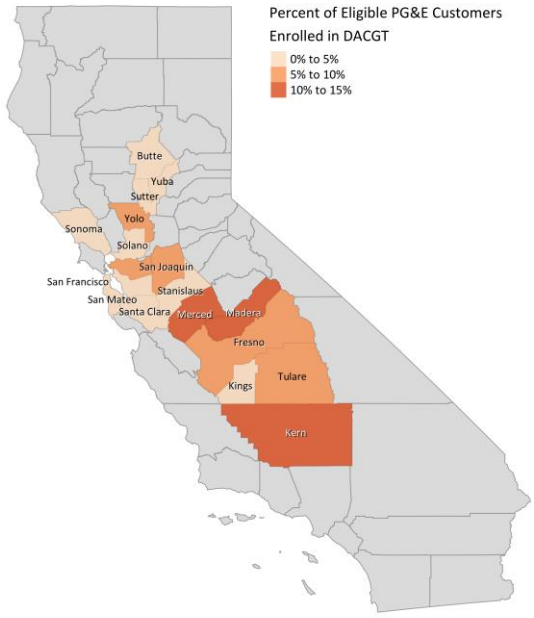
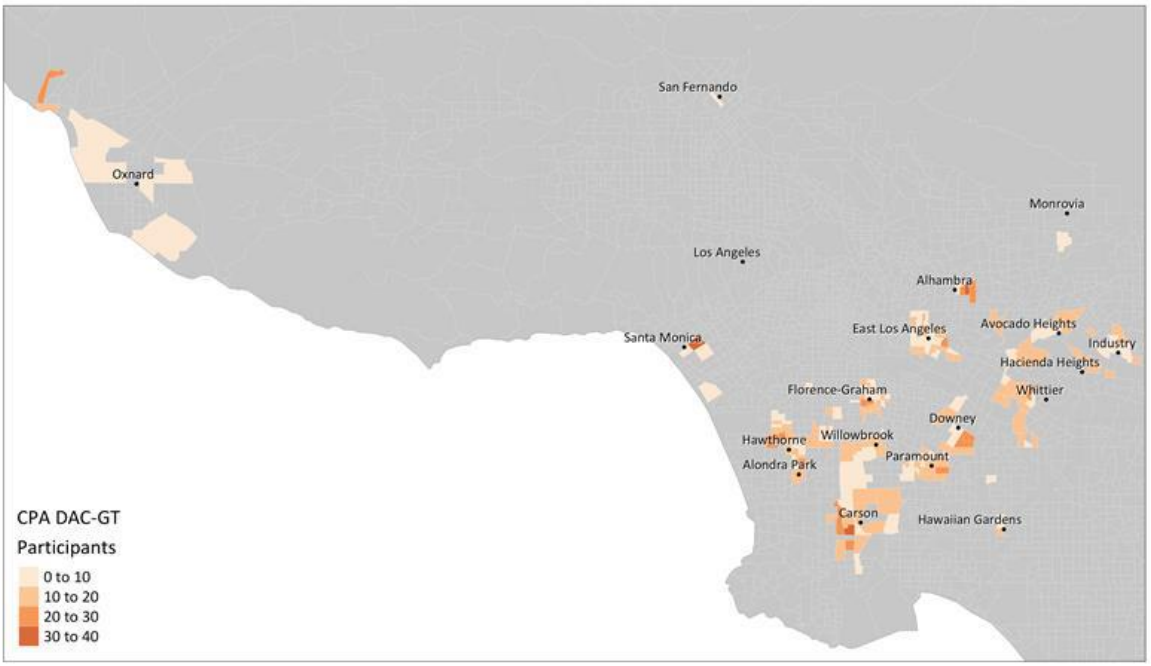



Figure 11 shows the number of CPA participants by city that are enrolled in the DAC-GT program and shows that marketing to promote enrollment seems to be occurring throughout CPA's territory. While most of our research focuses on the period through Q2 2021, the map below is updated for CPA through the end of 2021. Out of an eligible estimate of 78,426 customers, 2,095 are DAC-GT participants enrolled in 198 unique census tracts (47 unique city or unincorporated county areas)

**Figure 11: CPA-Enrolled DAC-GT Participants by DAC through 2021**




## *Allocated MW per Eligible Customers*

By utilizing community- and grid-scale off-site solar projects, more customers can potentially receive the benefits of solar than through residential rooftop solar as they do not have the barriers that come with needing to afford or get permission for solar projects on rooftops. We analyzed the programs' total authorized capacity and how many of the eligible customers it could serve given the current MW caps. Using the installed system capacity for NEM 2.0 and DAC-SASH customers as a proxy for the load size it would take to serve an eligible customer, the DAC-GT program could serve between 3 and 6 percent of estimated eligible customers, and the CSGT program could serve 0.5 to 0.9 percent of estimated eligible customers. Note that this approach has limitations given that it does not take into account multifamily customer capacity, nor does it take into account the actual usage of customers enrolled in the program as we currently only have those data for PG&E customers that have cooling and heating loads that may differ from other parts of the state.

## *Overall Participation Levels in Relation to Customer Segment Size*

Given the early stages of customer enrollment, it is too soon to evaluate how participation relates to the broader pool of eligible customers. We recommend that this be reviewed in future evaluations if it is determined that either program has a goal of reaching customers in certain customer segments such as communities where English is not the main language spoken, where people live in certain types of households, or where people are less or more likely to already be receiving utility assistance.

Table 22 compares the demographics of the survey respondents to that of the eligible population using the American Community Survey. For PG&E, participants who responded to our survey were more likely to have children at home than the eligible group. CPA non-participants were much more likely to own their home rather than rent suggesting that renters may be more interested in this program.

**Table 22: Respondent Demographics Compared to Eligible Population Demographics**

| | Survey Respondents | | | Eligible Population* | |
|---|---|---|---|---|---|
| | PG&E Participants | CPA Participants | CPA non-Participants | PG&E | CPA |
| Percent rent | 51% | 50% | 39% | 56% | 54% |
| Percent own | 49% | 50% | 61% | 44% | 46% |
| Average household size | 3.8 | 3.1 | 3.1 | 3.3 | 3.8 |
| Homes with children (18 and under) | 57% | 43% | 43% | 44% | 45% |

*Source: 5-year American Community Survey (ACS) 2015-19 Estimates by DAC 3.0 Census Tracts

## *Number Of Customers Enrolled In CARE/FERA During Enrollment Process/Total Enrollees*

Both programs intended to leverage the enrollment process to also enroll customers in California Alternate Rates for Energy Program (CARE)[39]/Family Electric Rate Assistance Program (FERA).[40] We heard that this was an objective from seven of the ten PAs we spoke with, though at the time of our interviews, only two of the PAs had been able to make this a practice as they were the only two PAs enrolling customers. CPA specifically reported collaborating with community organizations to market a variety of programs, including CARE, FERA, and the DAC-GT program.

By reviewing CIS data, we were able to confirm that there were additional enrollments in CARE (9% for PG&E and 1% for CPA) and FERA (less than 1% for PG&E only) after DAC-GT enrollment. Table 23 shows the enrollment of active DAC-GT participants in CARE/FERA before and after enrollment in DAC-GT.

[39] A monthly discount on gas and electricity. Participants qualify through income guidelines or if enrolled in certain public assistance programs.

[40] A monthly discount on electricity for homes with there or more people that meet income qualifications.

**Table 23: Enrollment in CARE or FERA**

| | PA | Total Enrolled Customers in DAC-GT | On CARE/FERA Before Enrollment | | Additional CARE/FERA Enrollments (post April 2021) | |
|---|---|---|---|---|---|---|
| **CARE** | PG&E | 15,130 | 13,192 | 87% | 1,436 | 9% |
| | CPA | 528 | 519 | 98% | 4 | 1% |
| **FERA** | PG&E | 15,130 | 84 | 1% | 38 | 0% |
| | CPA | 528 | 4 | 1% | 0 | 0% |

We cannot say with certainty that the data show that the enrollments were *from* the DAC-GT enrollment process, but we can use customer survey data to confirm that there were participants who reported learning about CARE/FERA during the time of enrollment for CPA participants who were asked about the process. Eighty percent of CPA participants who were aware of their enrollment in DAC-GT and responded to the customer survey reported that they were aware that they were also signed up for the CARE rate when they signed up for the DAC-GT program (n=37).

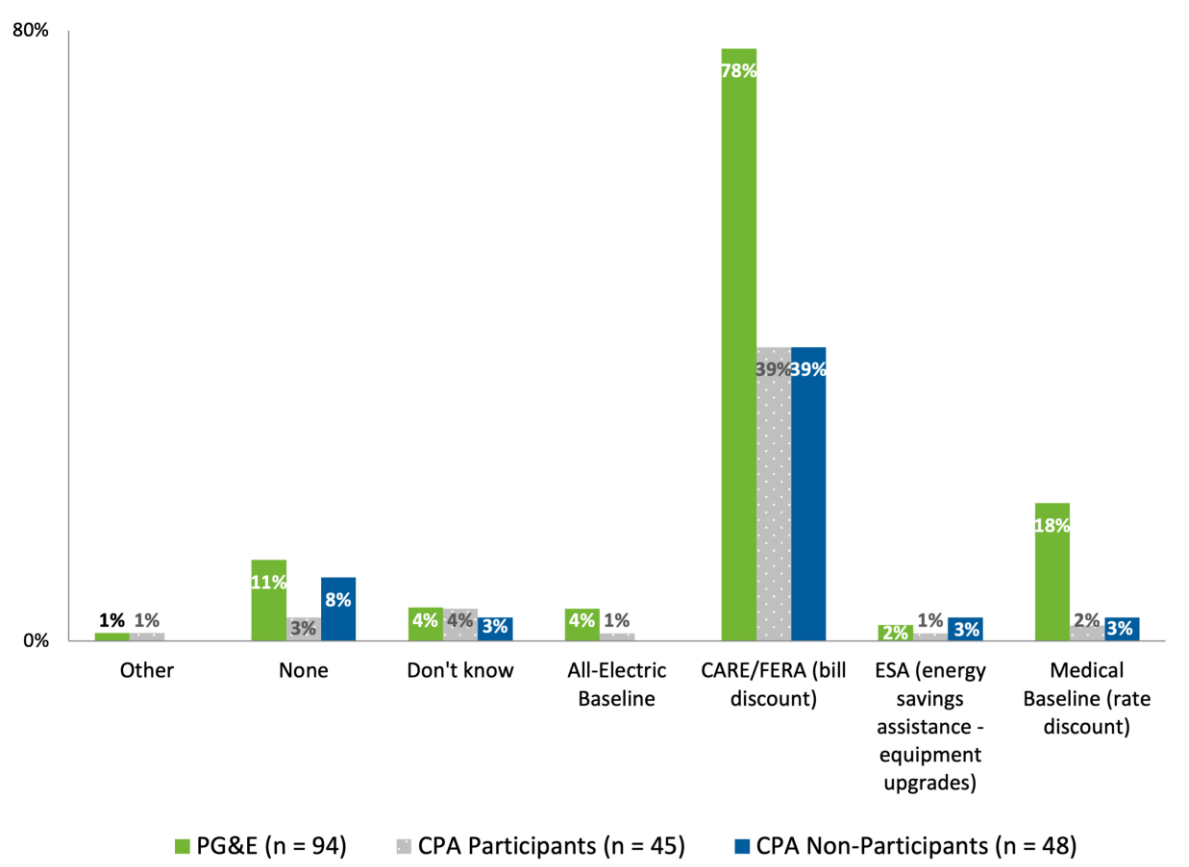
## *Number Of Master Metered Customers Participating in the CSGT Program*

This metric could not be evaluated, as there were no active customers enrolled in the CSGT program.

## *Additional Participation in Other Clean Energy Programs*

We asked participants if they were also participating in other financial assistance and energy efficiency programs besides the CARE/FERA programs. CARE/FERA participation rates were reported almost twice as often for PG&E participants than for CPA participants despite similar levels of enrollment reported in the CIS data (Figure 12). Self-reported Energy Savings Assistance participation hovered between 1 and 3 percent, and the medical baseline rate was reported at similar rates for CPA customers, though PG&E customers were much more likely to report that they were enrolled.

**Figure 12: Self-Reported Participation in Financial Assistance and Energy Efficiency Programs, Prompted**




We compared survey responses from participating customers about the programs in which they participate to the participation records we received from the PAs, and found that many of the participants were unaware that they were on the CARE/FERA rates. We also compared the participation rates of the survey respondents to the broader pool of participants and found that there is a very high level of enrollment in CARE/FERA among participants (Table 24).

**Table 24: Participant Self-Report Versus Actual Enrollment in Alternative Energy Programs by PA**

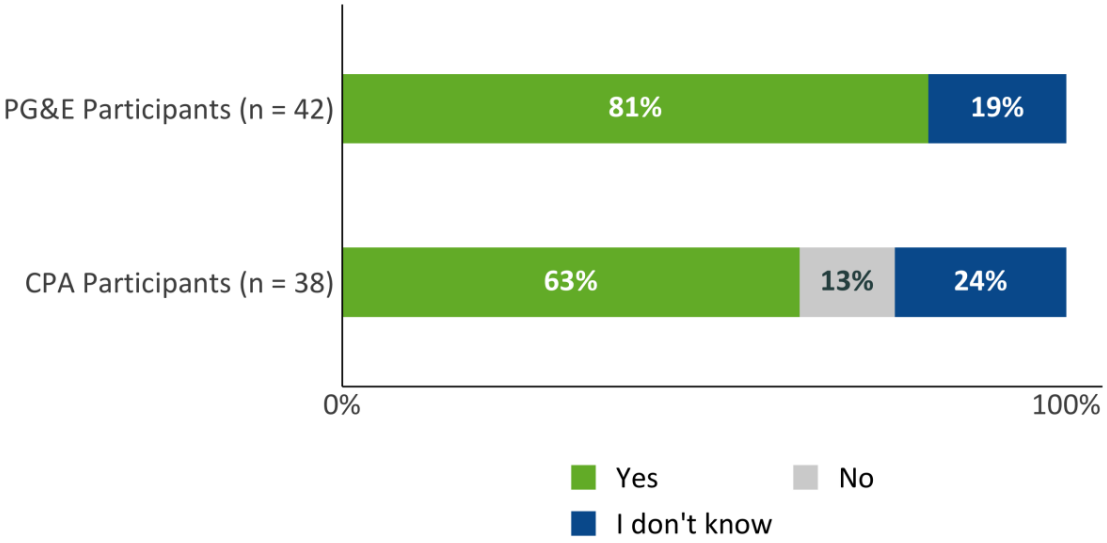
| Program Administrator | Program | Percentage of Respondents Who Self-Reported Participation | Percentage of Respondents Who Participated Based on Utility Data | Percentage in Population of Participants Based on Utility Data (PG&E n=15,130, CPA n=528) |
|---|---|---|---|---|
| PG&E | CARE | 73/94 (78%) | 90% | 97% |
| | FERA | | | 1% |
| | Medical Baseline | 17/94 (18%) | 19% | 10% |
| CPA | CARE | 37/54 (39%) | 96% | 99% |
| | FERA | | | 1% |
| | Medical Baseline | 2/54 (2%) | 1% | 3% |

In an interview with staff from Self Help Enterprises, a community sponsor for an SCE CSGT project, and an organization that does outreach in the San Joaquin Valley for a pilot that installs new appliances in homes to help them avoid using propane and wood, we heard that for PG&E enrollees, auto-enrollment in *this* DAC-GT program was very valuable in increasing trust that the San Joaquin Valley pilot would deliver on the promise of new appliances. By being able to point to a resident's bill to show them that they are already getting help with their bills, Self Help was able to instill trust. Self Help believes auto-enrollment in DAC-GT helped increase participation in their pilot. They also mentioned that they believed that enrollment of residents in the San Joaquin Valley in CSGT will be easier than elsewhere because they are either involved in or have heard of the pilot and are familiar with Self Help.

### 4.4.3 Customer Satisfaction

Enrolled customers who were aware that they were participating in the DAC-GT program were asked about their overall satisfaction with the DAC-GT program thus far. (Participants who were not aware they were enrolled in the program were not asked about their satisfaction.) Satisfaction was higher amongst PG&E respondents compared to CPA participants (Figure 13), though this is not a statistically significant difference.

**Figure 13: Satisfaction with DAC-GT Among Participants Aware of Their Enrollment**




We asked CPA and PG&E participants who were aware they were enrolled in the programs if they felt like they had benefitted from the program to help further understand why customers reported that they were satisfied with the DAC-GT program. The most frequent responses related to cost savings (82%) and environmental impacts (15%).

Eighty-two percent of respondents across both PG&E and CPA (n=53) gave a response about cost savings:

- "My bill is lower, so I have more money to spend on groceries for my kids."
- "I like that we are using solar power without having to have a solar system. The discount benefits us because summer costs were pretty high."
- "I see the discount on my bill."
- "Decreased my energy bill."
- "I am able to pay my bill and conserve energy in my home."
- "It has lowered cost on my electricity bill, which greatly helps in time of need; specifically, during COVID times"

Throughout the development of the programs, there was an effort to ensure that low-income and DAC customers were protected from the possible increase in bill costs that can come with subscribing to solar energy while achieving the overall goal of creating an alternative to NEM for residential customers in DACs. Rulemaking 14-07-002 acknowledged that utility proposals mostly reflected the idea of adding a discount to ensure that the typical increase in the cost of alternative

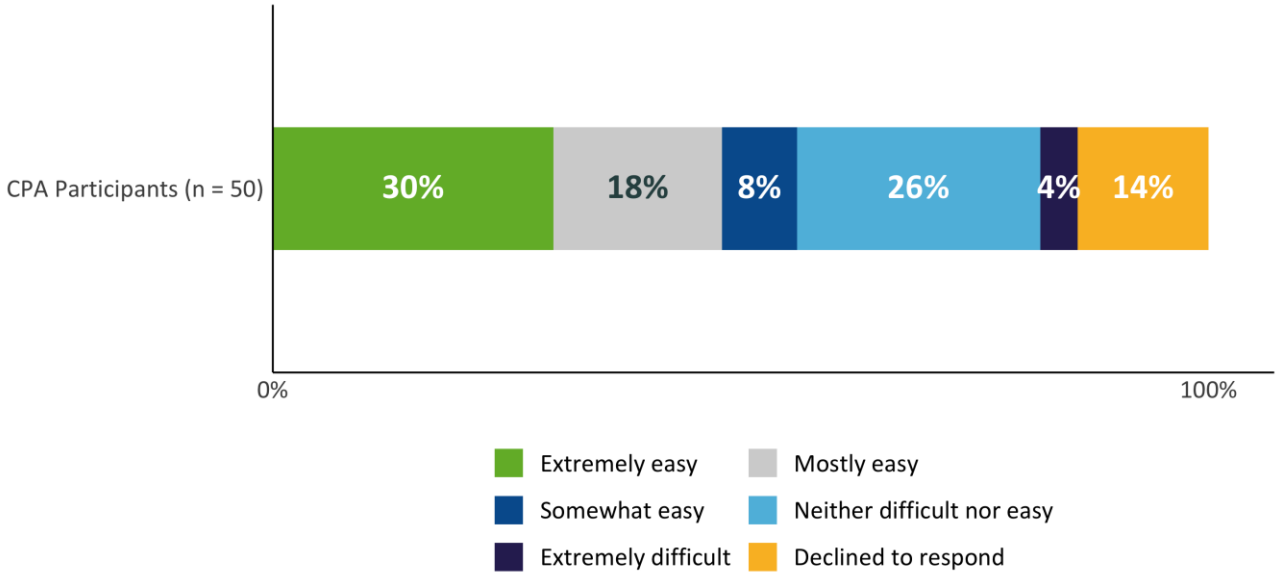
energy is not passed along to customers who may not be able to afford the cost, but should still be able to access cleaner sources of energy.

Fifteen percent of respondents cited 'positive environmental impacts' as another reason for their satisfaction:

- "Not only does it discount my bill, it uses clean energy, which makes me feel great!"
- "The discount helps a lot, but knowing we are working towards more clean ways of powering our homes and businesses is very important."
- "Lower energy costs, feel better about my energy consumption."
- "I have always loved the idea of using renewable energy. If I owned my own home, I would invest in solar. Not only [to] save money but not depend on other sources."
- "Financially. And it's important to have clean air, so that will help everyone. And it will help climate change."
- "I'm for relying less on fossil fuels and more on green energy."

Overall, most customers who were aware of their participation did not find the process to enroll in the CPA DAC-GT program to be difficult (Figure 14).

**Figure 14: Ease of Signing Up for the DAC-GT Program for CPA Participants**



The respondents who reported that the process was either somewhat or extremely difficult either were unaware that they had signed up for the DAC-GT program, saying either that they had not applied for it or that they thought that the DAC-GT program was the same as CARE. Two of the respondents who reported that the enrollment process was either somewhat or extremely difficult noted that it was challenging to do without a computer or that the representatives they spoke with were "unaware of how billing works in terms of generation and distribution" (1 respondent).

To measure the effectiveness of the DAC-GT program in addressing the barriers to solar adoption facing low-income customers, we measured:

- The share of program non-participants familiar with the DAC-GT program; and
- The share of non-participants that would consider enrolling in the DAC-GT program but have not yet.

Close to a quarter of CPA households are eligible for the program and may have heard or learned about the program opportunity. Of the CPA non-participants we interviewed, just over a quarter had heard about the rate, which we described as a 20 percent discount on their utility bill. Of the group that heard about the rate, there was a wide variety of reasons why they did not sign up, which indicates that there is no single issue causing non-participants aware of the program to not enroll:

- Did not have the right information to sign up (2 respondents)
- Did not feel they needed the discount (1)
- Forgot to sign up (1)
- Not interested in renewable energy (1)
- Enrollment is inconvenient (1)
- Ineligible (1)
- Other (2)

We also asked CPA non-participants who responded to our survey if they would consider signing up for the DAC-GT program in the future. Nearly half of the 37 respondents said yes (46%), and another 43 percent said they were not sure, indicating they would likely have to learn more before deciding. The 11 percent of respondents who said they would not consider signing up declined to give any explanation for why they were uninterested.

### 4.4.4 Customer Electric Bill Impacts

Table 25 shows summary statistics of interest including median daily bill cost and median daily usage for participants and a comparable sample of non-participants during the period prior to and during DAC-GT program enrollment. Notably, the median bill cost decreases for participants during

the post-period (program enrollment), while the median bill cost rises for non-participants during the post-period. This could indicate that the program discount is assisting some in paying their bills on time.

**Table 25: PG&E Billing Data Summary**

| Program Admin | DAC-GT Participant | Pre or Post Program Period | Median Daily Bill Cost ($) | Median Daily kWh Usage |
|---|---|---|---|---|
| PG&E (n=22,092) | Participant | Pre | $3.34 | 20.44 |
| | Participant | Post | $3.32 | 22.65 |
| | Non-Participant | Pre | $2.90 | 18.05 |
| | Non-Participant | Post | $5.44 | 23.04 |

Figure 15 uses the regression analyses to examine the average total monthly bill costs across the study period for both non-participants (green) and participants (blue). The lines show an expected seasonal pattern where bill costs rise with supplemental heating and lighting in winter and peak in the summer with cooling. The shaded area (grey) represents the PG&E DAC-GT program enrollment period. As expected, we observed a large gap during this period, when participant bill costs diverged from the non-participant bill cost peak—signaling lowered bill costs as the DAC-GT program took effect.

**Figure 15: PG&E Average Monthly Electric Bill Cost Change Over Time**

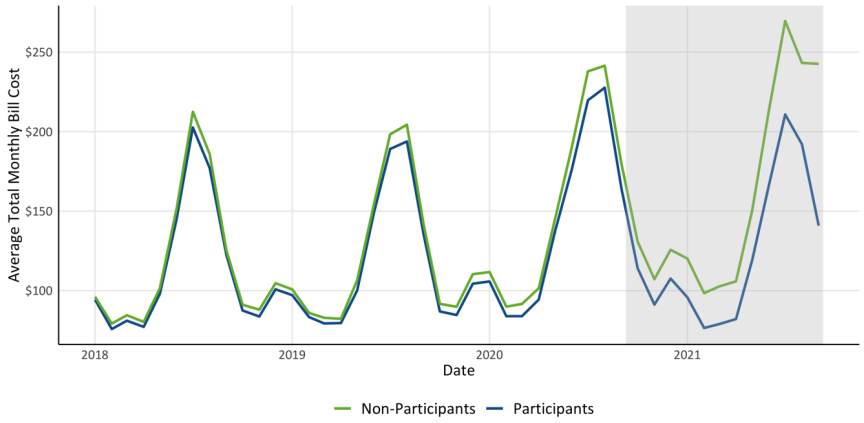



Figure 16 reports the key results of the regression model for bill costs. The all-sample estimate for bill costs indicates that program participants experienced a statistically significant reduction in average daily bill costs of $1.16 or 19 percent. The full regression output can be found in Appendix C.

For apartments and townhomes, we observed a modest decrease in average daily bill costs of $0.92. Detached residence-only PG&E DAC-GT participants experienced a larger average daily bill cost reduction of $1.23. Model estimates for climate zones 12 and 13 (Central Valley) resulted in average daily bill cost reductions of $1.14 and $1.22, respectively. All estimates are statistically significant as confidence intervals do not overlap with 0 (Figure 16). Thus, program participation had a significant impact in decreasing participant bill costs.

We determined that the average daily bill cost for participants prior to program enrollment was $4.04. For a 30-day billing period, this would translate to an average monthly bill cost of $121.20. Comparing participant baseline (before program) billing costs with post program enrollment indicates a monthly bill reduction of 19 percent as a result of program participation. Note this estimate excludes customers that were enrolled in CARE at the same time as enrollment in DAC-GT.

**Figure 16: Program Bill Cost Impacts**


In the post-period, we also see evidence of a reduced percentage of PG&E participants in arrears (87% before participation and 82% after participation), though we are unable to compare this to non-participant data at the time of this report. PG&E specifically targeted customers that had bill payment issues.

Forty percent of CPA participants and 25 percent of PG&E participants who took the survey reported struggling somewhat less or much less with their bills after participating in the DAC-GT program, though there are still participants who reported struggling more or having about the same ability to pay their bills. Ability to pay bills may be influenced by a number of factors that include change in energy use, loss of a job, and more people in the household, so these results cannot be isolated strictly as being due to DAC-GT program participation.

With regards to energy usage, our regression model estimated a modest increase in energy usage attributable to DAC-GT participation of 0.028 kWh per day (equivalent to turning on a CFL bulb for two hours) for PG&E participants; however, this estimate is not statistically significant, despite a very large sample size (n=22,092). This suggests that the DAC-GT program had little to no impact on energy usage for PG&E customers.

## 4.5 Environmental Benefits

Two outcomes of the program related to environmental benefits are that DAC residents are provided access to renewable energy and that the utility burden is reduced for DAC residents.

We asked customers, from their perspectives, if they felt the DAC-GT program was offering these benefits.

- The majority of participants felt as though they were able to "contribute to clean energy, energy that comes from processes that are constantly replenished like solar or wind, by being enrolled" from very little to a great extent, though close to a quarter of all participants were not sure.
- Close to 85 percent of all participants said that they were not sure or that they knew they would be unable to contribute to clean energy on the grid *without* the DAC-GT program, suggesting that participants are under the impression that the DAC-GT program is the only option for them to contribute cleaner energy to the grid.
- Survey respondents were less sure about the DAC-GT program's ability to ultimately lower GHG emissions in the state.

Table 26 below presents the results of the avoided emissions analysis, which represents estimated avoided emissions had the resources been new rather than interim. The only PA to enroll participants in the 2020 program year was PG&E. During program year 2021, CPA also began enrollment. All avoided emissions are based on DAC-GT program participation; no CSGT participation was recorded by PAs in program years 2020 or 2021.

**Table 26: DAC-GT Program Year 2020 and 2021 Annual Avoided Emissions**

| Program Year | Program | Program Administrator | Estimated Solar Generation (MWh) | Estimated Avoided Emissions (mt-$CO_2$) |
|---|---|---|---|---|
| 2020 | DAC-GT | PG&E | 20,845 | 4,740 |
| 2021 | DAC-GT | PG&E | 127,902 | 29,083 |
| 2021 | DAC-GT | CPA | 3,232 | 721 |

## 4.6 Workforce Development

CSGT projects "require workforce development for all projects, including local hiring and targeted hiring, to ensure that job opportunities for low-income communities materialize."[41] This requirement is implemented by all PAs by requiring workforce development attestations from project developers when submitting offers that detail the developers' plans to implement local hiring and job training. So far, this has entailed the addition of a third-party workforce development partner by developers to oversee these requirements.

Beyond interviewing the third-party workforce development partner, the early stages of the CSGT program implementation limited our ability to assess the number of local job hires linked to the CSGT program and the number of trainees and job outcomes, but this should be investigated in future evaluations of the CSGT program.

## 4.7 Evaluability Assessment

To assess the current and future evaluability of both programs, we categorized the 24 metrics based on our ability to evaluate them. We were able to fully or partially evaluate more than two-thirds of the metrics identified through the development of the logic models (Table 27).

Much of the data that we were able to evaluate fully relied on customer feedback and an analysis of customer billing data. Only partial evaluation was feasible for metrics tied to procured capacity and bidding due to the low response from solar developers and the challenges that PAs have had with receiving bid responses and getting capacity online.

Because a quarter of the metrics were unable to be measured since the program data were not yet available, we suggest prioritizing the following research areas in the next evaluation of the CSGT and DAC-GT programs:

- On-site verification of solar project performance through methods such as monitoring energy generation;
- An economic and job impact assessment; and
- An assessment of the impacts from the changes in funding sources that will begin during the 2022 year.

[41] Resolution E-4999, Order sub-section (s.) (p.65).

**Table 27: Evaluability of Metrics**

| Rating | Definition | Number of Metrics in Category | Percent of Total Metrics |
|---|---|---|---|
| 1 | Able to evaluate with current data | 8 | 33% |
| 2 | Able to evaluate partially but additional data needed | 9 | 38% |
| 3 | Not able to evaluate and need additional data | 1 | 4% |
| 4 | Too soon to evaluate but can be evaluated in the future. | 6 | 25% |

See Appendix H for a more detailed presentation of the evaluability assessment.

# 5 Recommendations

Thus far, the DAC-GT and CSGT programs have not yet led to any new "steel in ground" solar resources, though several contracts for both programs to install solar resources were in place or in progress at the start of this research.

Despite barriers to contracting and installing solar resources including low engagement of solar developers in the bid process, DAC-GT customers have been able to realize bill savings and some level of awareness of the environmental benefits of the program while accessing interim solar resources. At the start of this evaluation, no customers had been enrolled in the CSGT program.

Both programs are facing changing guidelines with an expansion of eligible customers through the update to CalEnviroscreen and additional Community Choice Aggregators (CCAs) forming and requesting capacity. To date, Program Administrators (PAs) have been able to shift unclaimed or un-contracted capacity to other PAs, though this will pose challenges as PAs contract up to their capacity limits.

In the remainder of this section, we present the following categories of recommendations:

1. Recommendations for Program Modifications
2. Recommendations for Improving Program Evaluability

## 5.1 Recommendations for Program Modifications

### 5.1.1 Improving Solar Developer Engagement in the Programs

The main barrier to program implementation based on this research was the low number of solar developer responses to DAC-GT and CSGT solicitations. While PG&E has seen modest success in its solicitations for capacity, other PAs have had less success. In some cases, no responses were received to solicitations (e.g., SDG&E and SCE) despite SDG&E having almost as many contacts in its solicitation list as PG&E. In other cases, bids were received but were non-conforming (e.g., SCE). The relative success of PG&E may be in part due to it having a larger service territory that may have had solar developers with interconnection studies already begun at the time an RFO was released.

Our outreach to solar developers from PA contact lists for a web survey yielded a low number of responses and identified many contacts that do not identify as solar developers. Lists from PAs also rarely had the same contacts, suggesting there are contacts that are only hearing about one of many PA solicitations. Only a quarter of responding solar developers reported that they reviewed the RFOs at all, suggesting that low awareness and interest may be contributing to the lack of responses to RFOs.

The solar developers who *were* aware of RFOs reported challenges related to:

- **Timeline and interconnection:** Solar developers reported that if there is no interconnection study in progress at the time of a solicitation, they need a longer timeline to be able to submit a bid to ensure they can complete an interconnection study.
- **Siting and land costs:** We heard from solar developers that land costs present a barrier to proposing projects in the DACs and within the 5-mile surrounding boundaries of the DACs.

This research included a preliminary look at density within DACs rolled up to the IOU level, as a proxy for land costs, and found that density varies by PA. PG&E, which has had the most success with bidders, also has the highest percentage of lower density land. We did additional analysis of density for each program:

- **DAC-GT:** Further analysis for DAC-GT of land cost and availability show that it is much more favorable for solar developers to work within PG&E's service territory. We experimented with increasing program levers such as the percentage of DACs eligible for the programs and by expanding the pollution burden rules. While increasing program levers improved conditions for solar development in SDG&E's service territory slightly, it still did not create a situation as favorable as PG&E for solar developers.
- **CSGT:** For CSGT, increasing the current program levers (expanding beyond the top 25% of DACs or increasing the buffer zone) will help add eligible land and may increase interest in the program, but it may encourage development in rural areas over urban areas and be less likely to encourage serving urban customers.

Given the low response rate to the solar developer survey, we are unable to conclusively state which of these barriers is the most significant and which barriers may be preventing solar developers who were not in our survey pool or who were unaware of the opportunity from considering responding to the RFOs. However, we have identified the following program modifications that could be made at this time to increase the solicitation response rate.

| Recommended Program Modifications to Increase Solar Developer Engagement |
|---|
| **1.1A**: The PAs should devote additional marketing and outreach efforts towards informing solar developers of bid opportunities to improve engagement and bid response. This may be more efficiently done by a centralized organization. |
| **1.1B:** PAs should invest time and resources into further developing their contact lists for potential solar developers. They could also coordinate efforts and share contacts to maximize their reach. |
| **1.1C**: The PAs should conduct solicitations for solar resources on a schedule that allows time for the development of the siting and interconnection processes (such as a minimum of six to eight months as suggested by two interviewed solar developers). |

### 5.1.2 Participant Auto-Enrollment

Auto-enrollment allows a way around participation barriers and allows PAs to target customers with high energy usage and high risk of disconnection. Funding used for marketing and outreach could instead be put towards customer bill discounts.

| Recommendation to Auto-Enroll Participants for DAC-GT Program |
| --- |
| **1.2A:** Auto-enrollment allows money spent on marketing and outreach to instead become available to pay for the customer bill discount and allows for targeting of customers who are at higher risk of disconnection or who have higher bills. Auto-enrollment also allows a way around participation barriers that may make it harder for some customers to learn about the programs. |

### 5.1.3 Centralize and Coordinate Solar Developer Outreach and Solicitation Process

With multiple PAs taking on similar activities, our evaluation identified key opportunities to streamline and combine efforts with the main focus on solar developer- and community-sponsored outreach and the solicitation process. Evergreen identified two areas where the program may benefit from a centralized coordinator taking on certain roles that are currently performed by each individual PA. We weigh the pros and cons of centralizing two key program efforts. The pros and cons of each program effort are described in individual tables.

1. Solicitation Process and Outreach (Table 28)
2. Providing More Support and Coordinating Efforts to Engage Potential Community Sponsors (Table 29)

**Table 28: Pros and Cons of Centralizing and Coordinating Solicitation Process and Outreach**

| | | |
|---|---|---|
| **Reason for Need** | There is low awareness of solicitations from solar developer contacts on PA notification lists. PA lists also do not overlap, and solar developers may be interested in opportunities across the state rather than just from the PAs who have them on their distribution lists. The programs have not attracted sufficient bid responses, suggesting the need to do more proactive outreach and engagement of solar developers and improve the solicitation process. | |
| **Pros** | + | Solar developers are able to hear about opportunities through a single source. |
| | + | PAs are able to combine their current set of solar developer contacts. |
| | + | PAs save on marketing budget assuming a centralized effort is more efficient. |
| | + | Could be combined with effort to centralize the process to connect local Community Sponsors to solar developers. |
| | + | This would add an additional resource to engage a broader pool of solar developers to improve awareness of and response to bid opportunities. Also allows for developers to give feedback to a central neutral entity to improve solicitations and bid response. |
| **Cons** | - | Once bidders are aware of a project, it may be confusing if they have to bid through a PA instead of the centralized organization. It may be necessary for solicitations to occur at the PA level as each PA has a different process and different contracting needs and systems. |
| | - | If bidders become aware of other PA solicitations, they may choose to bid in IOU service territories where land is cheap, which may limit the number of bids received for other areas. |

**Table 29: Pros and Cons of Providing More Support and Coordinating Efforts to Engage Potential Community Sponsors**

| | | |
|---|---|---|
| **Reason for Need** | Efforts to match Community Sponsors to solar developers varied by PA and depended somewhat on existing connections between PA staff and community organizations. At the time of our interviews, some Community Sponsors were unclear about the full scope of their role in the CSGT program, in part because of the early stage of the program. By sharing any lessons learned and benefits experienced for these early Community Sponsors with other possible Community Sponsors, they may be encouraged to participate in that role in the future. | |
| **Pros** | + | A centralized organization could create a website to facilitate matching interested solar developers with interested community organizations. PA staff could point interested connections in their community to this website. |
| | + | PAs would not have to undertake their own partner pairing process. |
| | + | Could be combined with a centralized solicitation marketing effort. |
| | + | A centralized organization could help to reach out to statewide organizations that support certain types of community organizations such as school districts or associations of governments. |
| | + | May help create a more community driven process. |
| | + | A centralized effort could develop best practices that may be disseminated to Community Sponsors across the state, which should be more efficient and effective than a PA-by-PA approach. |
| | + | Will be useful for educating other possible community organizations on the challenges and benefits of the role. |
| | + | May increase CSGT activity at the community level if potential Community Sponsors have more support. |
| | + | Should offer efficiencies (for PAs, Community Sponsors, and solar developers) to the process of engaging with community organizations and helping them navigate the program. |
| **Cons** | - | Additional work that is not currently accounted for in the budget. |
| | - | May cause confusion as to which solar developers are interested in working in which communities if the website does not clearly allow for locations of interest to be specified. |

Given the pros and cons weighed above, we make the following recommendation:

| **Recommended Program Modification for Centralizing and Coordinating Solar Developer and Community Sponsor Outreach** |
|---|
| **1.3A:** The CPUC and/or the administrators should fund and convene a coordinating organization to market solicitations, match solar developers to community organizations, and provide best practices to community organizations that want to sponsor CSGT projects. |

### 5.1.4 Refining CSGT

In looking at land costs to better understand solar development for CSGT, we observed that using census designated tracts to define an eligible DAC may be insufficient in more urban areas where tracts are smaller and often border other tracts. Solar developers will likely take a top-down approach for finding land to develop whereas community organizations are more likely to think about their district, local government, or neighborhood.

By looking to DAC-GT participants (where program rules allow solar sites that are in any DAC in the utility service territory) we see that they still maintain a sense that *local* solar is happening (61 to 71% of aware customers think a program benefit is "investments in local solar development").

Expanding DAC-GT and CSGT to all federally recognized tribes can help to ensure that the programs better meet the intent of AB 327. In December of 2020 in Decision 20-12-003 the DAC-SASH program was expanded to California Indian Lands, and we recommend that the same expansion be made for DAC-GT and CSGT.

| Recommended Program Modifications to Better Meet Intent of AB327 |
|---|
| **1.4A**: We recommend that similar to DAC-SASH (another program that focuses on DAC customers in single-family homes), the DAC-GT and CSGT programs should expand such that residents in California Indian Lands (i.e., lands within the limits of an Indian reservation and under the jurisdiction of the US government) are eligible for program offerings. This places the program in alignment with Decision 20-12-003, which expanded DAC-SASH in the same way, to align that program with the same underlying statute. |

### 5.1.5 Tracking Workforce Development

CSGT projects "require workforce development for all projects, including local hiring and targeted hiring, to ensure that job opportunities for low-income communities materialize."[42] Because most PAs had not yet launched the CSGT program at the time of the data request we sent to PAs, and because those that had successfully contracted CSGT programs had not yet begun construction, PAs were not able to provide us with specific estimates of the number of job trainees or specific workforce development metrics and goals. To ensure that later evaluations are able to assess the program's ability to meet job training outcomes, we recommend that:

| Recommended Program Modification for Job Training Outcomes |
|---|
| **1.5A**: The PAs should require that workforce development attestations include hiring and training metrics, goals, and outcomes. |

[42] Resolution E-4999, Order sub-section (s.) (p.65).

## 5.2 Recommendations for Improving Program Evaluability

### 5.2.1 Tracking Additional Data

This evaluation was intended to develop an evaluation framework including establishing metrics for assessing whether the programs are meeting their intended goals. We developed logic models and associated metrics for both programs. To assess the current and future evaluability of both programs, we categorized the 24 developed metrics (which tie to outcomes in the logic model) based on our ability to evaluate them. We were able to fully or partially evaluate more than two-thirds of the metrics.

Where we were unable to assess metrics, we made recommendations for additional data that PAs should track to facilitate future evaluation of program achievements. In Table 30 below, we have mapped the additional data we recommend collecting as part of each evaluation metric. Each metric is tied to one or more expected program outcomes in Appendix B (Logic Models and Metrics). Unless specified, the recommendations refer to both the DAC-GT and CSGT programs.

**Table 30: Recommendations for Additional Data to Track**

| Additional Data to Track | Allows for Evaluation of: |
|---|---|
| **2.1A:** # of conforming and non-conforming bids differentiated by the # of submitted offers vs. the # of proposed projects in those offers. | **Metric C2. Number of bids received per RFO**. Currently, we are unable to assess if solar developers are meeting the needs outlined in the RFOs and the full number of projects included in each response for all PAs. This number was available upon follow up from PG&E and was included in Independent Evaluator reports for SCE. |
| **2.1B**: Any outreach done with potential sponsors, messaging and materials used for that outreach, and sponsors contacted. It would be helpful to review event dates, number and type of attendees, and type of outreach done prior to event. | **Metric C3. Number and type of project sponsors (CSGT only).** We heard reports of challenges connecting to sponsors, and a review of documentation and materials could help identify what barriers may exist to more robust engagement of potential sponsors. |
| **2.1C**: Cost of installed MW | **C4. Results from program in both costs and benefits: number of MW installed/costs.**<br>**C5. Results from program costs compared to non-program PV costs.** Current MW data are only for the cost of bringing in solar developers and selecting bids. Other program data include the cost of the MW acquired.<br>Additionally, **if interested in evaluating program MW allocation**, need to define the amount of cost burden the program is willing to place on non-participants. Any comparison to other programs should take into account that |

| | |
|---|---|
| | non-participant cost is partially balanced by the non-participant experiencing the benefit of a cleaner grid. |
| **2.1D**: Rates of attrition for program enrollees. | **Metric E2. Share of enrolled customers aware of specific program features**. Future evaluations should also account for program attrition and compare attrition between auto-enrolled customers and opt-in customers. |
| **2.1E**: Location of DAC-GT and CSGT generation. | **Metric P1. Number and location of eligible customers enrolled**. Location of DAC-GT and CSGT generation would facilitate a geospatial analysis of program coverage across the state, including the geographic spread of participating customers. These data are available from both CCAs and SCE in quarterly reports but are not available across all PAs. |
| **2.1F**: Customer information regarding participation in other cross-promoted clean energy programs and indicating which customers are master metered (for CSGT only).<br>**2.1G:** Program tracking data to map to participants that also participated in Energy Savings Assistance or the San Joaquin Valley DAC Pilot. | **P5. Additional participation in other clean energy programs.** Customer self report data was inaccurate and future evaluations should rely on CIS data to ensure more accurate estimates are made.<br>**P4. # of master metered customers participating in the CSGT program.** Master metered data are only relevant for CSGT, which had no actively enrolled customers at the time of this evaluation. |
| **2.1H**: Tracking of job training programs used in the process of solar project development, including the training dates, curricula, and the number of trainees engaged with given programs. | **J1. # of leveraged job training programs.** At the time of this evaluation, it was too soon to estimate the number of job training programs leveraged. These data need to be tracked first by workforce development partners rather than by PAs. |

The large number of Program Administrators makes data review and collection cumbersome (multiple NDAs for instance) for evaluators and also creates a challenge for CPUC staff to track progress between evaluation cycles, which occur on a triannual basis. The same coordinating organization that handles the solar developer coordination could also take on a centralized data collection effort, or another organization could (e.g., one of the PAs or IOUs).

| Recommended Data Tracking Coordinator |
|---|
| **2.1I:** We recommend the CPUC weigh the pros and cons of such a coordinator that could create a central website where information could be submitted and ensure that submitted information is similar across PAs. |

Table 31: Pros and Cons of a Coordinator for PA Data Submission

| | | |
|---|---|---|
| **Pros** | + | Minimizing the NDA process and ensuring data are submitted in a similar format will allow for a quicker evaluation process, saving both evaluation funds and time spent between program implementation and program evaluation. |
| | + | CPUC staff will be able to check in on metrics in between evaluation cycles. |
| **Cons** | - | NDA process may still need to occur depending on PA legal teams' preferences. |

### 5.2.2 Clarifying Program Expected Outcomes

In some cases, there is still a lack of clarity on goals for the program's expected outcomes. For example, for the metric of "capacity procured and online by program PA," it would be helpful to set a goal for how much capacity should be procured online by the end of an evaluation period. A list of clarifications that will help solidify the expected measurement for certain metrics is included in Table 32.

Table 32: Considerations for Improving Metrics Tied to Metrics and Outcomes

| Metric | Outcomes | Considerations for Improving Metric (where identified) |
|---|---|---|
| C1. Capacity procured and online by program PA | CS: O.4, S.2<br>DAC: O.3, S.1 | **2.2A:** How much capacity is expected on what timeline? |
| C2. Number of bids received per RFO | CS: O.3<br>DAC: O.2 | **2.2B:** What is the minimum acceptable number of *conforming* bids, and how many conforming bids would be ideal? |
| E1. Share of enrolled customers aware of program and program marketing | CS: O.6, S.6<br>DAC: A.6, S.4 | **2.2C**: What level of awareness of the program by participants is ideal? Is awareness of benefit an integral part of the program? |
| E2. Share of enrolled customers aware of specific program features | DAC: S.3, S.4 | **2.2D**: What percentage of awareness is important for the program? |
| P1. # and location of eligible customers enrolled | CS: S.5<br>DAC: S.3 | **2.2E:** What priority should different eligible geographies have? Is further geographic targeting of interest to the program? |
| P2. Overall participation levels in relation to customer segment size | CS: S.5, DAC: S.3 | **2.2F:** Is a goal of the program to reach customers in specific segments (such as households with primary languages other than English, certain household compositions, or households receiving utility assistance)? |

| | | |
|---|---|---|
| P4. # of master metered customers participating in the CSGT program | CS: S.5 | **2.2G:** What share of eligible customers for CSGT being enrolled would constitute a success? |
| P5. Additional participation in other clean energy programs | CS: S.5, DAC: S.4 | **2.2H:** What additional enrollment targets would the program like to see? |
| E1. Share of customers who feel that they are contributing to renewable energy | CS: L.1 DAC: L.1 | **2.2I**: What percentage of customers would the program expect to see who feel that they are contributing to renewable energy? |
| E2. Share of customers that think the program reduces GHG emissions | CS: L.1 DAC: L.1 | **2.2J:** What percentage of customers would the program like to achieve in terms of customers feeling like the program reduces GHG emissions? |
| E3. Estimated environmental benefits | CS: L.1 DAC: L.1 | **2.2K**: What goals would the program like to set for environmental benefits? |
| J1. # of leveraged job training programs | CS: M.1 | **2.2L**: What is the number of leveraged job training programs expected? |
| J2. # of local job hires linked to the program | CS: M.1 | **2.2M**: What are the number of local job hires and trainees expected? |
| J3. # of trainees and job outcomes | CS: M.1 | |

This evaluation was conducted when it was too soon to take on the following evaluation activities, which we recommend **making a priority in future evaluations (2.2N)**:

- On-site verification of solar project performance through methods such as monitoring energy generation;
- An economic and job impact assessment; and
- An assessment of the impacts from the changes in funding sources that will begin during the year 2022.

We also recommend further research to understand which of these challenges identified by solar developers (siting, interconnection, and land costs) pose the largest barriers to increased RFO responses.

**Suggested *Future Research* for Solar Developer Response Improvement**

**2.2O**: We recommend conducting a study of the broader market of solar developers focused on sharing the range of possible RFO features with respondents to assess what the major challenge points are that limit RFO participation such as land costs, siting, and interconnection barriers. Our research focused on a subset of solar developers that reviewed DAC-GT and CSGT solicitations; this group was much smaller than expected, with just a quarter of survey respondents reporting having reviewed at least one program RFO.

# Appendix A: Spreadsheet of Recommendations

| | | | | [INPUT DAC-GT AND/OR CSGT PROGRAM ADMINISTRATOR NAME HERE] | |
|---|---|---|---|---|---|
| **Item #** | **Page #** | **Findings** | **Best Practice / Recommendations** | **Disposition** | **Disposition Notes** |
| | | | | Choose: Accepted, Rejected, or Other | Examples: Describe specific program change, give reason for rejection, or indicate that it's under further review. |
| 1 | 70 to 71 | The main barrier to program implementation based on this research was the low number of solar developer responses to DAC-GT and CSGT solicitations. While PG&E has seen modest success in its solicitations for capacity, other PAs have had less success. In some cases, no responses were received to solicitations (e.g., SDG&E and SCE) despite SDG&E having almost as many contacts in its solicitation list as PG&E. In other cases, bids were received but were non-conforming (e.g., SCE). The relative success of | **1.1A:** The PAs should devote additional marketing and outreach efforts towards informing solar developers of bid opportunities to improve engagement and bid response. This may be more efficiently done by a centralized organization. | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |
| 2 | | | **1.1B**: PAs should invest time and resources into further developing their contact lists for potential solar developers. They could also coordinate efforts and share contacts to maximize their reach. | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |

| | | | | [INPUT DAC-GT AND/OR CSGT PROGRAM ADMINISTRATOR NAME HERE] | |
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| **Item #** | **Page #** | **Findings** | **Best Practice / Recommendations** | **Disposition** | **Disposition Notes** |
| | | | | Choose: Accepted, Rejected, or Other | Examples: Describe specific program change, give reason for rejection, or indicate that it's under further review. |
| 3 | | PG&E may be in part due to it having a larger service territory that may have had solar developers with interconnection studies already begun at the time an RFO was released.<br><br>Our outreach to solar developers from PA contact lists for a web survey yielded a low number of responses and identified many contacts that do not identify as solar developers. Lists from PAs also rarely had the same contacts, suggesting there are contacts that are only hearing about one of many PA solicitations. Only a quarter of responding solar developers reported that they reviewed the RFOs at all, suggesting that low awareness and interest may be contributing to the lack of responses to RFOs. The solar developers who *were* aware of RFOs reported challenges related to:<br><br>• **Timeline and interconnection:** Solar developers reported that if there is no interconnection study in progress at the time of a solicitation, they need a longer timeline to be able to submit a bid to ensure they can complete an interconnection study.<br>• **Siting and land costs**: We heard from solar developers that land costs present a barrier to proposing projects in the DACs and within the 5-mile surrounding boundaries of the DACs. | **1.1C:** The PAs should conduct solicitations for solar resources on a schedule that allows time for the development of the siting and interconnection processes (such as a minimum of six to eight months as suggested by two interviewed solar developers). | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |

| | | | | [INPUT DAC-GT AND/OR CSGT PROGRAM ADMINISTRATOR NAME HERE] | |
|---|---|---|---|---|---|
| **Item #** | **Page #** | **Findings** | **Best Practice / Recommendations** | **Disposition** | **Disposition Notes** |
| | | | | Choose: Accepted, Rejected, or Other | Examples: Describe specific program change, give reason for rejection, or indicate that it's under further review. |
| 4 | 72-73 | With multiple PAs taking on similar activities, our evaluation identified key opportunities to streamline and combine efforts with the main focus on solar developer- and community-sponsored outreach and the solicitation process. Evergreen identified two areas where the program may benefit from a centralized coordinator taking on certain roles that are currently performed by each individual PA.<br>○ Solicitation Process and Outreach<br>○ Provide More Support and Coordinate Efforts to Engage Potential Community Sponsors | **1.3A:** The CPUC and/or the administrators should fund and convene a coordinating organization to market solicitations, match solar developers to community organizations and provide best practices to community organizations that want to sponsor CSGT projects.<br>This coordinating organization should:<br>○ Centralize marketing and outreach to inform solar developers of bid opportunities across the PAs to increase awareness of and response to RFOs.<br>○ Invest time and resources into engaging with the solar developer market to increase awareness of the programs and expand developer contact lists.<br>○ Conduct solicitations for solar resources on a predictable schedule that allows time for the development of the siting and interconnection processes (such as a minimum of six to eight months as suggested by two interviewed solar developers).<br>○ Inform and engage with potential community sponsors about CSGT bid opportunities. | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |

| | | | | [INPUT DAC-GT AND/OR CSGT PROGRAM ADMINISTRATOR NAME HERE] | |
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| **Item #** | **Page #** | **Findings** | **Best Practice / Recommendations** | **Disposition** | **Disposition Notes** |
| | | | | Choose: Accepted, Rejected, or Other | Examples: Describe specific program change, give reason for rejection, or indicate that it's under further review. |
| 5 | 74 | Expanding DAC-GT and CSGT to all federally recognized tribes can help to ensure that the programs better meet the intent of AB 327. | **1.4A**: CPUC: We recommend that similar to DAC-SASH (another program that focuses on DAC customers in single-family homes), the DAC-GT and CSGT programs should expand such that residents in California Indian Lands (i.e., lands within the limits of an Indian reservation and under the jurisdiction of the US government) are eligible for program offerings. This places the program in alignment with Decision 20-12-003, which expanded DAC-SASH in the same way, to align that program with the same underlying statute. | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |
| 6 | 71 | Auto-enrollment allows money spent on marketing and outreach to instead become available to pay for the customer bill discount and allows for targeting of customers who are at higher risk of disconnection or who have higher bills. Auto-enrollment also allows a way around participation barriers that may make it harder for some customers to learn about the programs. | **1.2A**: CPUC: Consider using auto-enrollment for all PAs going forward for the DAC-GT program. | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |
| 7 | 74 | Because most PAs had not yet launched the CSGT program at the time of the data request we sent to PAs, and because those that had successfully contracted CSGT programs had not yet begun construction, PAs were not able to provide us with specific estimates of the number of job trainees or specific workforce development metrics and goals. | **1.5A**: The PAs should require that workforce development attestations include hiring and training metrics, goals, and outcomes. | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |

| | | | | [INPUT DAC-GT AND/OR CSGT PROGRAM ADMINISTRATOR NAME HERE] | |
|---|---|---|---|---|---|
| **Item #** | **Page #** | **Findings** | **Best Practice / Recommendations** | **Disposition** | **Disposition Notes** |
| | | | | Choose: Accepted, Rejected, or Other | Examples: Describe specific program change, give reason for rejection, or indicate that it's under further review. |
| 8 | 75 | This evaluation was intended to develop an evaluation framework including establishing metrics for assessing whether the programs are meeting their intended goals. We developed logic models and associated metrics for both programs. To assess the current and future evaluability of both programs, we categorized the 24 developed metrics (which tie to outcomes in the logic model) based on our ability to evaluate them. We were able to fully or partially evaluate more than two-thirds of the metrics. The metrics that require additional data are listed below.<br><br>**Metric C2. Number of bids received per RFO**. Currently, we are unable to assess if solar developers are meeting the needs outlined in the RFOs and the full number of projects included in each response for all PAs. This number was available upon follow up from PG&E and was included in Independent Evaluator reports for SCE. | Where we were unable to assess metrics, we made recommendations for additional data that PAs should track to facilitate future evaluation of program achievements. We recommend PAs track the items below:<br><br>**2.1A:** # of conforming and non-conforming bids differentiated by the # of submitted offers vs. the # of proposed projects in those offers. | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |
| 9 | 75 | **Metric C3. Number and type of project sponsors (CSGT only).** We heard reports of challenges connecting to sponsors, and a review of documentation and materials could help identify what barriers may exist to more robust engagement of potential sponsors. | **2.1B**: Track outreach done with potential sponsors, messaging and materials used for that outreach, and sponsors contacted. Would be helpful to review event dates, number and type of attendees, and type of outreach done prior to event. | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |

| | | | | [INPUT DAC-GT AND/OR CSGT PROGRAM ADMINISTRATOR NAME HERE] | |
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| **Item #** | **Page #** | **Findings** | **Best Practice / Recommendations** | **Disposition** | **Disposition Notes** |
| | | | | Choose: Accepted, Rejected, or Other | Examples: Describe specific program change, give reason for rejection, or indicate that it's under further review. |
| 10 | 75 | **C4. Results from program in both costs and benefits: number of MW installed/costs. C5. Results from program costs compared to non-program PV costs.** Current MW data are only for the cost of bringing in solar developers and selecting bids. Other program data include the cost of the MW acquired.<br><br>Additionally, **if interested in evaluating program MW allocation**, need to define the amount of cost burden the program is willing to place on non-participants. Any comparison to other programs should take into account that non-participant cost is partially balanced by the non-participant experiencing the benefit of a cleaner grid. | **2.1C**: Investigate possibility of getting cost/MW installed from solar developers | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |
| 11 | 76 | **Metric E2. Share of enrolled customers aware of specific program features**. Future evaluations should also account for program attrition and compare attrition between auto-enrolled customers and opt-in customers. | **2.1D:** Track rates of attrition for program enrollees. | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |

| | | | | [INPUT DAC-GT AND/OR CSGT PROGRAM ADMINISTRATOR NAME HERE] | |
|---|---|---|---|---|---|
| **Item #** | **Page #** | **Findings** | **Best Practice / Recommendations** | **Disposition** | **Disposition Notes** |
| | | | | Choose: Accepted, Rejected, or Other | Examples: Describe specific program change, give reason for rejection, or indicate that it's under further review. |
| 12 | 76 | **Metric P1. Number and location of eligible customers enrolled**. Location of DAC-GT and CSGT generation would facilitate a geospatial analysis of program coverage across the state, including the geographic spread of participating customers. These data are available from both CCAs and SCE in quarterly reports but are not available across all PAs. | **2.1E**: Report on location of DAC-GT and CSGT generation. This is not done by all PAs at this time. | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |
| 13 | 76 | **P5. Additional participation in other clean energy programs.** Customer self report data was inaccurate and future evaluations should rely on CIS data to ensure more accurate estimates are made.<br><br>**P4. # of master metered customers participating in the CSGT program.** Master metered data are only relevant for CSGT, which had no actively enrolled customers at the time of this evaluation. | **2.1F:** Track customer information regarding participation in other cross-promoted clean energy programs and indicating which customers are master metered (for CSGT only).<br><br>**2.1G:** Collect program tracking data to map to participants that also participated in Energy Savings Assistance or the San Joaquin Valley DAC Pilot. | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |
| 14 | 76 | **J1. # of leveraged job training programs.** At the time of this evaluation, it was too soon to estimate the number of job training programs leveraged. These data need to be tracked first by workforce development partners rather than by PAs. | **2.1H:** Track job training programs used in the process of solar project development, including the training dates, curricula, and the number of trainees engaged with given programs. | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |

| | | | | [INPUT DAC-GT AND/OR CSGT PROGRAM ADMINISTRATOR NAME HERE] | |
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| **Item #** | **Page #** | **Findings** | **Best Practice / Recommendations** | **Disposition** | **Disposition Notes** |
| | | | | Choose: Accepted, Rejected, or Other | Examples: Describe specific program change, give reason for rejection, or indicate that it's under further review. |
| 15 | 77 | The large number of Program Administrators makes data review and collection cumbersome (multiple NDAs for instance) for evaluators and also creates a challenge for CPUC staff to track progress between evaluation cycles, which occur on a triannual basis. The same coordinating organization that handles the solar developer coordination could also take on a centralized data collection effort, or another organization could (e.g., one of the PAs or IOUs). | **2.1I**: We recommend the CPUC weigh the pros and cons of such a coordinator that could create a central website where information could be submitted and ensure that submitted information is similar across PAs. | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |
| 16 | 77 | In some cases, there is still a lack of clarity on goals for the program's expected outcomes. For example, for the metric of "capacity procured and online by program PA," it would be helpful to set a goal for how much capacity should be procured online by the end of an evaluation period. These are mapped to metrics and outcomes in Table 32 of the report. | **2.2A**: CPUC to clarify: How much capacity is expected on what timeline? | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |
| 17 | 77 | | **2.2B**: CPUC to clarify: What is the minimum acceptable number of conforming bids, and how many conforming bids would be ideal? | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |
| 18 | 77 | | **2.2C**: CPUC to clarify: What level of awareness of the program by participants is ideal? Is awareness of benefit an integral part of the program? | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |
| 19 | 77 | | **2.2D**: CPUC to clarify: What percentage of awareness is important for the program? | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |

| | | | | [INPUT DAC-GT AND/OR CSGT PROGRAM ADMINISTRATOR NAME HERE] | |
|---|---|---|---|---|---|
| **Item #** | **Page #** | **Findings** | **Best Practice / Recommendations** | **Disposition** | **Disposition Notes** |
| | | | | Choose: Accepted, Rejected, or Other | Examples: Describe specific program change, give reason for rejection, or indicate that it's under further review. |
| 20 | 77 | | **2.2E**: CPUC to clarify: What priority should different eligible geographies have? Is further geographic targeting of interest to the program? | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |
| 21 | 77 | | **2.2F:** CPUC to clarify: Is a goal of the program to reach customers in specific segments (such as households with primary languages other than English, certain household compositions, or households receiving utility assistance)? | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |
| 22 | 78 | | **2.2G:** CPUC to clarify: What share of eligible customers for CSGT being enrolled would constitute a success? | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |
| 23 | 78 | | **2.2H**: CPUC to clarify: What additional enrollment targets would the program like to see? | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |
| 24 | 78 | | **2.2I**: CPUC to clarify: What percentage of customers would the program expect to see who feel that they are contributing to renewable energy? | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |
| 25 | 78 | | **2.2J:** CPUC to clarify: What percentage of customers would the program like to achieve in terms of customers feeling like the program reduces GHG emissions? | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |

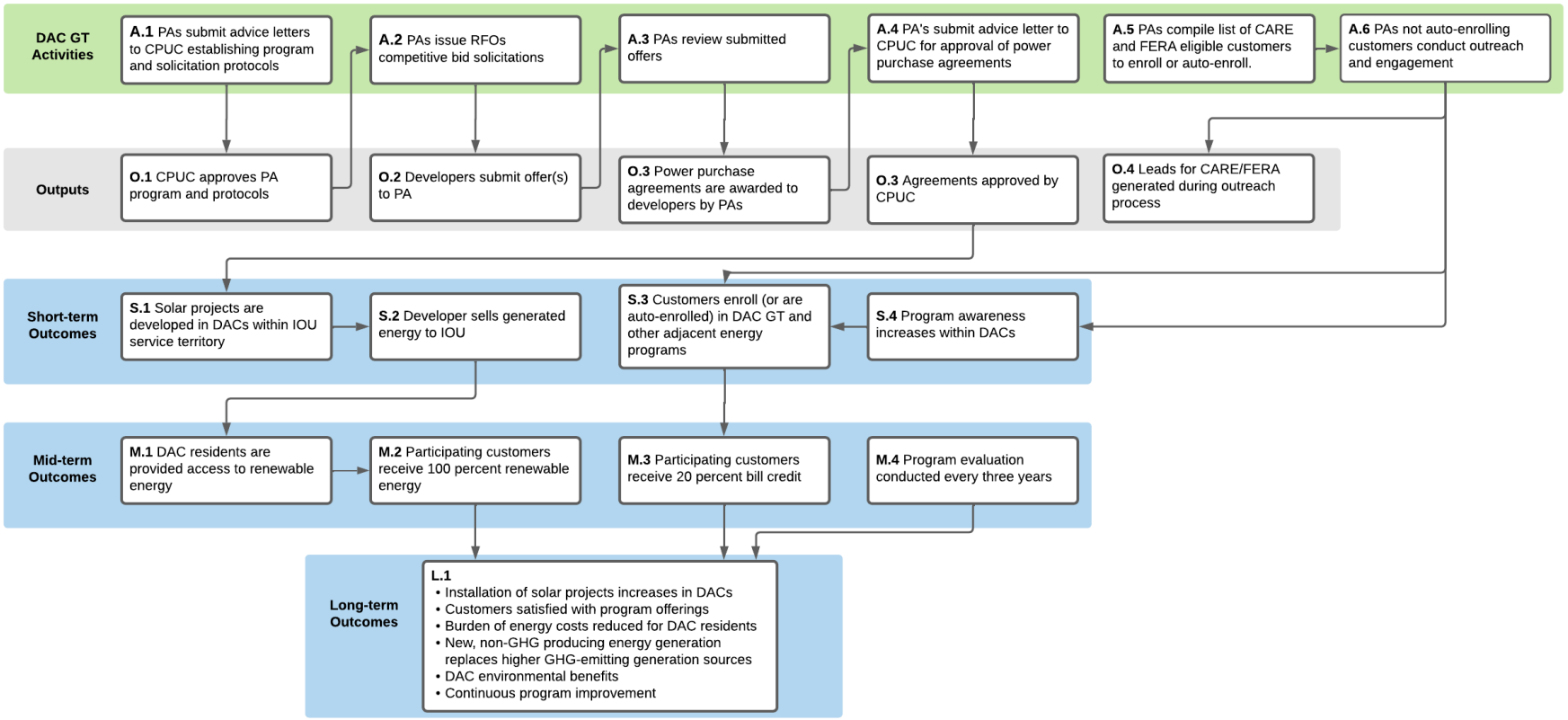
| | | | | [INPUT DAC-GT AND/OR CSGT PROGRAM ADMINISTRATOR NAME HERE] | |
|---|---|---|---|---|---|
| **Item #** | **Page #** | **Findings** | **Best Practice / Recommendations** | **Disposition** | **Disposition Notes** |
| | | | | Choose: Accepted, Rejected, or Other | Examples: Describe specific program change, give reason for rejection, or indicate that it's under further review. |
| 26 | 78 | | **2.2K**: CPUC to clarify: What goals would the program like to set for environmental benefits? | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |
| 27 | 78 | | **2.2L**: CPUC to clarify: What is the number of leveraged job training programs expected? | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |
| 28 | 78 | | **2.2M**: CPUC to clarify: What are the number of local job hires and trainees expected? | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |
| 29 | 78-79 | This evaluation was conducted when it was too soon to take on the following evaluation activities. | **2.2N**: For future evaluations, the following should be prioritized:<br>• On-site verification of solar project performance through methods such as monitoring energy generation;<br>• An economic and job impact assessment; and<br>• An assessment of the impacts from the changes in funding sources that will begin during the year 2022. | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |

| | | | | [INPUT DAC-GT AND/OR CSGT PROGRAM ADMINISTRATOR NAME HERE] | |
|---|---|---|---|---|---|
| **Item #** | **Page #** | **Findings** | **Best Practice / Recommendations** | **Disposition** | **Disposition Notes** |
| | | | | Choose: Accepted, Rejected, or Other | Examples: Describe specific program change, give reason for rejection, or indicate that it's under further review. |
| 30 | 80 | Our research focused on a subset of solar developers that reviewed DAC-GT and CSGT solicitations; this group was much smaller than expected, with just a quarter of survey respondents reporting having reviewed at least one program RFO. | **2.2O**: CPUC: We recommend conducting a study of the broader market of solar developers focused on sharing the range of possible RFO features with respondents to assess what the major challenge points are that limit RFO participation such as land costs, siting, and interconnection barriers. | | **PA Response:**<br><br>**Stakeholders:**<br>**Timeline:** |

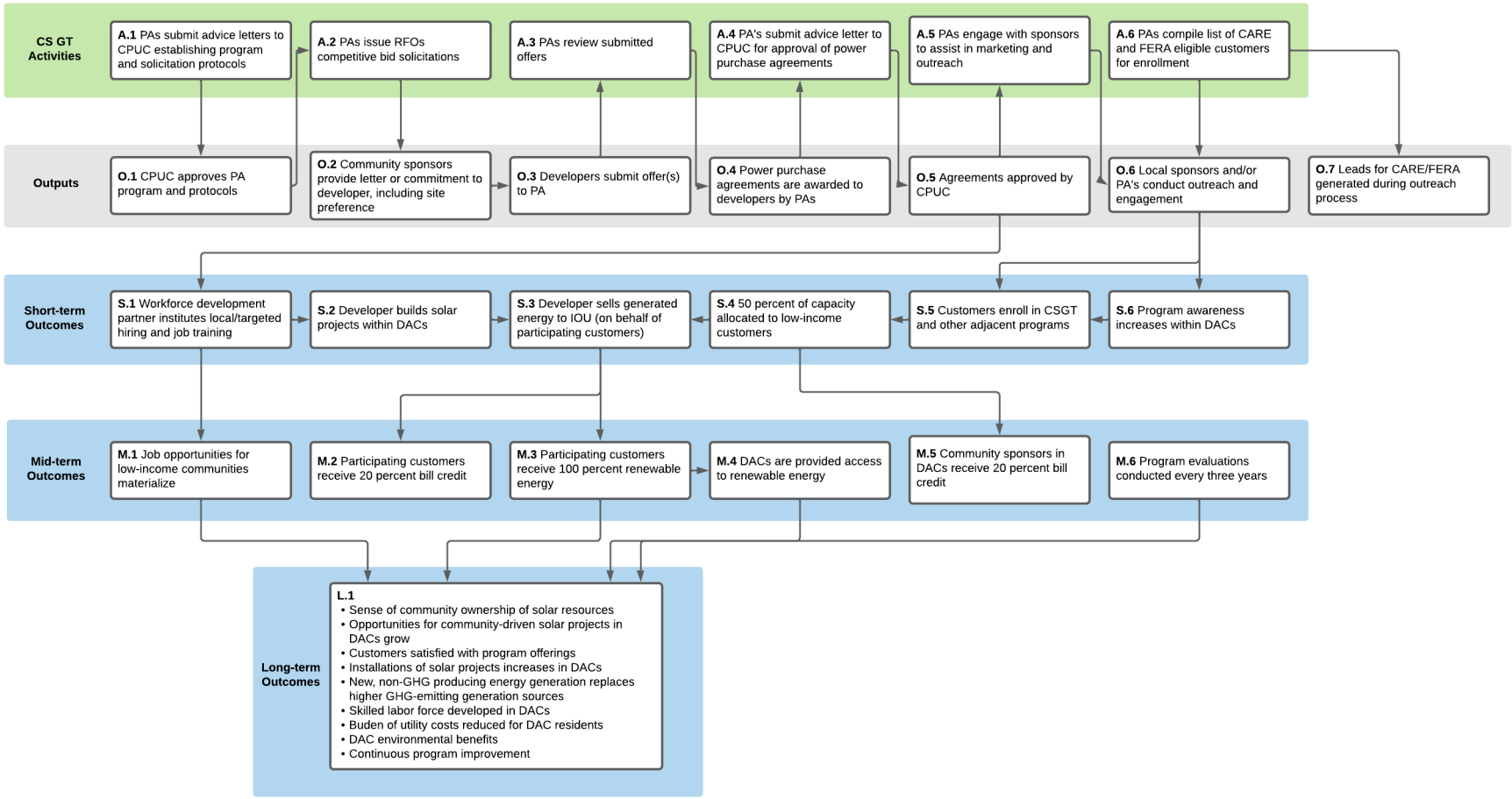
# Appendix B: Logic Models and Metrics

Figure 17 and Figure 18 present logic models developed by Evergreen for the DAC-GT and CSGT programs and include theorized short-, mid-, and long-term outcomes expected as a result of program activities and outputs. Evergreen also identified an initial set of metrics that were used to measure whether the programs are achieving their expected outcomes and linked them to the theorized outcomes (see Figure 19).

## Figure 17: Initial DAC-GT Program Logic Model



## Figure 18: Initial CSGT Program Logic Model

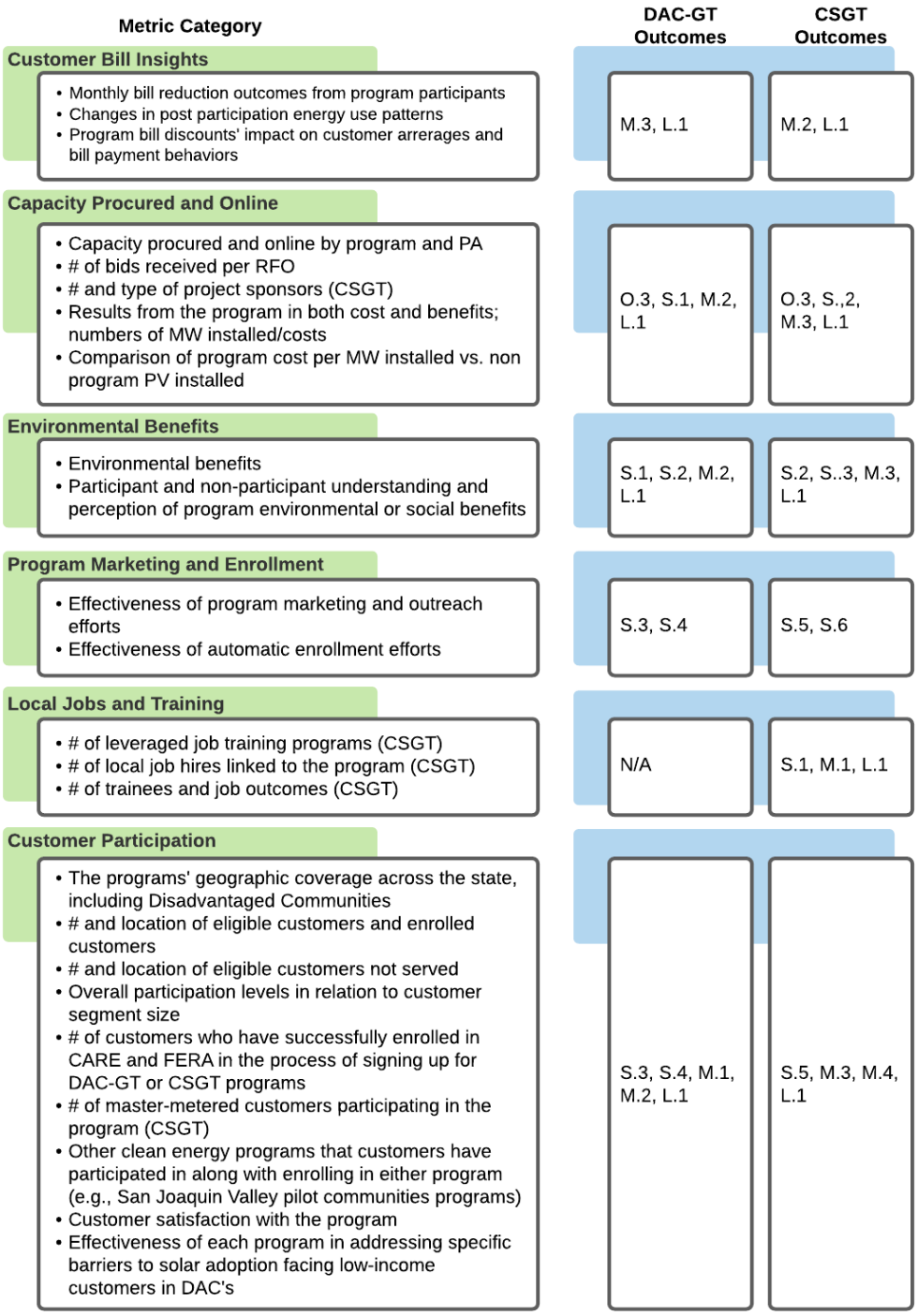


Multi-modal data collection activities were linked to metrics in a detailed data collection plan, ensuring a deep and holistic understanding of pilot successes and challenges, with a focus on developing actionable recommendations for scaling up pilot efforts.

The figure below shows how the metric category of customer participation maps to a number of data sources.

Below the figure, we included the descriptions of each of the outputs and outcomes to remind the reader of what was in the logic model.

## Figure 19: Mapping of Metrics to Logic Model Outcomes



## Figure 20: Example of Metrics Mapped to Data Sources

| Metric Category | Program Background and Implementation Documents | Program Tracking Data | PA CIS and Billing Data | Participating Customer Surveys | Non-Part Customer Surveys | Interviews with PAs / Stakeholders | Other |
|---|---|---|---|---|---|---|---|
| **Customer Participation** | | | | | | | |
| The programs' geographic coverage across the state, including Disadvantaged Communities | | ● | | | | | Geographic data |
| # and location of eligible customers and enrolled customers | | ● | | | | | Geographic data |
| # and location of eligible customers not served | | ● | ● | | | | Geographic data |
| Overall participation levels in relation to cust. segment size | | ● | ● | | | | Geographic data |
| # of cust. who have successfully enrolled in CARE and FERA in the process of signing up for DAC-GT or CSGT programs | | | ● | | | | |
| # of master-metered customers participating in the program (specifically for the CSGT program) | | ● | | | | | |
| Other clean energy programs that customers (such as those in San Joaquin Valley pilot communities) have participated in along with enrolling in either program | ● | ● | | ● | | ● | Other program tracking data |
| Customer satisfaction with the program | | | | ● | ● | ● | |
| Effectiveness of each program in addressing specific barriers to solar adoption facing low-income customers in DACs | ● | | | ● | ● | ● | |

| | DAC-GT Outcomes | CSGT Outcomes |
|---|---|---|
| Short-term | **S.1** Solar projects are developed in DACs within IOU service territory<br>**S.2** Program awareness increases within DACs<br>**S.3** Customers enroll in DAC-GT and other adjacent programs | **S.1** Program awareness increases within DACs<br>**S.2** Customers enroll in CSGT and other adjacent programs<br>**S.3** Developer builds solar projects within DACs<br>**S.4** Developer sells generated energy to PA (on behalf of participating customers) |
| Mid-term | **M.1** DAC residents are provided access to renewable energy<br>**M.2** Participating customers receive 100 percent renewable energy<br>**M.3** Participating customers receive 20 percent bill credit | **M.1** Participating customers receive 20 percent bill credit<br>**M.2** Participating customers receive 100 percent renewable energy<br>**M.3** DACs are provided access to renewable energy |

| | DAC-GT Outcomes | CSGT Outcomes |
|---|---|---|
| Long-term | Installation of solar projects increases in DACs<br>DAC customers' energy bills are reduced<br>GHG emissions reduced in DACs<br>DAC environmental benefits | Community ownership of solar resources<br>Installations of solar projects increases in DACs<br>DAC customers' energy bills are reduced<br>GHG emissions reduced in DACs<br>Skilled labor force developed in DACs<br>Economic impacts in DACs<br>DAC environmental benefits |

# Appendix C: Additional Billing Data Information

This section provides detailed model output summaries from each of the regression models referenced in the body of the report and details about the analysis.

## *Billing Data Processing Steps*

An analysis of pre and post participation billing data was conducted to estimate changes in energy usage and bill costs associated with program participation for PG&E participants. As a first step in this process, we created a comparison group of non-participants with similar energy consumption as the participants (before program enrollment). This comparison group was intended to control for any significant changes in energy consumption due to factors other than program participation.

Evergreen identified non-participating customers with the same dwelling type (detached residence or shared wall residence) as the participants. Non-participating customers were then matched based on how closely their energy usage aligned with each participant, selecting the best available customer for comparison (1:1 match).[43] Figure 21 provides a comparison between the average daily electricity consumption of the participants (blue) and non-participants (red) during the pre-program period, prior to matching on shared characteristics (shown later, in Figure 22). There are very notable differences seasonal peak energy usage, where participants have much higher energy usage on average than the non-participants during summer and winter peaks, with smaller differences during the shoulder seasons.

[43] Matched customers from the comparison group based on selection that minimized the sum of squared errors in electricity consumption by calendar month.

**Figure 21: PG&E Program Participants and Non-Participants Prior to Matching**

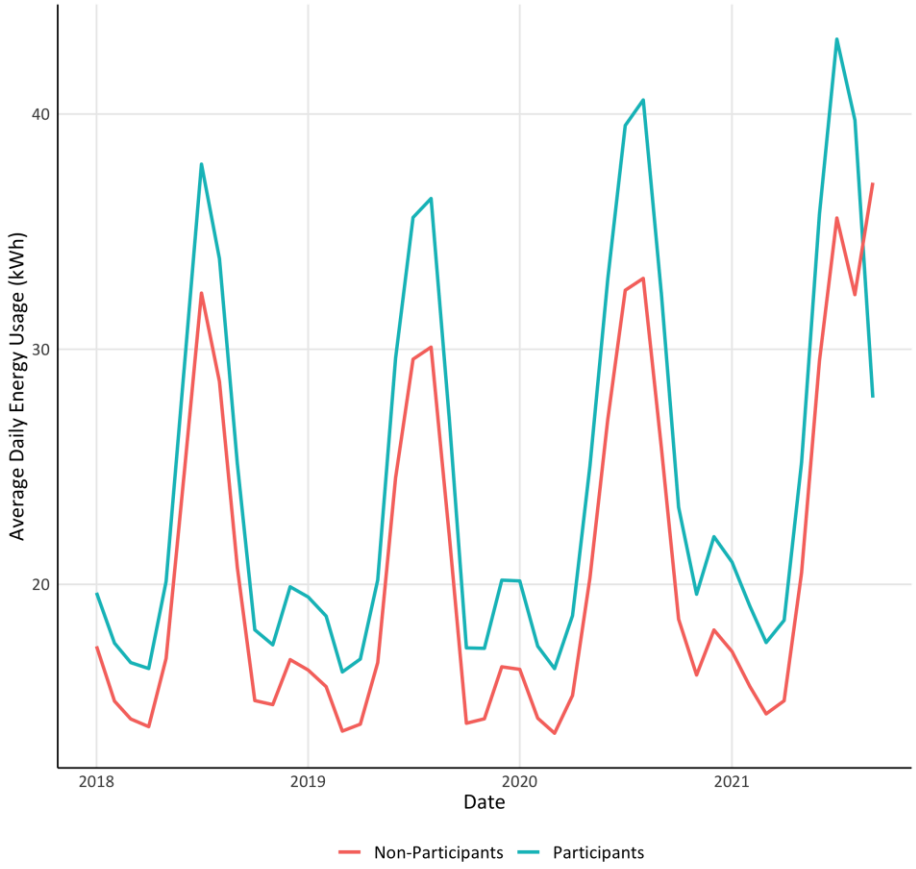


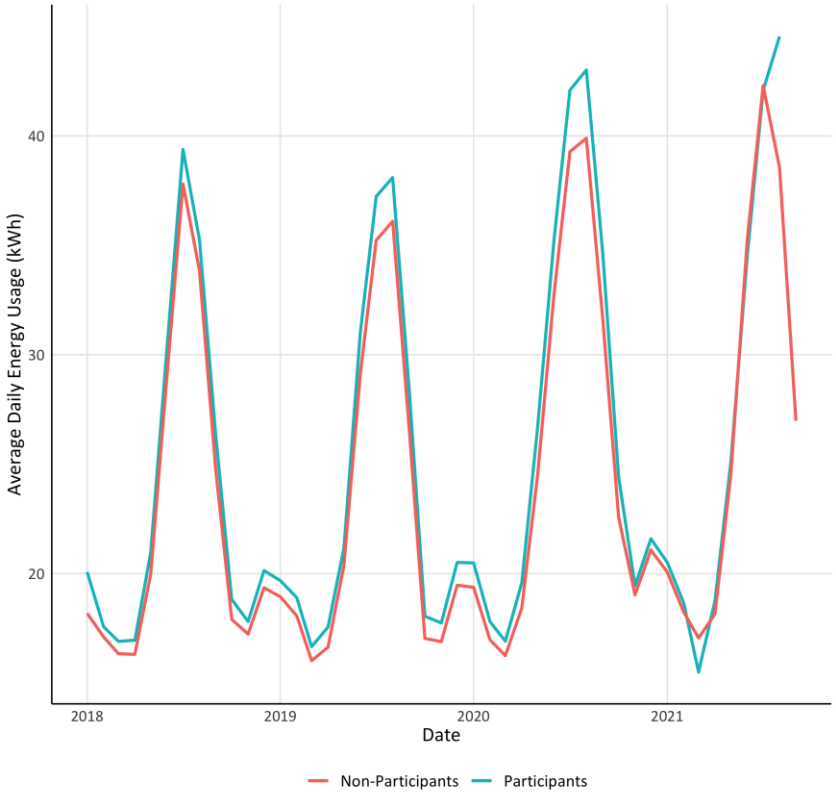

Figure 22 shows the average energy usage prior to the enrollment in DAC-GT for participants (blue) and their matched comparison (red). While there are still differences in average energy usage during summer and winter peaks, there is a notable improvement, with smaller differences than were observed prior to matching (in Figure 21). The remaining difference between the two groups are likely due to fundamental differences in energy usage between the participant and non-participant groups caused by PG&E's strategy in choosing who it enrolls in DAC-GT (e.g., customers with an unpaid balance on their account). All of these PG&E participants in DAC-GT were auto-enrolled in the program based on the following criteria outlined by the CPUC:

- Located in a top 15 percent DAC census tract in PG&E's service territory;
- Received eight or more late payment notices triggering three to six collection processes per year;
- Less than three "Return to Maker" payments (i.e., returned checks);
- Less than three disconnections within the last 12 months; and

- "Total Balance Owing" is greater than $0, with no credit balance on account.[44]

Evergreen utilized the matched comparison group to help control for variability in energy usage and bill costs over time that is caused by extraneous factors, including the ever-changing COVID guidelines. The data for each matched comparison customer were limited to the same study period as the participant to maintain balance between the two groups. Our model specifications include an additional indicator variable to help control for this systematic difference between the two groups prior to the program intervention.

**Figure 22: PG&E Matched Participants and Non-Participants**




[44] Decision 20-07-008. *Decision Implementing Automatic Enrollment of Disadvantaged Communities Green Tariff.* July 23, 2020. CPUC. https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M344/K058/344058812.PDF

We required a minimum of 12 months pre- and 12 months post-program enrollment from each participant in the model to ensure that we had at least one observation in each calendar month. To reduce the influence of outliers, we removed the top and bottom 1 percent of energy users (retaining the 1st through 99th percentiles). Table 33 shows the distribution of observations retained after each filter operation.

**Table 33: Summary of PG&E Sample Before and After Data Filters**

| Sample Condition | Number of Participants | Percent of Participants | Number of Non-Participants | Percent of Non-Participants |
|---|---|---|---|---|
| Full Sample | 15,130 | 100% | 29,209 | 100% |
| Subset Participant Post Period for Matching | 14,825 | 98% | 29,209 | 100% |
| Matched Comparison Sites | 14,672* | 97% | 8,740 | 30% |
| Removed Common Area Dwellings | 14,651 | 97% | 8,719 | 30% |
| 12+ Months Pre and Post | 13,859 | 92% | 8,719 | 30% |
| Top and Bottom 1% Removed | 13,572 | 90% | 8,520 | 29% |

*Participants decreased after common area dwelling filter was applied.

## *Energy Consumption Model Specification*[45]

We estimated energy usage changes using a fixed effects billing regression model and billing data from both the participants and the comparison group using Equation 1 (n=22,107 customers). The fixed effects model is the most common specification used to estimate savings for these types of programs where data from both the treatment and comparison groups are available. This model helped to determine whether there were significant changes in the energy consumption of participating households. It was hypothesized that energy consumption would change for some households (due to bill credit) and remain constant for others.

[45] Model variations were tested that included interactions of independent variables; interactions that led to non-statistically significant outcomes were removed.

**Equation** 1: Energy Usage Fixed Effects Regression Model Specification

$$kWh_{it} = \alpha_i + \beta_1 Part_{it} + \beta_2 Post_{it} + \beta_3 CDD_{it} + \beta_4 HDD_{it} + \sum_{m=2}^{12} \beta_{5m}(Month_m) + \beta_6(Post_{it} * Part_i) + \beta_7(CDD_{it} * Post_{it}) + \beta_8(CDD_{it} * Part_i) + \beta_9(CDD_{it} * Post_{it} * Part_i) + \beta_{10}(HDD_{it} * Post_{it}) + \beta_{11}(HDD_{it} * Part_i) + \beta_{12}(HDD_{it} * Post_{it} * Part_i) + \sum_{m=2}^{12} \beta_{13m}(Month_m * Part_i) + \sum_{m=2}^{12} \beta_{14m}(Month_m * Post_{it}) + \sum_{m=2}^{12} \beta_{15m}(Month_m * Post_{it} * Part_i) + \varepsilon_{it}$$

$Where$:

$kWh_{it} =$ Average $electricity\ usage\ per\ day\ by\ the\ i^{th}\ home\ in\ the\ t^{th}\ time\ period$

$Post = Indicator\ variable\ for\ post - participation\ in\ the\ program$

$Part = Indicator\ variable\ for\ pilot\ participants\ only$

$CDD_{it} = Cooling\ degree\ days\ for\ the\ i^{th}\ home\ in\ the\ t^{th}\ time\ period$

$HDD_{it} = Heating\ degree\ days\ for\ the\ i^{th}\ home\ in\ the\ t^{th}\ time\ period$

$Month_m = Series\ of\ indicator\ variables\ for\ each\ calendar\ month\ (excluding\ January)$

$\alpha, \beta = Coefficients\ to\ be\ estimated\ in\ the\ model$

$\varepsilon = Random\ error\ term$

Importantly, $kWh$ measures the impact of program enrollment on energy consumption on an average kWh per day basis. The customer fixed effect ($\alpha_i$) provides the best estimate for each customer's baseline energy usage. In other words, this is the kWh usage that is stable throughout the study period, independent of weather and seasonality. The $Post_{it}$ interactions estimate the natural change between the pre and post periods, such as the impact of COVID-19 shelter-in-place orders. The $Part_i$ interactions help to control for any remaining differences between the participants and the matched comparison group. The $Post_{it} * Part_i$ interactions provide our estimates for the program impacts. We repeated this model specification for a series of customer segments, estimating the impacts for each dwelling type and climate zones to look for variability in program impacts.

Variations of this model were explored, with fewer interaction terms or additional filters. We retained the specification with the best explanatory power and ease of interpretation.

## *Energy Cost Model Specification*

To determine the effect of the pilot program on energy cost, we utilized the fixed effects model shown in Equation 2. The data inputted into this model contained the same filters as the energy usage model previously shown (n=22,107 customers). Notably, this model specification used the same specification aside from the response variable *BillCost,* which measures average daily bill amount per day for each bill cycle. Additionally, the same controls as the energy consumption model are retained, as bill amount ($) is heavily influenced by the variation in kWh energy usage.

### Equation 2: Energy Cost Fixed Effects Regression Model Specification

$$BillCost_{it} = \alpha_i + \beta_1 Part_{it} + \beta_2 Post_{it} + \beta_3 CDD_{it} + \beta_4 HDD_{it} + \sum_{m=2}^{12} \beta_{5m}(Month_m) + \beta_6(Post_{it} * Part_i) + \beta_7(CDD_{it} * Post_{it}) + \beta_8(CDD_{it} * Part_i) + \beta_9(CDD_{it} * Post_{it} * Part_i) + \beta_{10}(HDD_{it} * Post_{it}) + \beta_{11}(HDD_{it} * Part_i) + \beta_{12}(HDD_{it} * Post_{it} * Part_i) + \sum_{m=2}^{12} \beta_{13m}(Month_m * Part_i) + \sum_{m=2}^{12} \beta_{14m}(Month_m * Post_{it}) + \sum_{m=2}^{12} \beta_{15m}(Month_m * Post_{it} * Part_i) + \varepsilon_{it}$$

$Where$:

$BillCost_{it} = Average\ bill\ amount\ per\ day\ (\$) for\ i^{th}\ home\ in\ the\ t^{th}\ bill\ period$

$Post = Indicator\ variable\ for\ post-participation\ in\ the\ program$

$Part = Indicator\ variable\ for\ pilot\ participants\ only$

$CDD_{it} = Cooling\ degree\ days\ for\ the\ i^{th}\ home\ in\ the\ t^{th}\ time\ period$

$HDD_{it} = Heating\ degree\ days\ for\ the\ i^{th}\ home\ in\ the\ t^{th}\ time\ period$

$Month_m = Series\ of\ indicator\ variables\ for\ each\ calendar\ month\ (excluding\ January)$

$\alpha, \beta = Coefficients\ to\ be\ estimated\ in\ the\ model$

$\varepsilon = Random\ error\ term$

### Table 34: Electricity Consumption Fixed Effects Model Regression Output

| Metric | Value |
|---|---|
| N observations | 22,092 |
| R-square | 0.559 |
| Adjusted R-square | 0.547 |
| F-statistic | 20980.8 |
| Degrees of freedom | 54 |
| P-value | <0.001 |

| Variable | Coefficient | Standard Error | P-value |
|---|---|---|---|
| Post | 2.851 | 2.317 | 0.219 |
| CDD | -0.325 | 0.058 | <0.001 |
| HDD | -0.833 | 0.185 | <0.001 |
| Month02 | -5.316 | 0.185 | <0.001 |
| Month03 | -5.011 | 0.096 | <0.001 |
| Month04 | -9.142 | 0.178 | <0.001 |
| Month05 | -7.213 | 0.199 | <0.001 |
| Month06 | -3.595 | 0.303 | <0.001 |
| Month07 | 2.733 | 0.324 | <0.001 |

| Variable | Coefficient | Standard Error | P-value |
|---|---|---|---|
| Month08 | 1.735 | 0.314 | <0.001 |
| Month09 | -5.914 | 0.281 | <0.001 |
| Month10 | -9.222 | 0.185 | <0.001 |
| Month11 | -6.000 | 0.146 | <0.001 |
| Month12 | 0.125 | 0.094 | 0.184 |
| Post*Part | -21.323 | 3.858 | <0.001 |
| Post*CDD | 0.289 | 0.075 | <0.001 |
| Part*CDD | -0.209 | 0.062 | <0.001 |
| Post*HDD | -0.095 | 0.075 | 0.203 |
| Part*HDD | -0.493 | 0.063 | <0.001 |
| Part*Month02 | -2.147 | 0.204 | <0.001 |
| Part*Month03 | -1.336 | 0.113 | <0.001 |
| Part*Month04 | -3.921 | 0.203 | <0.001 |
| Part*Month05 | -3.769 | 0.231 | <0.001 |
| Part*Month06 | -5.250 | 0.344 | <0.001 |
| Part*Month07 | -5.898 | 0.370 | <0.001 |
| Part*Month08 | -5.317 | 0.360 | <0.001 |
| Part*Month09 | -4.690 | 0.322 | <0.001 |
| Part*Month10 | -3.348 | 0.214 | <0.001 |
| Part*Month11 | -1.442 | 0.163 | <0.001 |
| Part*Month12 | 0.190 | 0.110 | 0.083 |
| Post*Month02 | 0.098 | 0.266 | 0.714 |
| Post*Month03 | -0.755 | 0.166 | <0.001 |
| Post*Month04 | -4.251 | 0.250 | <0.001 |
| Post*Month05 | -5.654 | 0.298 | <0.001 |
| Post*Month06 | -4.612 | 0.388 | <0.001 |
| Post*Month07 | -6.453 | 0.421 | <0.001 |
| Post*Month08 | -7.022 | 0.415 | <0.001 |
| Post*Month09 | -5.620 | 0.393 | <0.001 |
| Post*Month10 | -3.885 | 0.285 | <0.001 |
| Post*Month11 | 2.313 | 0.202 | <0.001 |
| Post*Month12 | 1.418 | 0.163 | <0.001 |
| Post*Part*CDD | 0.577 | 0.124 | <0.001 |
| Post*Part*HDD | 0.709 | 0.124 | <0.001 |
| Post*Part*Month02 | 2.121 | 0.416 | <0.001 |
| Post*Part*Month03 | 0.156 | 0.203 | 0.442 |
| Post*Part*Month04 | 2.223 | 0.323 | <0.001 |
| Post*Part*Month05 | 1.320 | 0.374 | <0.001 |
| Post*Part*Month06 | 3.220 | 0.488 | <0.001 |
| Post*Part*Month07 | 3.533 | 0.522 | <0.001 |
| Post*Part*Month08 | 2.372 | 0.513 | <0.001 |

| Variable | Coefficient | Standard Error | P-value |
|---|---|---|---|
| Post*Part*Month09 | 0.662 | 0.524 | 0.207 |
| Post*Part*Month10 | 1.071 | 0.358 | 0.002 |
| Post*Part*Month11 | 1.279 | 0.264 | <0.001 |
| Post*Part*Month12 | 0.189 | 0.208 | 0.363 |

### Table 35: Bill Cost Fixed Effects Model Regression Output

| Metric | Value |
|---|---|
| N observations | 22,092 |
| R-square | 0.491 |
| Adjusted R-square | 0.478 |
| F-statistic | 16008.4 |
| Degrees of freedom | 54 |
| P-value | <0.001 |

| Variable | Coefficient | Standard Error | P-value |
|---|---|---|---|
| Post | 3.641 | 0.504 | <0.001 |
| CDD | 0.030 | 0.013 | 0.015 |
| HDD | -0.055 | 0.013 | <0.001 |
| Month02 | -0.792 | 0.040 | <0.001 |
| Month03 | -0.985 | 0.021 | <0.001 |
| Month04 | -1.565 | 0.039 | <0.001 |
| Month05 | -1.397 | 0.043 | <0.001 |
| Month06 | -0.424 | 0.066 | <0.001 |
| Month07 | 0.864 | 0.071 | <0.001 |
| Month08 | 0.626 | 0.068 | <0.001 |
| Month09 | -0.899 | 0.061 | <0.001 |
| Month10 | -1.720 | 0.040 | <0.001 |
| Month11 | -0.994 | 0.032 | <0.001 |
| Month12 | 0.034 | 0.021 | 0.094 |
| Post*Part | -7.902 | 0.839 | <0.001 |
| Post*CDD | -0.029 | 0.016 | 0.073 |
| Part*CDD | -0.106 | 0.014 | <0.001 |
| Post*HDD | -0.108 | 0.016 | <0.001 |
| Part*HDD | -0.175 | 0.014 | <0.001 |
| Part*Month02 | -0.595 | 0.044 | <0.001 |
| Part*Month03 | -0.233 | 0.025 | <0.001 |
| Part*Month04 | -0.941 | 0.044 | <0.001 |
| Part*Month05 | -0.784 | 0.050 | <0.001 |

| Variable | Coefficient | Standard Error | P-value |
|---|---|---|---|
| Part*Month06 | -1.393 | 0.075 | <0.001 |
| Part*Month07 | -1.615 | 0.081 | <0.001 |
| Part*Month08 | -1.470 | 0.078 | <0.001 |
| Part*Month09 | -1.335 | 0.070 | <0.001 |
| Part*Month10 | -0.737 | 0.046 | <0.001 |
| Part*Month11 | -0.365 | 0.036 | <0.001 |
| Part*Month12 | 0.081 | 0.024 | <0.001 |
| Post*Month02 | -0.185 | 0.058 | <0.001 |
| Post*Month03 | -0.091 | 0.036 | 0.012 |
| Post*Month04 | -0.848 | 0.065 | <0.001 |
| Post*Month05 | -0.810 | 0.298 | <0.001 |
| Post*Month06 | -0.651 | 0.084 | <0.001 |
| Post*Month07 | -0.865 | 0.092 | <0.001 |
| Post*Month08 | -0.994 | 0.090 | <0.001 |
| Post*Month09 | -1.068 | 0.086 | <0.001 |
| Post*Month10 | -0.736 | 0.061 | <0.001 |
| Post*Month11 | 0.223 | 0.043 | <0.001 |
| Post*Month12 | 0.245 | 0.035 | <0.001 |
| Post*Part*CDD | 0.173 | 0.027 | <0.001 |
| Post*Part*HDD | 0.234 | 0.027 | <0.001 |
| Post*Part*Month02 | 0.784 | 0.416 | <0.001 |
| Post*Part*Month03 | 0.263 | 0.044 | <0.001 |
| Post*Part*Month04 | 0.984 | 0.070 | <0.001 |
| Post*Part*Month05 | 0.546 | 0.081 | <0.001 |
| Post*Part*Month06 | 0.801 | 0.106 | <0.001 |
| Post*Part*Month07 | 0.655 | 0.114 | <0.001 |
| Post*Part*Month08 | 0.519 | 0.112 | <0.001 |
| Post*Part*Month09 | 0.581 | 0.114 | <0.001 |
| Post*Part*Month10 | 0.515 | 0.078 | <0.001 |
| Post*Part*Month11 | 0.438 | 0.057 | <0.001 |
| Post*Part*Month12 | -0.108 | 0.045 | 0.017 |

# Appendix D: Additional Customer Survey Results

This section includes additional results from the customer survey.

Customers indicated that they value increasing access to renewable energy for both themselves and their communities (Figure 23, Figure 24).

**Figure 23: Personal Importance of Renewable Energy (n=188)**

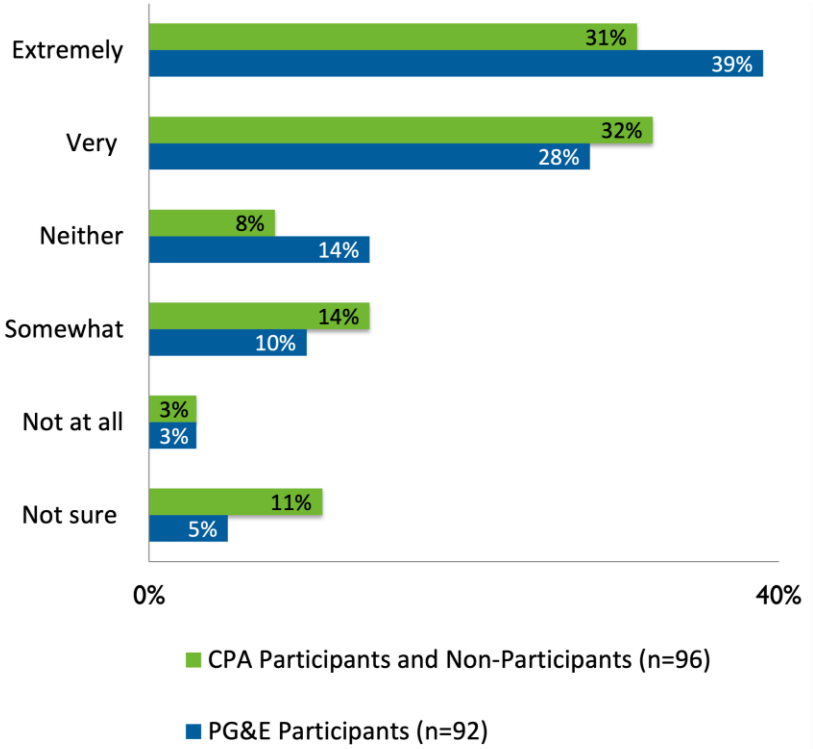
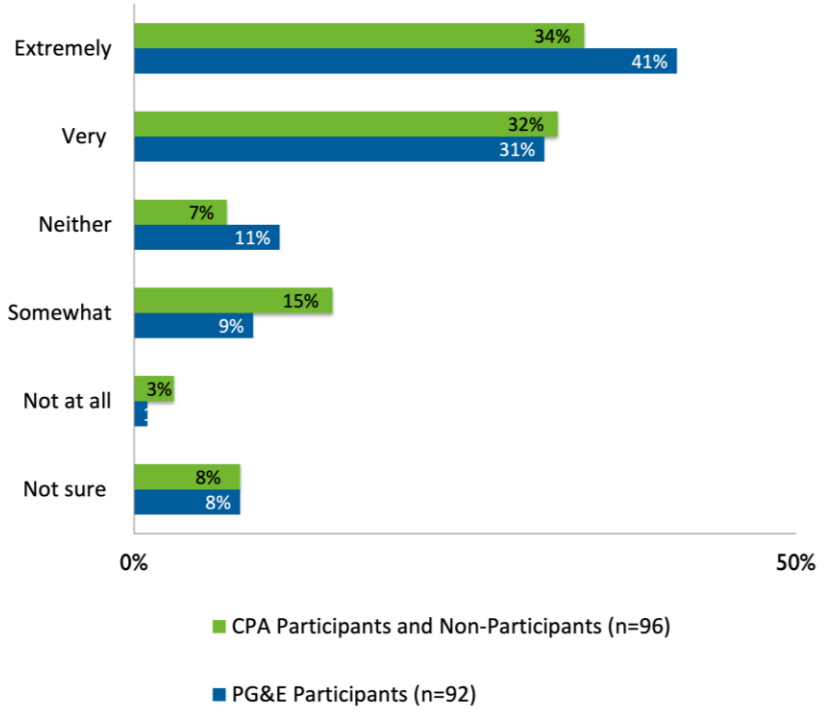
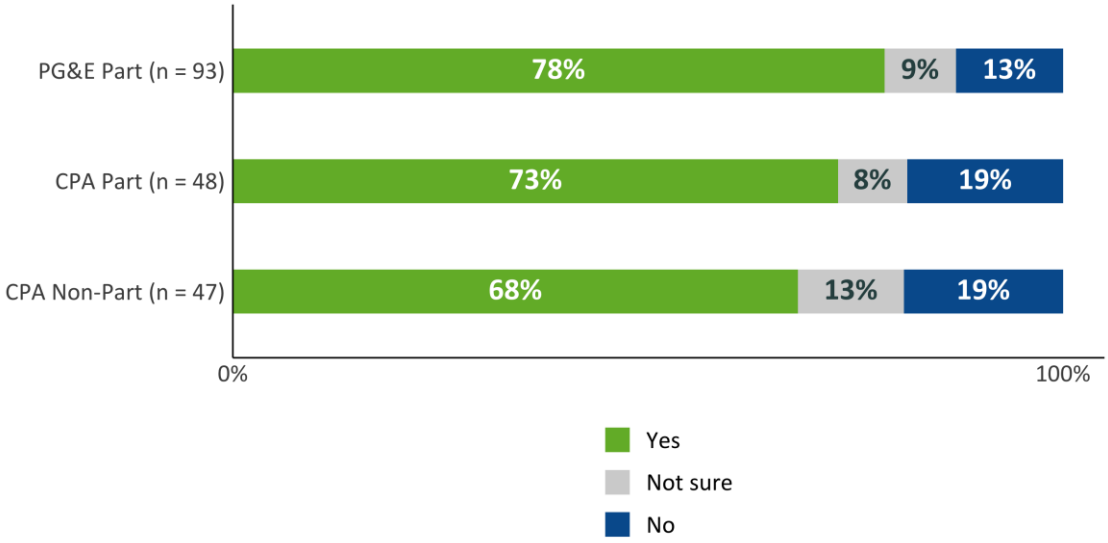


**Figure 24: Importance of Having Renewable Energy in the Community (n=183)**




We also asked customer survey respondents if they had taken any steps to try to actively reduce energy use in their household since their sign-up, as that may also impact their ability to pay their energy bills (Figure 25).

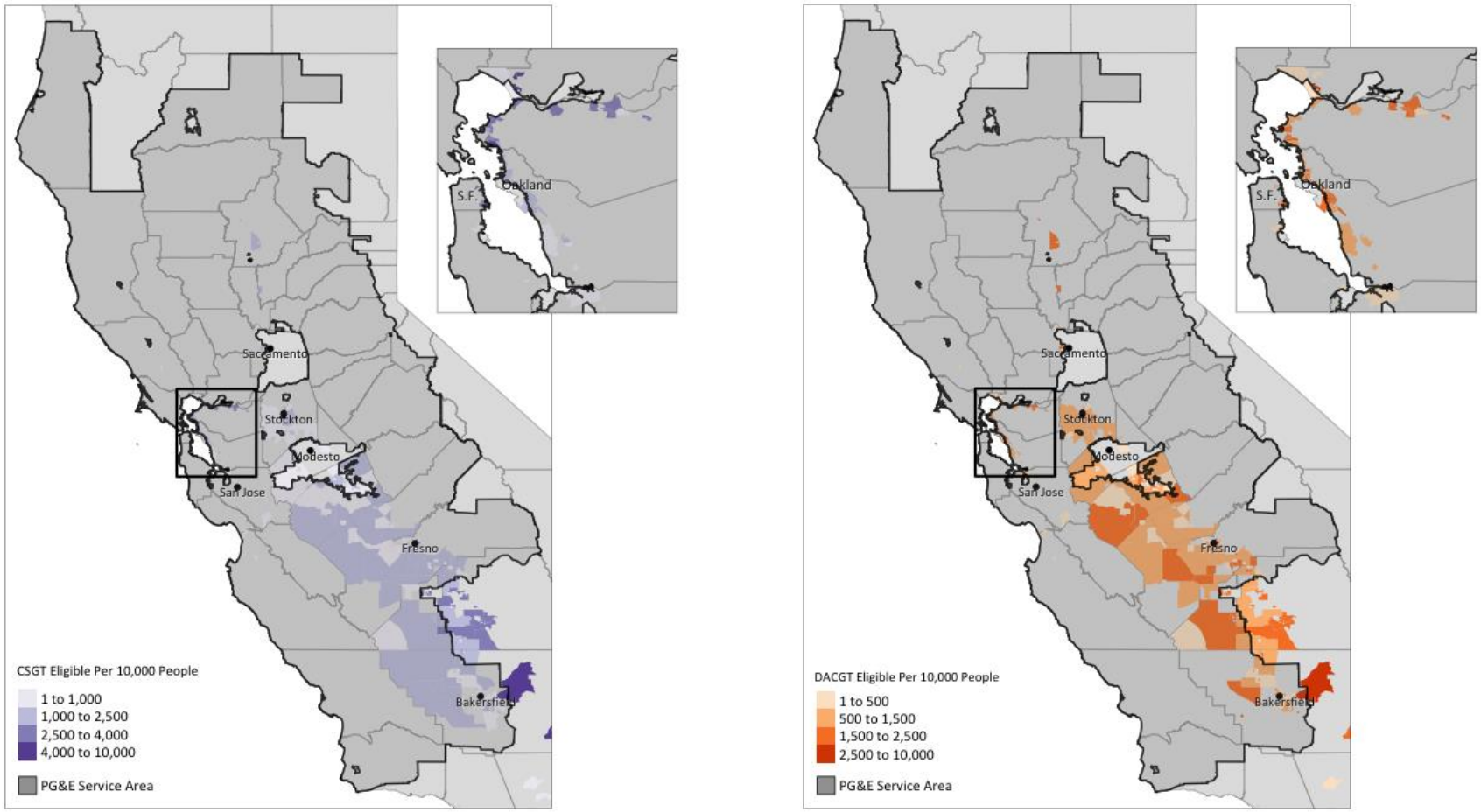
**Figure 25: Active Steps to Reduce Energy Use**



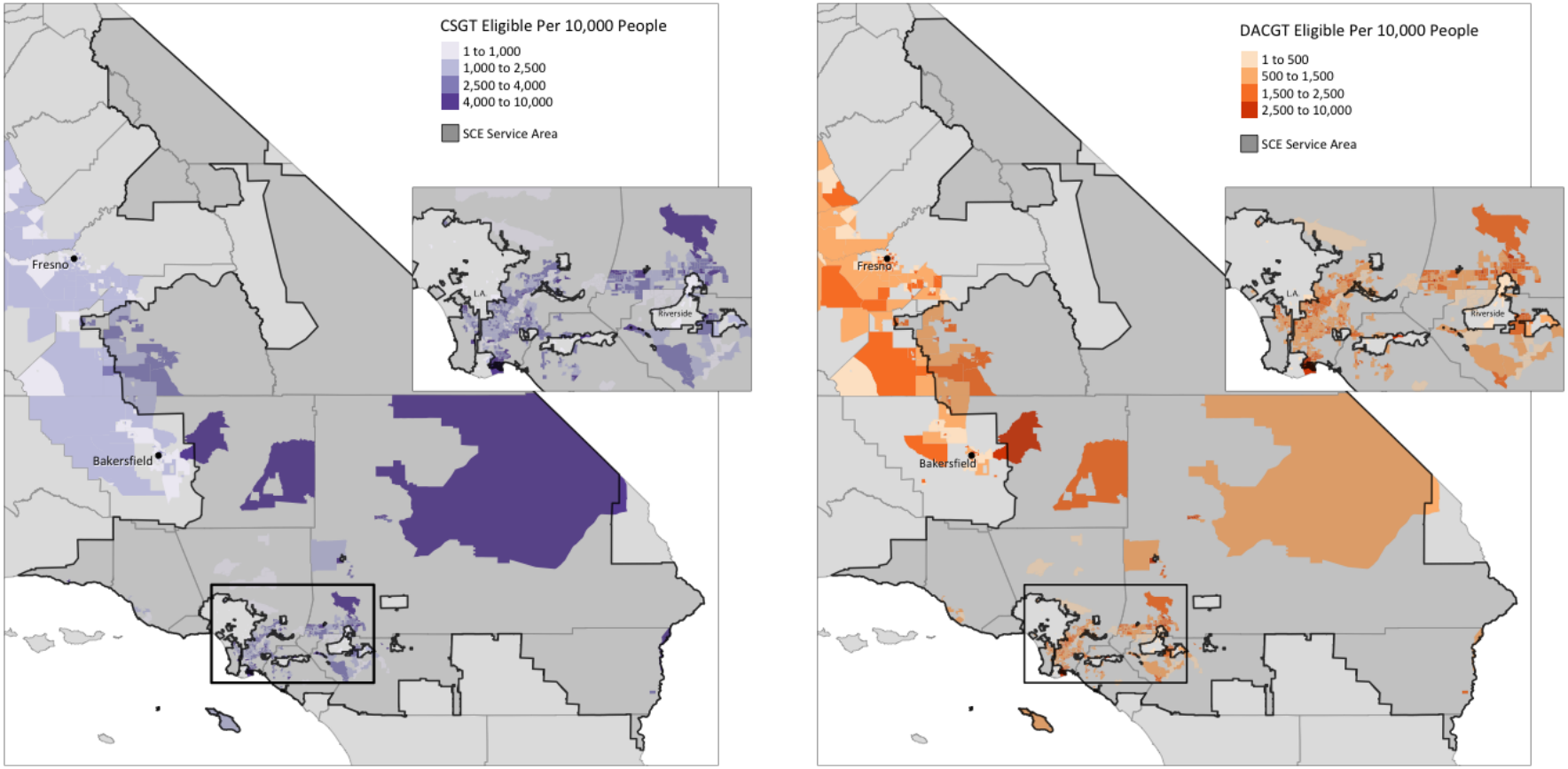
# Appendix E: Additional Maps

This section provides additional maps referenced in the body of the report.

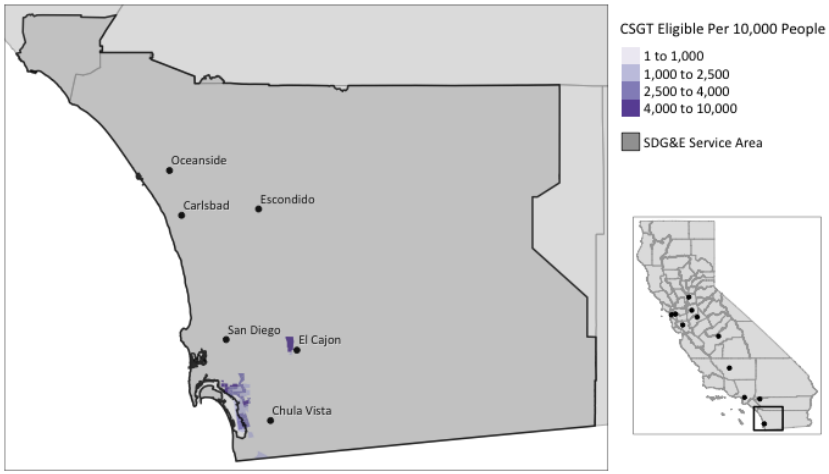
**Figure 26: PG&E Program Eligible Estimates by Census Tract**

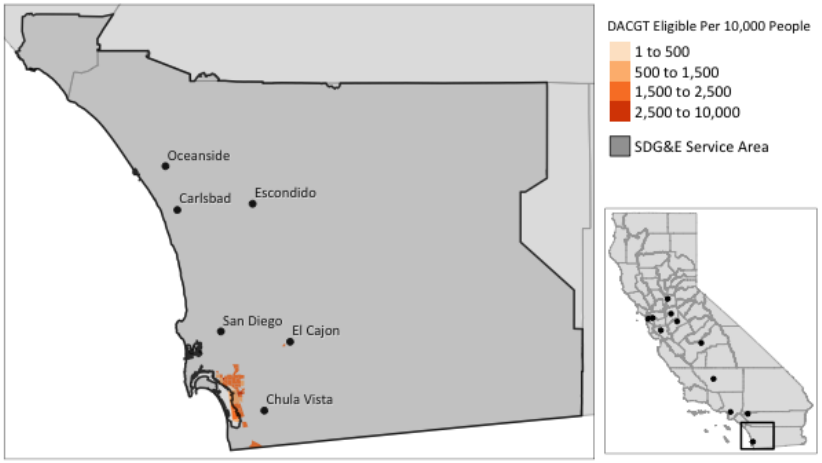


## Figure 27: SCE Program Eligible Estimates by Census Tract



## Figure 28: SDG&E Program Eligible Estimates by Census Tract



# Appendix F: Study Findings by Metric

This evaluation is guided by program logic models and associated metrics to measure program success, which Evergreen developed early in the study. In this section, findings are organized by the following categories:

- Capacity procured and online (metrics C1 through C5)
- Program marketing and enrollment (metrics E1 through E2)
- Customer Participation (metrics P1 through P5)
- Customer Satisfaction (metrics S1 through S4)
- Customer Bill Impacts (metrics B1 through B2)
- Environmental Benefits (metrics E1 through E3)
- Local Jobs and Training (CSGT only) (metrics J1 through J3)

A high-level summary of the results for each metric is shown in a table proceeding the discussion of each metric category.

## Capacity Procured and Online

**Table 36: Measurement of Metrics Based on Evaluation Data Collected and Questions to Consider Improving Metrics in the Future**

| Program Outcome Metric | Outcomes | Measurement of Metric Based on Evaluation Data Collected |
|---|---|---|
| C1. Capacity procured and online by program PA | CS: O.4, S.2<br>DAC: O.3, S.1 | At the time of this research no capacity was online other than RPS-eligible interim resources. |
| C2. Number of bids received per RFO | CS: O.3<br>DAC: O.2 | For DAC-GT: Contracts were awarded from only two of ten rounds of solicitations for DAC-GT across PAs. A total of six projects were contracted.<br>For CSGT: Contracts were awarded from three of ten rounds of solicitations across PAs. A total of five projects were contracted. |
| C3. Number and type of project sponsors (CSGT only) | CS: O.2 | Nine project sponsors were associated with PG&E CSGT projects, and two with SCE CSGT projects. Most were educational entities, 2 were chambers of commerce, 2 were community services districts, 2 were non-profits, and 1 was a government department. |

| | | |
|---|---|---|
| C4. Results from program in both costs and benefits: number of MW installed/costs | CS: S.2<br>DAC: S.1 | Not able to determine as only interim resources are being utilized and we lack MW cost data. |
| C5. Results from program costs to non-program PV | CS: S.2<br>DAC: S.1 | Not able to determine as only interim resources are being utilized and we lack MW cost data. |

## *C1. Capacity Procured and Online by Program and PA*

Table 37 documents the eligible renewable energy system capacity currently under contract for each PA relative to total capacity allocations. Evergreen also tracked the customer subscription status associated with each resource under contract for DAC-GT. When this research was conducted, no customers were actively subscribed to CSGT. PAs that are using existing resources to serve customers are shown in Table 37 with a value in the 'RPS Capacity as of Q2 2021' column.

**Table 37: Allocated and Awarded DAC-GT Capacities by PA**

| | DAC-GT | | | | | CSGT | | |
|---|---|---|---|---|---|---|---|---|
| PA | Allocation (MW) | # Awarded Projects | Capacity Contracted (MW) | Customers Enrolled* | RPS Capacity as of Q2 2021 | Allocation (MW) | # Awarded Projects | Capacity Contracted (MW) |
| PG&E | 54.82 | 6 | 28.76 | 13,760 | 54.82 | 14.20 | 4 | 9 |
| SCE | 56.5 | | | | | 14.63 | 1 | 3 |
| SDG&E | 18 | | | | | 5 | | |
| CPA | 12.19 | | | 528 | 12.19 | 3.13 | | |
| EBCE | 5.726 | | | | | 1.5625 | | |
| MCE | 4.646 | | | | | 1.2825 | | |
| CPSF | 1.826 | | | | | .5525 | | |
| SJCE | 1.736 | | | | | | | |
| PCE | 1.236 | | | | | .4025 | | |

Source: PAs' Q2 2021 program reports to the CPUC.

A project-by-project breakdown of capacity is presented for PG&E (Table 38) and SCE (Table 39).

Table 38: PG&E Project Location, Capacity, and Milestones

| Project Name | Project Location | DAC-GT or CSGT? | Capacity (MW) | Planned Start Date | Planned Production Date |
|---|---|---|---|---|---|
| Highway 43 | Shafter | DAC-GT | 2.25 | 3/15/23 | 9/15/23 |
| Kern Sunset | Bakersfield | DAC-GT | 2.4 | 3/15/23 | 9/15/23 |
| Beard | McKittrick | CSGT | 2.25 | 3/15/23 | 9/15/23 |
| Rocha | Bakersfield | CSGT | 2 | 3/15/23 | 9/15/23 |
| Gonzalez | Reedley | CSGT | 1.75 | 3/15/23 | 9/15/23 |
| Nachtigall | Wasco | DAC-GT | 4.66 | 1/7/22 | 3/31/22 |
| Pistachio Road | Lost Hills | DAC-GT | 4.79 | 1/7/22 | 5/5/22 |
| Terry | Wasco | DAC-GT | 4.66 | 1/7/22 | 3/29/22 |
| Fresno Disadvantaged Community Solar Project | Fresno | DAC-GT | 10 | 5/10/22 | 11/10/22 |
| Tulare CSG | Corcoran | CSGT | 2 | 2/28/22 | 8/31/22 |

Table 39: SCE Project Location, Capacity, and Milestones

| Project Name | Project Location | DAC-GT or CSGT? | Capacity (MW) | Planned Start Date | Planned Production Date |
|---|---|---|---|---|---|
| Visalia Solar | Visalia | CSGT | 3 | Unknown | 10/1/22 |

## *C2. Number of Bids Received Per RFO*

Currently, four PAs (PG&E, SDG&E, SCE, and CPA) have conducted solicitations for the DAC-GT and/or CSGT programs. Evergreen requested data from PAs about the number of bids they received for each solicitation conducted for both DAC-GT and CSGT. These data are summarized in Table 40 and Table 41.

**Table 40: DAC-GT Bids Received by PA and Solicitation**

| Program Administrator | RFO | # Responses | # Contracts Awarded |
|---|---|---|---|
| PG&E | Spring 2020 | 6* | 2 |
| | Fall 2020 | 5* | 4 |
| SCE | Spring 2020 | 6 | 0 |
| | Fall 2020 | 5 | 0 |
| | Spring 2021 | 3 | 0 |
| SDG&E | Spring 2020 | 0 | 0 |
| | Fall 2020 | 0 | 0 |
| | Spring 2021 | 0 | 0 |
| CPA | Spring 2021 | 1 | 0 |

*Only conforming bids were reported to the study team by PG&E, while both conforming and non-conforming bids were reported by SCE.

**Table 41: CSGT Bids Received by PA and Solicitation**

| Program Administrator | RFO | # Responses | # Contracts Awarded |
|---|---|---|---|
| PG&E | Spring 2020 | 5* | 3 |
| | Fall 2020 | 2* | 1 |
| SCE | Spring 2020 | 3 | 1 |
| | Fall 2020 | 0 | 0 |
| | Spring 2021 | 0 | 0 |
| SDG&E | Spring 2020 | 0 | 0 |
| | Fall 2020 | 0 | 0 |
| | Spring 2021 | 0 | 0 |
| CPA | Spring 2021 | 2 | 0 |

*Only conforming bids were reported to the study team by PG&E, while both conforming and non-conforming bids were reported by SCE.

While PG&E has seen modest success in its solicitations, other PAs have had less success. In some cases, no responses were received to solicitations (i.e., SDG&E and SCE). In other cases, bids were received, but were non-conforming (i.e., SCE).

Independent evaluator reports for SCE and PG&E solicitations offered some initial thoughts on potential barriers to the success of these solicitations. Independent evaluator reports for SCE attributed the absence of responses to solicitations to market uncertainty because of the COVID-19 pandemic.[46]

In the case of PG&E, the independent evaluator report for the spring 2020 solicitation concluded that unclear solicitation materials created "a fairness issue with how some participants were treated" and "were insufficiently clear" with regards to interconnection requirements. PG&E's outreach was found to be adequately distributed, which consisted of email outreach to a contact list of potential developers and direct telephone contacts to solar PV developers who participated in previous solicitations.[47] For the fall 2020 solicitation, the independent evaluator found that solicitation clarity was "substantially improved," though they disagreed with PG&E about assumed input upgrade costs used to evaluate the cost of proposals.[48]

Interviews with various stakeholders in the solicitation provided additional insight into what might account for the limited responses to solicitations. The two awarded developers who were interviewed highlighted potential barriers for other firms to bid, including that:

- Finding suitable land that can be developed cost-effectively is difficult to find;
- The types of development that would be easier to site (such as rooftop solar) are too expensive;
- Project maximum capacities are too small to be attractive for many firms; and
- RFO timeframes are too restrictive unless siting and interconnection are already in progress ahead of time.

In the web survey we conducted with solar developers from PAs' contact lists, we aimed to test a number of explanations for why developer responses to solicitations have been limited or absent, including those listed above, as well as the possibility that program outreach and knowledge is not effectively reaching solar developers. The following possible explanations for low bidder response are reviewed in the remainder of this subsection:

[46] Accion Group. September 18, 2020. *Report of the Independent Evaluator Regarding Southern California Electric's 2020 Disadvantaged Communities-Green Tariff ("DAC-GT") and Community Solar Green Tariff ("DAC-CSGT") Request for Offers ("RFO")*. Found in Advice Letter 4297-E.

[47] Arroyo Seco Consulting. November 5, 2020. *Pacific Gas and Electric Company Spring 2020 Disadvantaged Communities Request for Offers – Report of the Independent Evaluator of Five Renewable Energy Contracts with FFP CA Community Solar, LLC*. Found in Advice Letter 5996-E.

[48] Arroyo Seco Consulting. June 8, 2021. *Pacific Gas and Electric Company Spring 2020 Disadvantaged Communities Request for Offers – Report of the Independent Evaluator of Five Renewable Energy Contracts*. Found in Advice Letter 6229-E.

- Issues with accuracy of outreach lists
- General awareness among solar developers of the opportunities to submit a response to an RFO
- Difficulties with siting
- Difficulties with cost
- Difficulties with timeline and interconnection

## *Accuracy of Outreach*

Solar developers who completed the survey were asked basic questions about their firm (such as firm size, typical project sizes and types developed, and firm age) to help us better understand the pool of developers who are being reached by PA outreach for Green Tariff solicitations. Overall, it seems that there are appropriate types of firms on the solicitation lists.

The solar developer firms we reached tended to be small, with most respondents from each PA contact list reporting having fewer than 50 employers on payroll (Figure 29). Developers also tended to have been founded from 10 to 25 or more years ago (Figure 30). These firms tended to be most likely to develop smaller projects of less than one to five MW or very large projects of 50 MW or larger (Figure 31), with commercial/industrial and community solar projects the most common types of projects that solar developers reported working on (Figure 32).

**Figure 29: Size of Surveyed Solar Developers by PA**

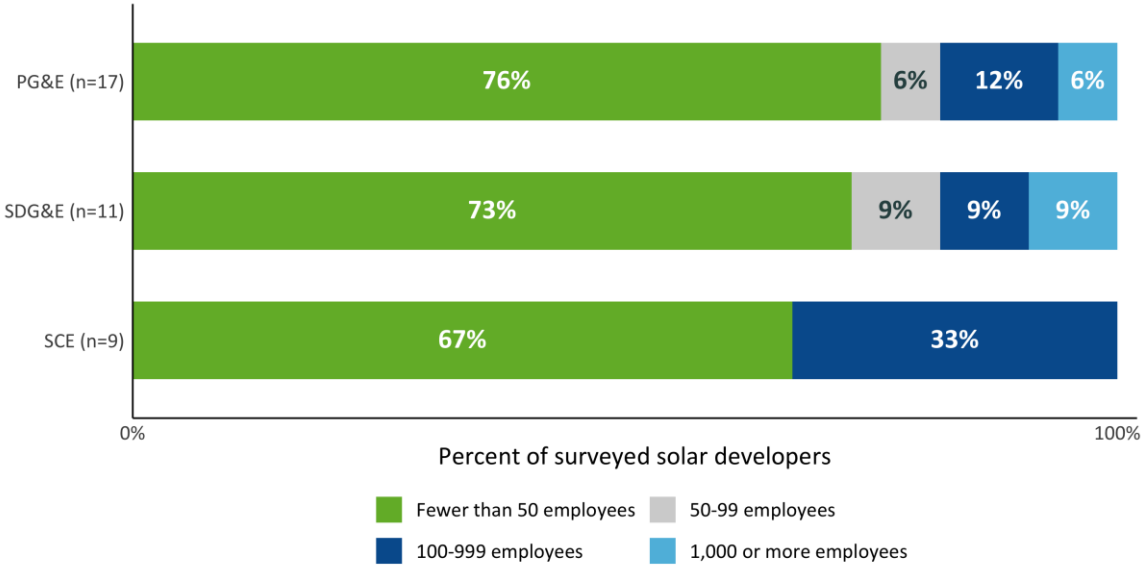


**Figure 30: Age of Surveyed Solar Developers by PA**

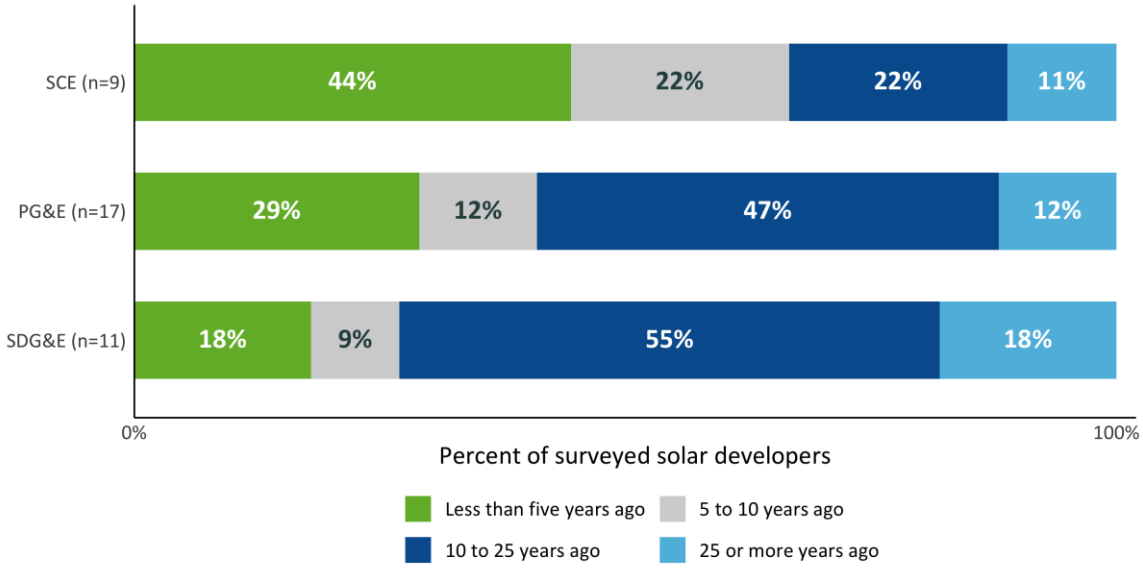
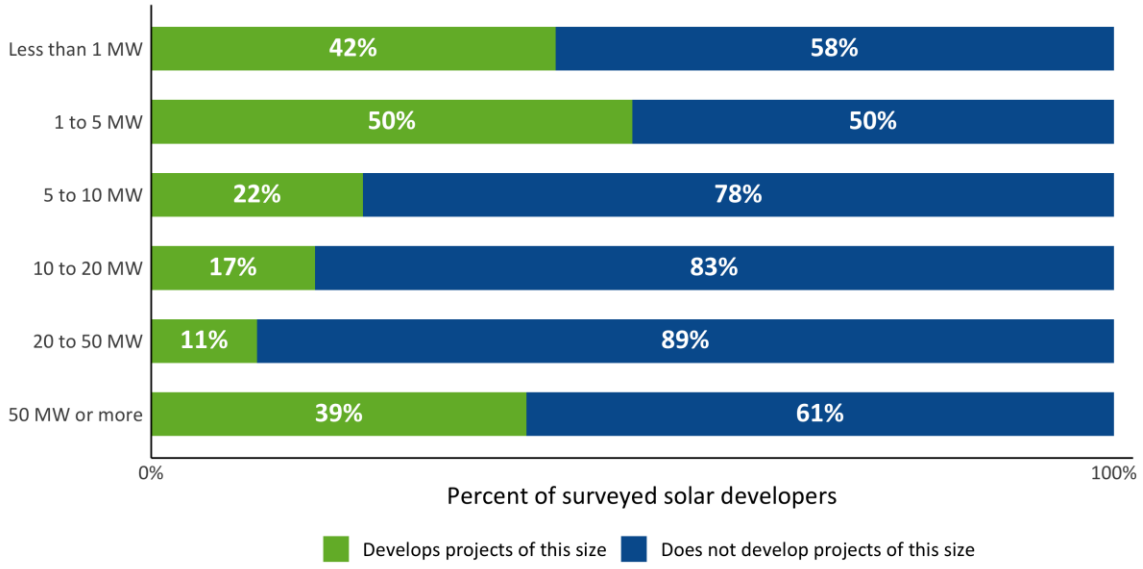
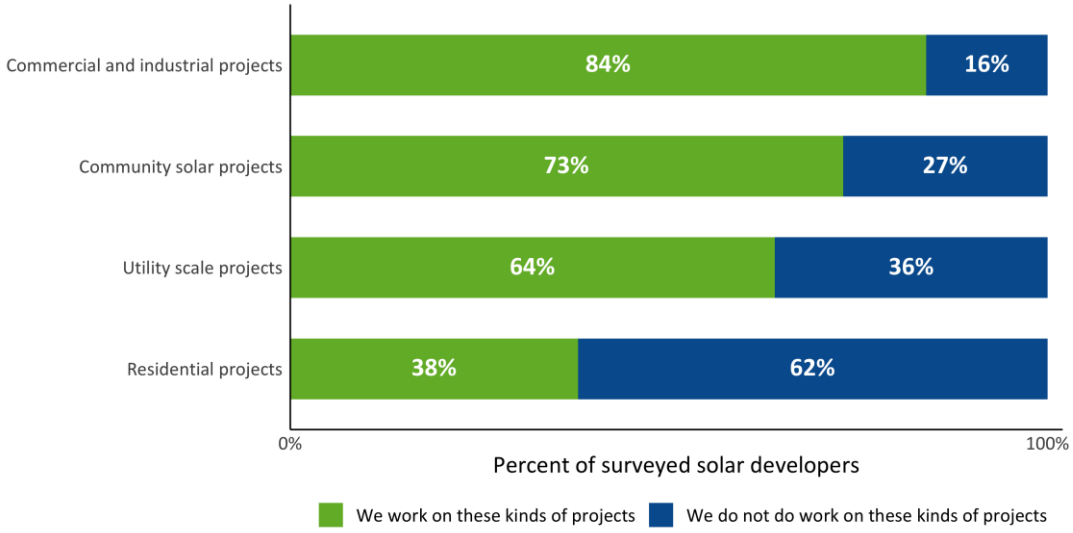



**Figure 31: Typical Project Sizes for Surveyed Developers (n=36)**




Of the developers who responded to our survey, 73 percent do work that would serve to qualify them for the CSGT program.

**Figure 32: Typical Project Types for Surveyed Developers (n=37)**



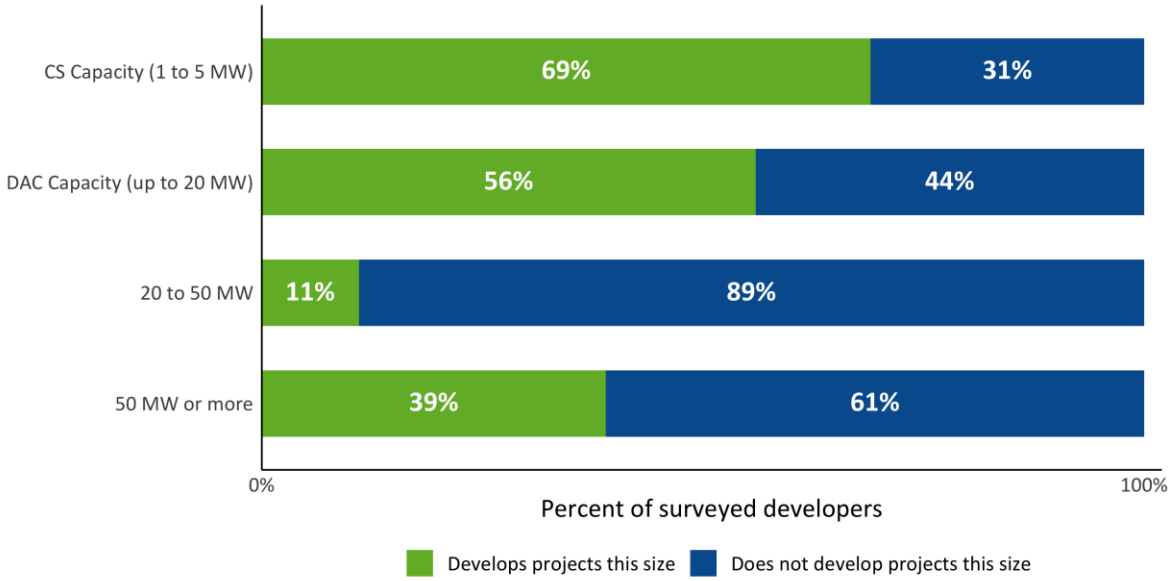

These results indicate that the solicitations are going to bidders that are somewhat experienced, have been around for five or more years (though this is less likely to be the case for SCE's list of developers), and work on projects of similar sizes to those requested in RFOs.

Specifically, the RFOs released so far by each PA offered the following capacity ranges summarized in Table 42. As shown in Figure 33, nearly 70 percent of surveyed developers indicated that they routinely develop sites within CSGT's capacity range, while 56 percent of surveyed developers routinely develop sites within DAC-GT's capacity range. Of the 16 developers that reported not routinely developing DAC-GT-size projects, nine indicated that they exclusively work on projects over 50 MW, while seven indicated that they work only on projects under 1 MW. This provides partial support for the claim that developers are drawn to larger projects (at least in the case of DAC-GT), but there may also be trends in the opposite direction. Overall, the data do not show that project capacity is posing a substantial barrier to investments in Green Tariff projects—rather, other factors are at play.

**Table 42: IOU Program Project Capacities**

| Program Administrator | DAC-GT Capacity Range | CSGT Capacity Range |
|---|---|---|
| PG&E | 0.5 – 20 MW | Up to 4.26 MW |
| SCE | 0.5 – 20 MW | Up to 4.39 MW |
| SDG&E | 0.5 – 18 MW | Up to 5 MW |

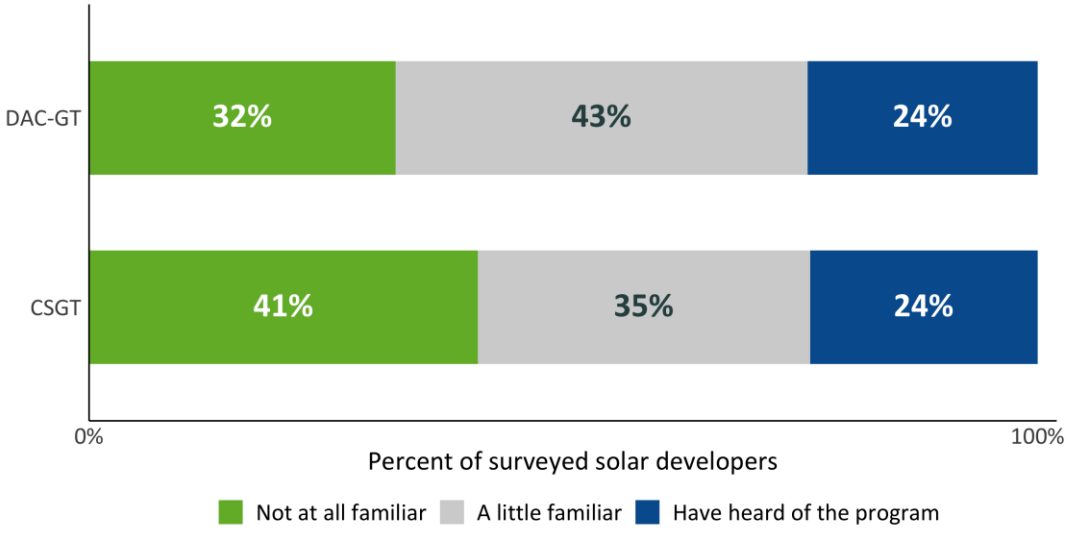
**Figure 33: Typical Project Capacities of Surveyed Developers (n=36)**




## *Awareness of the Green Tariff Programs and Solicitations*

Of the solar developers we reached, only 24 percent were confident that they knew what either of the programs were (Figure 34). A higher proportion of developers reported a complete unfamiliarity with CSGT, nine percentage points higher than for DAC-GT, suggesting that lack of awareness may be a larger barrier specifically for the CSGT program despite an equal number of released solicitations for DAC-GT and CSGT.

**Figure 34: Surveyed Solar Developer Familiarity with Green Tariff Programs (n=37)**



When broken down by PA contact list, solar developers on SDG&E's contact list were much more likely to be unfamiliar with either the DAC-GT and/or CSGT programs, with 55 percent of surveyed developers in SDG&E's service territory unfamiliar with DAC-GT (Figure 35) and 64 percent reporting being unfamiliar with CSGT (Figure 36). SCE respondents were the most likely to be familiar with both programs, though this could be an artifact of a small sample size. SCE also reported spending the majority of their allocated funding for ME&O in 2019 and 2020, and this may indicate that their spending on solicitation marketing helped increase awareness of the opportunity. Note that each of the PAs represented here has run the same number of solicitations (spring 2020, fall 2020, and spring 2021).

**Figure 35: Surveyed Developer Familiarity with DAC-GT by PA**

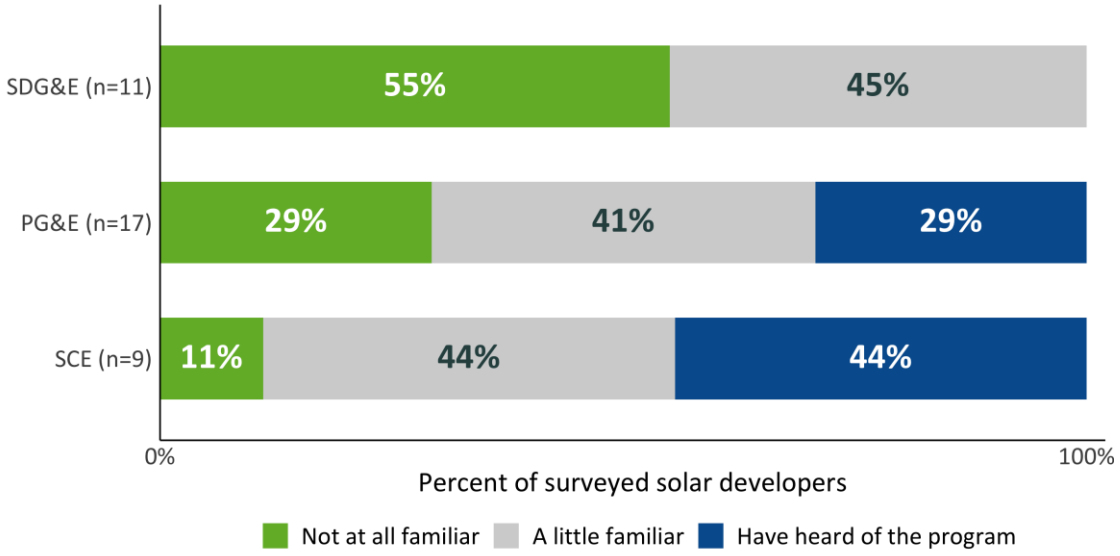
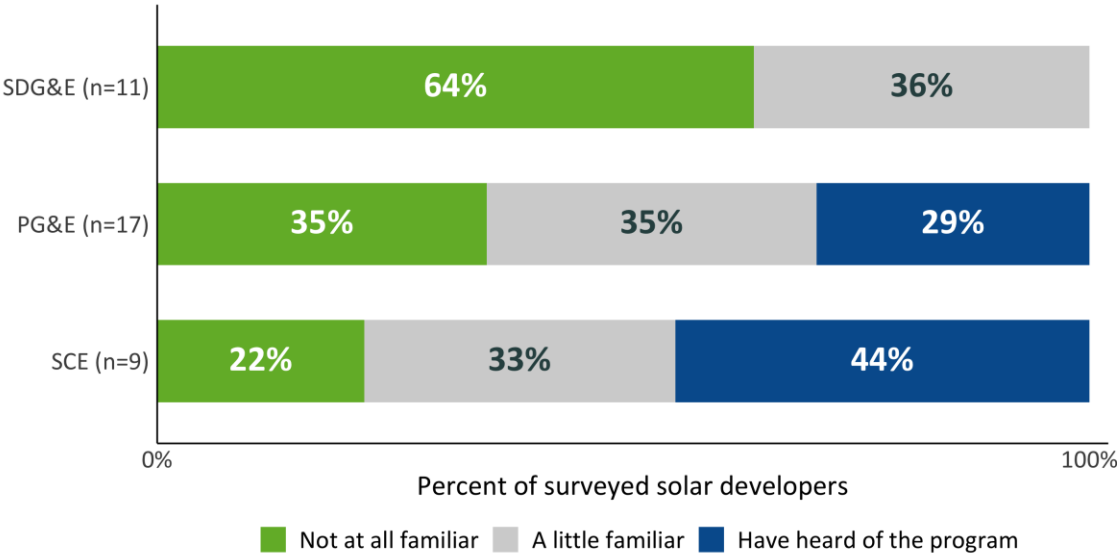



**Figure 36: Surveyed Developer Familiarity with CSGT by PA**



For solar developers who reported either a slight familiarity or full awareness of each program, we asked whether they had seen and/or reviewed a solicitation from a PA. For both programs, only a small fraction of surveyed developers reported both hearing about a solicitation and reviewing it to determine if they would be interested in bidding. For DAC-GT, only a quarter of developers (a total of nine individuals) reported that they had heard about a solicitation and reviewed the solicitation (Figure 37), while 22 percent (a total of seven individuals) reported reviewing a CSGT solicitation (Figure 38). These results indicate that low awareness and engagement of potential solar developers may be leading to a reduced number of bids.

**Figure 37: Surveyed Developers' Exposure to DAC-GT Solicitations (n=36)**

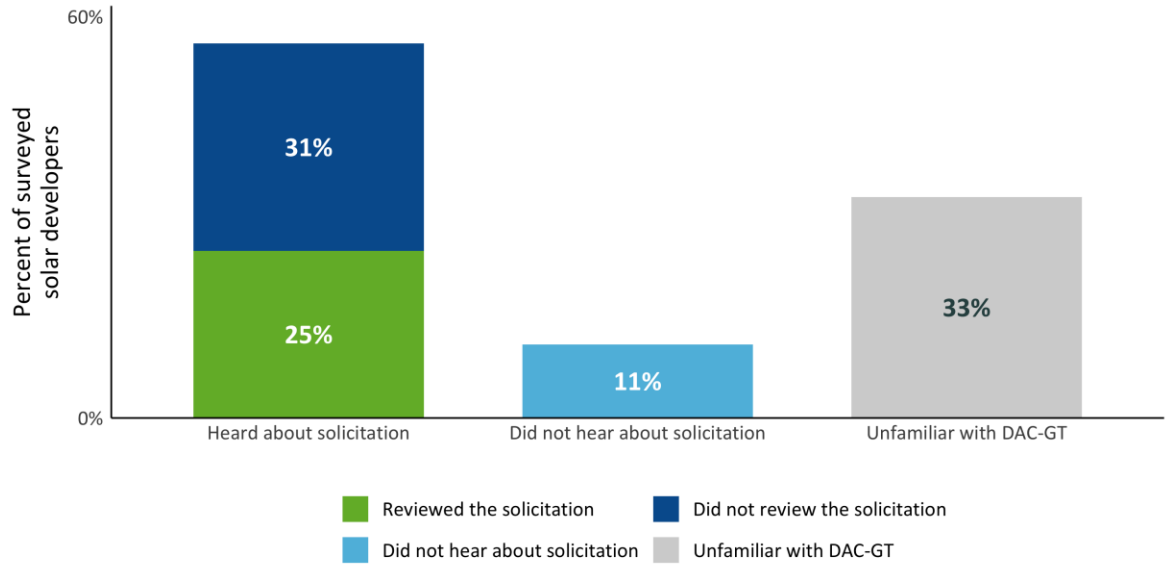
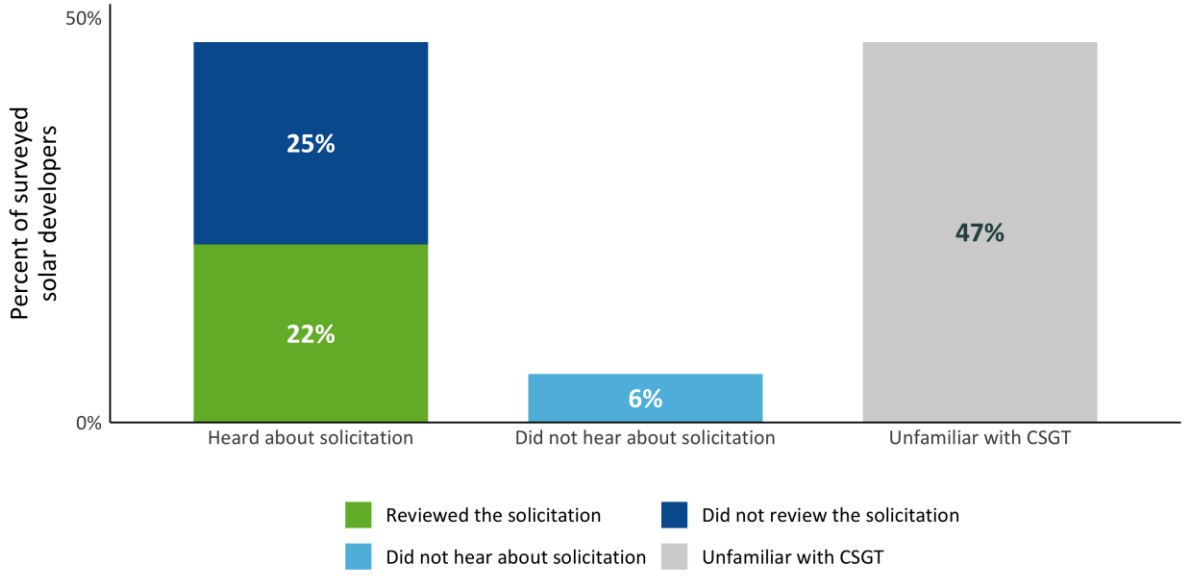



**Figure 38: Surveyed Developers' Exposure to CSGT Solicitations (n=33)**



Once determining the familiarity of surveyed developers with both the programs and their solicitations, further questions were asked of developers who had reviewed the solicitations to get their perspective on what worked or did not work about the solicitations and what makes the programs attractive.

Since these questions were asked of a small subset of developers, the proceeding results are presented through a more qualitative lens, serving as initial indications of ways that solar developers could be further motivated to engage with these programs rather than presenting firm conclusions.

The remainder of this section covers the following topics that came up in the web surveys with the nine developers who reviewed at least one DAC-GT solicitation and the seven developers who reviewed at least one CSGT solicitation:

- Difficulties with siting;
- Difficulties with costs; and
- Difficulties with timelines and interconnection.

Table 43 summarizes the degree to which each of these barriers was important to non-bidders and proved as difficult for bidders. Siting and interconnection appear to be the biggest difficulty in the context of this small sample, with the most developers who bid highlighting siting as difficult, with the most non-bidders highlighting siting and interconnection as important to their decision not to bid.

**Table 43: Importance of Barriers to Bidding for Non-Bidders and Bidders**

| | Non-Bidders (Importance in Decision Not to Bid)* | | Bidders (Degree of Difficulty During Bidding Process)** | |
|---|---|---|---|---|
| **Barriers** | **DAC-GT** | **CSGT*** ** | **DAC-GT** | **CSGT** |
| Siting | 1 of 6 | **2 of 3** | **1 of 3** | **2 of 2** |
| Cost | 2 of 6 | 1 of 2 | not asked | not asked |
| Timeline | 2 of 6 | 1 of 2 | 0 of 3 | 0 of 2 |
| Interconnection | **3 of 6** | **2 of 3** | 0 of 3 | 0 of 2 |

*Developers who rated a factor as “very” or “extremely” important to their decision not to bid are counted here.
**Developers who rated a factor as “very” or “extremely” difficult when bidding are counted here.
***Not all five CSGT non-bidders responded to each question. While five developers reported reviewing the RFO and not bidding, only two to three responded to these questions.

## *Difficulties with Siting*

Table 44 and Table 45 show that of the nine respondents who reviewed the DAC-GT RFO(s), only three submitted bids, and of the seven respondents who reviewed the CSGT RFO(s), only two submitted bids.

**Table 44: Surveyed Developers' Bidding Decisions - DAC-GT (n=9)**

| Program Administrator | Respondents who Reviewed DAC RFO | DAC Bidders | DAC Non-Bidders |
|---|---|---|---|
| PG&E | 4 | 1 | 3 |
| SCE | 4 | 2 | 2 |
| SDG&E | 1 | 0 | 1 |
| **Total** | **9** | **3** | **6** |

**Table 45: Surveyed Developers' Bidding Decisions - CSGT (n=7)**

| Program Administrator | Respondents who Reviewed CSGT RFO | CSGT Bidders | CSGT Non-Bidders |
|---|---|---|---|
| PG&E | 3 | 0 | 3 |
| SCE | 3 | 2 | 1 |
| SDG&E | 1 | 0 | 1 |
| **Total** | **7** | **2** | **5** |

Among the six contacts who chose not to bid after reviewing the DAC-GT RFOs, four indicated that siting concerns were moderately to extremely important in their decision to not bid, while one said they were not at all important and one did not respond.

Three non-bidders for DAC-GT offered reasons for their ratings, stating:

- "Sites we had under development were not in DACs." (PG&E contact list)
- "The land around most of the SCE substations are more developed than other California utilities; as a result, the land is more expensive." (SCE contact list)
- "We hoped more emphasis would be given to siting on brownfield sites in the DAC." (SDG&E contact list)

These quotes point to an issue with finding land to develop DAC projects, and the amount of time it takes to do so. The first comment reveals that the developer would be utilizing land *already in development* to bid on DAC-GT projects, but none of their land was eligible. This was the case for at least one of the awarded developers that we interviewed—they had the land already under development, and that land was in a DAC. That specific developer reported that if they had not already had the land in their portfolio and undergoing the interconnection process, there would not be enough time to prepare those resources for a potential bid.

For DAC bidders, there were mixed opinions on siting. One PG&E contact rated siting as "a little easy," while two SCE contacts rated siting as "very difficult" and "very easy" respectively. The developer who rated siting as "very easy" stated that they **"own a site in a DAC-GT census tract,"** reinforcing the idea that barriers may be lower for developers who already have land under development in an eligible location.

For CSGT, two of the five non-bidders (one from SCE's contact list and one from SDG&E's contact list) highlighted siting as a "very important" barrier to bidding, with one listing it as "not at all important" and two not responding to the question. The SCE contact who rated siting as very difficult highlighted that the number of DACs proximate to land suitable for solar is very limited in SCE's service territory, which is a barrier specifically for the CSGT program as it requires projects be built within five miles of the community that would benefit from it. Specifically, CSGT projects must be located in DACs within five miles of DAC(s) where subscribing customers reside or within 40 miles for SJV pilot communities. Projects may only be built in DACs that are within the five-mile buffer, rather than anywhere in the five-mile buffer. This was the same developer who pointed out for DAC-GT that land close to SCE substations is much more expensive to develop.

## *Difficulties with Cost*

Cost was another common barrier highlighted by DAC-GT non-bidders as an important reason for choosing not to bid (Table 46).

Table 46: DAC-GT Non-Bidders - Importance of Cost

| PA Contact List | Rating of Offer Timeline | Reason |
|---|---|---|
| PG&E | Slightly important | None given. |
| PG&E | Moderately important | "Securing tax equity for this size project can be difficult" |
| PG&E | Extremely important | "The rate to the developer is too low." |
| SCE | Very important | "SCE grossly overcharges to rewire from the solar site to the substation." |
| SCE | Not at all important | None given |
| SDG&E | Slightly important | None given |

Each developer points to different cost concerns, which collectively help to paint a picture of what economic concerns may be preventing developers from bidding, namely:

- The rate that is paid for delivered energy relative to development costs;
- Securing financing for projects; and
- The costs of integrating sites with substations.

Less detail was provided by CSGT non-bidders regarding costs of development, though one of the PG&E developers who also commented on DAC-GT pointed out again that the amount paid to developers for delivered energy is too low to warrant bidding.

## *Difficulties with Solicitation Timelines and Interconnection*

Difficulty meeting solicitation timelines was another common theme among developers who chose not to bid on DAC-GT and CSGT solicitations. Of the six contacts who chose not to bid on DAC-GT, two highlighted that the amount of time needed to secure interconnection was longer than the solicitation timeline:

- **"**We needed more time for the interconnection study" (SCE contact list)
- "Timing on interconnection was unclear" (PG&E contact list)

Four of the six DAC-GT non-bidders highlighted time constraints as important to some degree in their decision not to bid, with two respondents describing timeline as "extremely important" and two describing it as "moderately important." When elaborating on these ratings, one respondent explained that more time is necessary to prepare a bid:

- "It is difficult to know ahead of time how many MWs will be available at the next RFO. We don't want to spend the time and money to control a site and develop a site plan without know[ing] how many MWs will be available months ahead of time." (SCE contact list)

This comment suggests that unless appropriate sites are already controlled ahead of time by a developer, there is not sufficient time for developers to control a site after an RFO has already been released. When asked for ideal RFO timelines, two of the non-bidders who indicated timelines as important quoted **three to five months** as a preferred timeline, while one indicated **six to eight months.** Two developers went as far to say that if more time was offered for interconnection and siting, they would choose to bid on the project.

Of the three DAC-GT bidders, there were mixed opinions on how reasonable offer timelines were. One respondent characterized the timeline as "very unreasonable," while the second was neutral and the third found the timeline "somewhat reasonable." These respondents' views are characterized in Table 47.

**Table 47: DAC-GT Bidders' Views on Offer Timeline**

| PA | Rating of Offer Timeline | Reason |
|---|---|---|
| PG&E | Somewhat Reasonable | "Sufficient time to find sites and prepare bid." |
| SCE | Neither Reasonable nor Unreasonable | "The interconnection process then dictates whether the developer has a reasonable amount of time to develop the project." |
| SCE | Very Unreasonable | "The timelines for complying were short and very unreasonable." |

Interconnection was also a common reason cited as important in non-bidders' decision not to pursue DAC-GT solicitations. Of the six non-bidders, all but one indicated that interconnection was important to a degree. Specifically, three respondents said that interconnection issues were "extremely important," and two indicated that they were "moderately important." Four of these five respondents elaborated on this rating, sharing the following:

- "Somewhat unclear on the level of studies needed to bid." (SCE contact list)
- "Long time frame to get minimal assurance that a project is feasible." (PG&E contact list)
- "CAISO interconnect costs and complexities." (SDG&E contact list)

These replies point to interconnection as a complex, costly, and time-consuming process that played an important role in these developers' decisions not to bid on the Green Tariff programs. The issue of clarity in interconnection studies is one that was raised by the independent evaluator for PG&E, and likely refers to an issue where a Phase 2 interconnection study was required. This discrepancy in study requirements led to the "fairness issue" described in PG&E's fall 2020

evaluation and ultimately was addressed by the CPUC modifying the requirements so that only a system impact study is required.

Interestingly, the three DAC-GT bidders did not have the same point of view about interconnection. Two of the three found the interconnection process neither easy nor difficult, while the other found it somewhat easy (Table 48). These results point to interconnection as a barrier to bidding—those who bid on projects may be more likely to be prepared for interconnection and know what to expect from the process.

**Table 48: DAC Bidders' Views on Interconnection**

| PA Contact List | Rating of Interconnection | Reason |
|---|---|---|
| PG&E | Somewhat Easy | "We have deep experience working with PG&E and their interconnection process and team" |
| SCE | Neither Easy nor Difficult | "You need patience and the ability to deal with differing criteria for interconnection depending on who you are assigned to" |
| SCE | Neither Easy nor Difficult | "Interconnection is very straightforward." |

For CSGT, timelines and interconnection were less frequently cited as a factor preventing developers from bidding. Of the five CSGT non-bidders, only one (contacted via SCE's contact list) cited timeline as a "very important" factor in their choosing not to bid, while one (contacted via PG&E's contact list) cited it as "not at all important", with the other three not responding to the question regarding timeline. This was the case for bidders as well. Of the two CSGT bidders, one did not answer the question regarding timeline, while the other (from SCE's contact list) cited it as "neither reasonable nor unreasonable."

Interconnection proved to be relevant for CSGT as well as DAC-GT, with two of the five non-bidders (one from SDG&E's list and one from SCE's) highlighting interconnection as very important in their decision not to bid, and one developer from PG&E's list citing it as "moderately important." The other two non-bidders did not respond to the question. The reasons cited for difficulty with interconnection in CSGT were the same as for DAC-GT, with one respondent pointing to their earlier responses to the same questions for DAC-GT and the other saying that "it takes too long."

The fact that we were only able to reach a very small pool of developers to complete the survey despite conducting outreach to all contacts normally contacted during the solicitation process using the same communication method may suggest that email outreach is insufficient to reach and entice developers. This is reinforced by our finding that of the developers we did reach, only a

quarter were confident in their awareness of either program. Larger contact pools, more diverse marketing and communication methods, or both may be needed to overcome initial barriers of lack of awareness.

For aware developers who also viewed program solicitations, siting, timeline, interconnection, and cost of development were some of the largest barriers to submitting bids. Finding eligible land at an affordable cost is an issue raised by developers in the in-depth interviews. Having the land in one's portfolio beforehand and already having development and interconnection underway appear to be keys to success for at least one awarded developer—otherwise, solicitation timelines may not be sufficient.

## *C3. Number And Type of Project Sponsors (CSGT Only)*

The CSGT program differs from the DAC-GT program in that it incorporates a local sponsorship component. Proposed solar projects for the CSGT program must be accompanied by a letter of commitment from a local non-profit or government sponsor that does the following:

- Demonstrates the community members' substantial interest in enrolling in the program;
- Estimates the number of local subscribers and justifies that the project is sized to demand;
- Shows preliminary outreach and recruitment plans, and
- Shares siting preferences and verifies that the chosen site is consistent with community preference.

Sponsors are intended to be "a catalyst for the community and the project," and sponsors receive a 20 percent bill reduction after meeting a threshold of customer enrollment.

A total of 11 project sponsors have given their support across both PG&E's and SCE's contracted CSGT projects (Table 49). The types of organizations acting as community sponsors are primarily educational entities (e.g., public school districts and community colleges), chambers of commerce, and community service districts.

When PAs were asked about barriers to participation amongst community sponsors, two PAs mentioned that explaining the CSGT program to potential community sponsors was difficult, specifically with regards to the siting requirements of the program. Three PAs highlighted a lack of clarity in the roles and responsibilities expected of community sponsors in the original Decision establishing the program, making it difficult for sponsors to understand what their role would be. Other PAs expressed doubts that community sponsors would have sufficient incentive to perform outreach and enrollment, given that many community-based organizations (CBOs) have significant constraints on budget and capacity for work.

In interviews with awarded CSGT solar developers, it was reported that getting the attention of potential community sponsors proved to be challenging, as one of the contacts we spoke with said

they had not heard of the program, and one said the sponsors they did encounter did not have the time or expertise to be involved in promoting a solar project. One solar developer relied upon an organization they already knew to act as the main sponsor and introduce other organizations as sponsors, suggesting that having pre-existing connections was necessary in this specific case for sponsorship to occur. This main sponsor had built these connections during previous solar development work they had done in the surrounding area.

While three PAs described efforts to connect potential sponsors to developers, two had not begun solicitations, and sponsors involved with the PA that did engagement did not mention connecting with developers via the PA, but that they were contacted directly by the developer. In summary, there is mixed success for developers attempting to reach sponsors. More data are required to know whether PA involvement could help reduce these barriers.

In the solar developer survey, the two respondents who reported bidding on CSGT projects provided mixed reactions to finding a community sponsor. One of the bidders reported that they already were involved and partnered with interested organizations, while the other found that "there [were] few community sponsors with the capability to offer any assistance with the program." These responses point again toward the notion that existing partnerships and networks have been the path to successful sponsorship, while developing new partnerships proves to be challenging.

**Table 49: CSGT Project Sponsors by PA and Organization Type**

| Organization Type | PA | Count |
|---|---|---|
| Non-profit | SCE | 2 |
| Educational entities (school districts, colleges) | PG&E | 4 |
| Community services districts | PG&E | 2 |
| Chambers of commerce | PG&E | 2 |
| Government departments | PG&E | 1 |

## *C4. Results From Program in Both Costs and Benefits: Numbers of MW Installed/Costs*

This section first includes a summary of allocated funding compared to reported spending and then includes an analysis using *procured* MW. Though there are currently no MW *installed* besides the interim resources, we examined other metrics of budget efficiency, including average cost per MW procured (not installed), per customer enrolled in DAC-GT and per dollar of bill savings in 2020, in addition to ratios of actual to allocated budgets. These values were only calculated for

2020 as it was the first year in which customers were enrolled in the program and in which full budget data are available.

Actual program spending is under the budgeted amount on an annual basis, likely given the lower-than-expected solicitation response (Table 50). For DAC-GT in 2020, 86 percent of the allocated budget was spent. This can be attributed to overspending of $698,971 by PG&E that was later applied against the 2022 program budgets.[49] The bulk of budgeted funds across both programs in 2019 was allocated to IT (77%) and marketing funding (16%). In 2020, marketing accounted for the same share of allocated funds (16%), but IT accounted for 40 percent, as procurement (12%) and program management (13%) accounted for larger portions.

These budgetary figures are based on spending numbers reported by PAs with active programs (PG&E, SCE, SDG&E, and CPA) in yearly budget advice letters filed with the CPUC, as well as actual spending figures reported in those advice letters and in some cases further itemized in spending data directly submitted by PAs. To simplify this analysis, we only present spending through 2020. Itemized comparisons of budgets to actual spending across all PAs can be found in Table 51 and Table 52.

**Table 50: Budgeted Allocation Compared to Spending in 2019 and 2020**

| | DAC-GT | | CSGT | |
|---|---|---|---|---|
| **Category** | **2019** | **2020** | **2019** | **2020** |
| **Budgeted:** | | | | |
| Above Market Generation Costs | $0 | $221,644 | $0 | $0 |
| 20 Percent Bill Discount | $0 | $860,618 | $0 | $0 |
| Program Admin Costs | $2,265,804 | $1,341,253 | $201,228 | $3,510,836 |
| IT | $1,933,495 | $524,937 | $10,710 | $2,415,500 |
| Procurement | $107,038 | $392,167 | $164,418 | $484,686 |
| Program Management | $225,271 | $349,149 | $26,100 | $570,650 |
| Contact Centers | $0 | $75,000 | $0 | $40,000 |
| ME&O Funding | $225,775 | $706,819 | $274,075 | $424,650 |
| Broad-based marketing | $85,000 | $254,769 | $23,000 | $35,750 |
| Targeted marketing | $0.00 | $205,000 | $0.00 | $0.00 |
| CBO Outreach | $15,000 | $30,000 | $150,000.00 | $225,000.00 |

[49] Per PG&E Advice Letter 6075-E-A.

| Category | DAC-GT 2019 | DAC-GT 2020 | CSGT 2019 | CSGT 2020 |
|---|---|---|---|---|
| Research | $0.00 | $8,750 | $0.00 | $8,750 |
| Labor | $49,400 | $103,800 | $24,700.00 | $50,650 |
| Website | $76,375 | $104,500 | $76,375.00 | $109,500 |
| Independent Evaluator | $56,000 | $144,000 | $132,000 | $56,000 |
| **Budgeted Total** | **$2,547,579** | **$3,274,334** | **$607,303** | **$3,991,486** |
| **Reported Actual Spending*** | **$1,387,024** | **$2,829,876** | **$270,478** | **$1,386,114** |
| **Percent of Allocated Budget Spent** | **54%** | **86%** | **45%** | **35%** |

*This sum excludes SDG&E, which did not spend in 2020 except for procurement, which is itemized in the general rate case.

**Table 51: DAC-GT Budgeted v. Actual Spending in 2019 and 2020**

| Category | 2019 Estimate | 2019 Actual | 2019 % | 2020 Estimate | 2020 Actual | 2020 % |
|---|---|---|---|---|---|---|
| Above Market Generation Costs | $0 | $0 | 0% | $4,970,515 | $0 | 0% |
| 20 Percent Bill Discount | $0 | $0 | 0% | $669,852 | $0 | 0% |
| Program Admin Costs | $2,265,804 | $1,283,188 | 57% | $1,341,253 | $1,113,993 | 83% |
| IT | $1,933,495 | $1,161,165 | 60% | $524,937 | $867,592.73 | 165% |
| Procurement | $107,038 | $25,001 | 23% | $392,167 | $77,985 | 20% |
| Program Management | $225,271 | $97,022 | 43% | $349,149 | $103,968 | 30% |
| Contact Centers | $0 | $0 | 0% | $75,000 | $0 | 0% |
| ME&O Funding | $225,775 | $8,836 | 4% | $706,819 | $101,946 | 14% |
| Independent Evaluator | $56,000 | $0 | 0% | $144,000 | $0 | 0% |

**Table 52: CSGT Budgeted v. Actual Spending in 2019 and 2020**

| | 2019 | | | 2020 | | |
|---|---|---|---|---|---|---|
| **Category** | **Estimate** | **Actual** | **%** | **Estimate** | **Actual** | **%** |
| Above Market Generation Costs | $0 | $0 | 0% | $0 | $0 | 0% |
| 20 Percent Bill Discount | $0 | $0 | 0% | $0 | $0 | 0% |
| Program Admin Costs | $201,228 | $168,072 | 84% | $3,445,336 | $921,642 | 27% |
| IT | $10,710 | $96,515 | 901% | $2,415,500 | $744,805 | 31% |
| Procurement | $164,418 | $44,810 | 27% | $484,686 | $58,084 | 12% |
| Program Management | $26,100 | $26,747 | 102% | $570,650 | $118,753 | 21% |
| Contact Centers | $0 | $0 | 0% | $40,000 | $0 | 0% |
| ME&O Funding | $274,075 | $102,406 | 37% | $424,650 | $78,656 | 19% |
| Independent Evaluator | $56,000 | $0 | 0% | $144,000 | $0 | 0% |

For a more granular view of PA spending, Table 53 and Table 54 present itemized budgets versus actuals by PA for DAC-GT and CSGT. Only PG&E and SCE are shown here because they are the only PAs that reported spending in 2019 and 2020. Higher sums were allocated to PG&E compared to SCE for marketing and procurement in both 2019 and 2020, though the ratio of spending to budget was higher for SCE's marketing allocation than for PG&E across both years and programs. Since SCE did not spend funds on procurement in 2019, PG&E spent a larger sum in that year, though both PAs spent the same share of funds on procurement in 2020 (17%).

**Table 53: DAC-GT Itemized Budget v. Actual Spending by PA**

| Year | PA | | Program Administration | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Generation | Bill discount | IT | Procurement | Program Mgt | Contact Centers | Marketing | Independent Evaluator |
| 2019 | PG&E | Budget | $0 | $0 | $1,933,495 | $82,038 | $225,271 | $0 | $151,775 | $44,000 |
| | | Actual | $0 | $0 | $1,161,165 | $25,001 | $97,022 | $0 | $8,836 | $0 |
| | | % | 0% | 0% | 60% | 30% | 43% | 0% | 6% | 0% |
| | SCE | Budget | $0 | $0 | $0 | $25,000 | $0 | $0 | $74,000 | $44,000 |
| | | Actual | $0 | $0 | $0 | $0 | $0 | $0 | $95,000 | $0 |
| | | % | 0% | 0% | 0% | 0% | 0% | 0% | 128% | 0% |
| 2020 | PG&E | Budget | $217,546 | $841,755 | $299,937 | $189,667 | $55,687 | $75,000 | $288,800 | $44,000 |
| | | Actual | $867,593 | $744,979 | $922,830 | $68,756 | $96,239 | $9,210 | $1,365 | $0 |
| | | % | 399% | 89% | 308% | 36% | 173% | 12% | 0.5% | 0% |
| | SCE | Budget | $0 | $0 | $0 | $57,500 | $8,000 | $0 | $119,500 | $88,000 |
| | | Actual | $0 | $0 | $0 | $9,229 | $7,729 | $0 | $101,946 | $0 |
| | | % | 0% | 0% | 0% | 16% | 97% | 0% | 85% | 0% |

**Table 54: CSGT Itemized Budget v. Actual Spending by PA**

| Year | PA | | Program Administration | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Generation | Bill discount | IT | Procurement | Program Mgt | Contact Centers | Marketing | Independent Evaluator |
| 2019 | PG&E | Budget | $0 | $0 | $10,710 | $139,418 | $26,100 | $0 | $187,075 | $44,000 |
| | | Actual | $0 | $0 | $96,515 | $44,810 | $26,747 | $0 | $7,406 | $0 |
| | | % | 0% | 0% | 901% | 32% | 102% | 0% | 4% | 0% |
| | SCE | Budget | $0 | $0 | $0 | $25,000 | $0 | $0 | $87,000 | $0 |
| | | Actual | $0 | $0 | $0 | $0 | $0 | $0 | $95,000 | $0 |
| | | % | 0% | 0% | 0% | 0% | 0% | 0% | 109% | 0% |
| 2020 | PG&E | Budget | $0 | $0 | $2,153,000 | $282,186 | $343,283 | $40,000 | $279,400 | $44,000 |
| | | Actual | $0 | $0 | $744,805 | $48,101 | $112,295 | $0 | $1,007 | $0 |
| | | % | 0% | 0% | 35% | 17% | 33% | 0% | 0% | 0% |
| | SCE | Budget | $0 | $0 | $0 | $57,500 | $8,000 | $0 | $119,500 | $88,000 |
| | | Actual | $0 | $0 | $0 | $9,983 | $6,458 | $0 | $77,649 | $0 |
| | | % | 0% | 0% | 0% | 17% | 81% | 0% | 65% | 0% |

Table 55 shows the budgeted versus actual bill discount spending for PG&E and CPA starting in 2020, which is the first year that budget was allocated to the bill discounts. Note that actual spending in 2021 is only through October 1 for PG&E and November 11 for CPA. While CPA spent more in 2020 than it was budgeted in 2020, it appears that it was tracking under the total budget for 2021.

**Table 55: Budgeted vs. Actual Bill Discount Spending for PG&E and CPA (using billing data) for DAC-GT Program**

| PA | Program Year | Budgeted | Actual (Billing Data) |
|---|---|---|---|
| PG&E | 2020 | $841,755 | $706,093 |
| | 2021 | $4,193,358 | $3,365,253 |
| CPA | 2020 | $18,863 | $33,039 |
| | 2021 | $324,591 | $30,129 |
| **Total** | | **$5,378,567** | **$4,134,514** |

In addition to looking at overall and itemized spending relative to budgets, we examined other metrics of budget efficiency, including average cost per MW *procured*, per customer enrolled in DAC-GT, and per dollar of bill savings in 2020. These values were only calculated for 2020 as it was the first year in which customers were enrolled in the program and in which full budget data are available. These values are listed below in Table 56.

More MW capacity was procured for CSGT (9 MW) compared to DAC-GT (4.65 MW) in 2020, which led to a lower cost per MW for CSGT than for DAC-GT. This is because more projects were procured for CSGT. Note that this cost is for *procured* MW, since no projects are currently online for DAC-GT and CSGT.

Specifically, $154,013 was spent per procured MW for CSGT compared to $608,575 per procured MW for DAC-GT. For DAC-GT, the overall cost per enrolled customer was almost $300, though the amount spent on marketing per customer was only $10.07. Overall, for every dollar of bill savings customers received due to enrolling in DAC-GT in 2020, 58 cents were spent from the DAC-GT budget. Because no bill savings or enrollments have yet occurred for CSGT, no values are presented for CSGT except for cost per MW procured. With the exception of marketing spend per customer, where SCE accounts for more of the spend than PG&E, PG&E accounts for the largest share of cost impacts displayed in Table 56 below.

**Table 56: DAC-GT and CSGT Budget Metrics, 2020**

| Metric | PA | DAC-GT | CSGT |
|---|---|---|---|
| Cost/MW procured | All PAs | $608,575 | $154,013 |
| | PG&E | $583,005 | $143,558 |
| | SCE | $20,430 | $10,454 |
| Cost/enrolled customer | All PAs | $275.95 | NA |
| | PG&E | $264.36 | NA |
| | SCE | $11.59 | NA |
| Marketing spend/enrolled customer | All PAs | $10.07 | NA |
| | PG&E | $0.13 | NA |
| | SCE | $9.26 | NA |
| Cost/dollar of bill savings | All PAs | $0.58 | NA |
| | PG&E | $0.56 | NA |
| | SCE | $0.02 | NA |
| Marketing spend/dollar of bill savings | All PAs | $0.02 | NA |
| | PG&E | < $0.01 | NA |
| | SCE | $0.02 | NA |
| Percent of budget spent | All PAs | 86% | 35% |
| | PG&E | 135% | NA |
| | SCE | 44% | NA |

## *C5. Comparison Of Program Costs to Non-Program Photovoltaics (PV)*

Given that there was no "steel in ground" at the time of evaluation and no information for the cost of MW to be installed, we were unable to compare program costs for PV to non-program PV. We had some early indications from interviews with solar developers that Green Tariff program projects may be more expensive compared to solar projects outside of these programs. In one interview, a developer described how trying to develop land for these projects in Southern California was not cost-effective, as any land near a substation is more expensive than can be justified by the selling price of solar energy per kWh. This struggle is likely not unique to the Green

Tariff programs but would be exacerbated by the fact that the programs' geographic requirements narrow options for suitable, cost-effective land to develop.

To evaluate how these programs stack up against NEM and NEM alternatives, it will be essential that in the future, evaluators have insight into the cost of MW installed. Because we do not have that information at this time, we are including guidance for how program comparisons could be done in future evaluations. Information on cost per installed MW could help answer:

1. How does this program compare to other solar related programs?
2. Are the MW cost caps appropriate?

After receiving information on cost per MW *installed,* we recommend comparing cost per MW and cost per customer served to those values for the following comparable programs:

- Disadvantaged Communities Single Family Solar Homes (DAC-SASH);
- Single-Family Affordable Solar Homes (SASH);
- Solar on Multifamily Affordable Housing (SOMAH);
- Multifamily Affordable Solar Homes (MASH); and
- Net Energy Metering 2.0 (NEM-2.0).

Each of these programs is described in the table on the following page. Evergreen did an initial review of the available data for comparable programs, noting additional information that would be useful but is not yet available. Table 57 provides a summary of these program offerings and sources we identified with budget metrics that could be useful for side-by-side comparison.

**Table 57: Renewable Program Descriptions and Budget Data Sources**

| Program | Description | Location of Solar | Incentive | Sources |
|---|---|---|---|---|
| DAC-GT | CARE-eligible customers in DACs | Solar project in any DAC within PA service territory | Bill discount | Yearly budget advice letters from PAs, Submitted program data |
| CSGT | CARE and non-CARE-eligible customers in DACs | Solar project within or up to five miles from DAC being served[50] | Bill discount | Yearly budget advice letters from PAs, Submitted program data |
| DAC-SASH | CARE-eligible owners of affordable single-family homes in DACs[51] | Installed on customer's rooftop | Fixed up-front incentives for solar installation | Semi-annual program progress reports submitted by PA to the CPUC[52] |
| SASH | CARE-eligible owners of affordable single-family homes[53] | Installed on customer's rooftop | Fixed up-front incentives for solar installation | Quarterly and semi-annual program progress reports submitted by PA to the CPUC |
| SOMAH | Residents of affordable multifamily housing in and outside of DACs[54] | Affordable multifamily housing property | Fixed up-front incentives for solar installation | Semi-annual progress and expense reports submitted by PA to the CPUC |
| MASH | Residents of affordable multifamily housing[55] | Affordable multifamily housing property | Fixed up-front incentives for solar installation | Semi-annual program progress reports submitted by PA to the CPUC |
| NEM 2.0 | Customers with renewable generation installed in their home[56] | Installed at customers' home | Bill credits for excess generation | Verdant NEM 2.0 Lookback Study[57] |

Table 58 provides some key budget metrics for each program, across the lifetime of the program. Unfortunately, we cannot currently compare the costs of *installed* MW from DAC-GT and CSGT against the other programs, as we only have the cost of procurement. Once projects are completed in the DAC-GT and CSGT programs, it should be feasible to compare $/MW installed against other renewable energy programs. These programs provide budget data at the application level or by customer served, but not both. Some additional research is needed to identify the number of customers that benefit from a single application in the SASH, SOMAH, and MASH programs before it would be feasible to compare the $/customer. Despite limited data on the NEM 2.0 program, we can see that the cost per customer is at least in the same order of magnitude as DAC-GT, at $230 and $276 per customer. As we will explain in the next table, some of the cost difference may be due to the maturity of the NEM 2.0 program and is not necessarily a sign that DAC-GT will continue to be more expensive per customer. The SASH program has a lifetime average installation cost of $6.4 million per MW, much higher than the $2.2 million per MW in MASH. However, the cost per application is much higher in MASH at $147,008 compared to $15,851 in SASH. This is likely due to the fact that over the lifetime of the program, MASH has installed more capacity as of Q2 2021 (56.88 MW) compared to SASH (30.83 MW), even though MASH has had fewer completed applications as of Q2 2021 (604) compared to SASH (4,750).

[50] Specifically, CSGT projects must be located in DACs within five-miles of DAC(s) where subscribing customers reside or within 40 miles for SJV pilot communities. Projects may only be built in DACs that are within the five-mile buffer, rather than anywhere in the five-mile buffer.

[51] "Solar in Disadvantaged Communities". CPUC. Accessed from https://www.cpuc.ca.gov/SolarInDACs/#DC_SASH

[52] "CSI Progress Reports". CPUC. Accessed from https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/demand-side-management/california-solar-initiative/csi-progress-reports

[53] "CSI Single Family Affordable Homes (SASH) Program". CPUC. Accessed from https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/demand-side-management/california-solar-initiative/csi-single-family-affordable-solar-homes-program

[54] "Solar on Multifamily Affordable Housing (SOMAH)". CPUC. Accessed from https://www.cpuc.ca.gov/somah

[55] "CSI Multifamily Affordable Homes (SASH) Program". CPUC. Accessed from https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/demand-side-management/california-solar-initiative/csi-multifamily-affordable-solar-housing-program

[56] "Net Energy Metering". CPUC. Accessed from https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/demand-side-management/net-energy-metering

[57] "Net Energy Metering 2.0 Lookback Study". Verdant, January 21, 2021. Accessed from https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/demand-side-management/net-energy-metering/net-energy-meeting-nem-2-evaluation

**Table 58: Budget Metrics for Renewable Energy Programs – Program Lifetime**

| Program | Lifetime $/MW Procured | $/MW Installed | MW/ Customer | $/ Customer | $/Application | MW/ Installed Application | % of Allocated Budget Spent |
|---|---|---|---|---|---|---|---|
| DAC-GT | $608,575 | | .00004 MW (.04 kW) | $275.95 | | | 86% |
| CSGT | $154,013 | | | | | | 35% |
| DAC-SASH | | $2,900,000 | | | $7,698 | .004 MW (4 kW) | 35% |
| SASH | | $6,400,000 | | | $15,851 | .001 MW (1 kW) | 30% |
| SOMAH | | $174,000,000 | | | $346,676 | .05 MW (50 kW) | 7% |
| MASH | | $2,200,000 | | | $147,008 | 0.137 MW (137 kW) | 17% |
| NEM 2.0* | | | | $229.67 | | | |

*Available NEM 2.0 reporting does not provide insight on the cost per MW capacity or ratios of spending to funding allocations.

We recommend that where programs have been in place long enough, budget metrics are split out so that the first five years are separated, as administrative costs are often higher in the beginning of program implementation. This can be seen for the SASH and MASH programs in Table 59 and Table 61. For other programs (such as SOMAH and DAC-SASH), available data are limited and data are not available for all time frames.

**Table 59: Budget Metrics for Renewable Energy Programs - First Five-Year Period**

| Program | $/MW Procured | $/MW Installed | $/ Customer | MW/ Customer | $/ Application | MW/ Installed Application | % Budget Spent |
|---|---|---|---|---|---|---|---|
| DAC-GT* | $608,575 | | $275.95 | .00004 MW | | | 86% |
| CSGT | $154,013 | | | | | | 35% |
| DAC-SASH | | $2.9 M | | | $7,698 | .004 MW | 35% |
| SASH | | $9.5 M | | | $20,536 | .003 MW | 33% |
| SOMAH | | $174 M | | | $346,676 | .05 MW | 7% |
| MASH | | $3.6 M | | | $192,782 | .07 MW | 23% |
| NEM 2.0* | | | | | | | |

*Available NEM 2.0 reporting does not provide insight on the cost per MW capacity or ratios of spending to funding allocations, nor changes in cost per customer over time.

**Table 60: Budget Metrics for Renewable Energy Programs - Second Five-Year Period**

| Program | $/MW Procured | $/MW Installed | $/ Customer | MW/ Customer | $/ Application | MW/ Installed Application | % Budget Spent |
|---|---|---|---|---|---|---|---|
| DAC-GT* | | | | | | | |
| CSGT | | | | | | | |
| DAC-SASH | | | | | | | |
| SASH | | $2,700,000 | | | $12,987 | .0007 MW | 35% |
| SOMAH | | | | | | | |
| MASH | | $1,700,000 | | | $85,639 | 0.125 MW | 15% |
| NEM 2.0* | | | | | | | |

# Program Marketing and Enrollment

**Table 61: Measurement of Metrics Based on Evaluation Data Collected and Questions to Consider Improving Metrics in the Future**

| Program Outcome Metric | Outcomes | Measurement of Metric Based on Evaluation Data Collected |
|---|---|---|
| E1. Share of enrolled customers aware of program and program marketing | CS: O.6, S.6<br>DAC: A.6, S.4 | Three quarters of CPA participants are aware of the rate that they are enrolled in, while less than half of PG&E participants are aware of the rate. |
| E2. Share of enrolled customers aware of specific program features | DAC: S.3, S.4 | Understanding of program features by aware participants of both PAs were high (68% to 87%), but understanding was generally greater for CPA participants, possibly because they had to learn about the program to become enrolled. |

## *E1 and E2. Share of Enrolled Customers Aware of Program, Program Marketing, and Features*

Evergreen solicited input from PAs, stakeholders, and customers on the effectiveness of active and automatic enrollment processes to understand ways that they might be improved going forward. Interviews with PAs regarding program marketing and enrollment effectiveness (including auto-enrollment) led to limited information as most PAs have not begun enrolling customers, with the exceptions of PG&E and CPA.

Some PAs expressed an intention to tailor marketing and outreach to specific areas and/or communities. Some potential strategies shared by PAs included:

- Providing marketing materials in languages appropriate to the languages commonly spoken in specific communities;
- Working with officials in cities to advertise program offerings to city residents; and
- Collaborating with sponsors and community organizations[58] to provide tailored outreach at a local, granular level.

By comparing customer survey responses from PG&E customers who were auto-enrolled in DAC-GT and from CPA DAC-GT customers who were not auto-enrolled, we can get a sense for the

[58] Thus far, CPA is the only PA to have collaborated with CBOs to implement the DAC-GT program. CPA collaborated with five CBOs across different communities to promote a variety of programs, including DAC-GT. CPA characterized CBOs as very enthusiastic about being involved in enrolling customers into the DAC-GT program because there is a lot of need in their communities.

different outcomes that may result from these two marketing strategies. Survey results allowed us to compare:

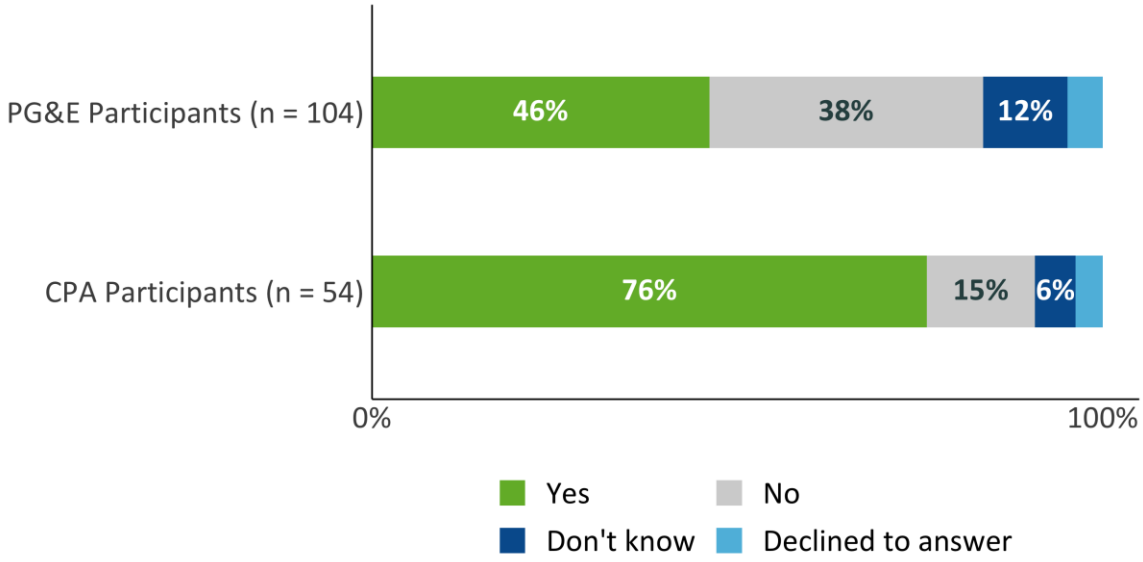
- Awareness of participation;
- Recalled types of information sources;
- Understanding of program elements; and
- Ease of enrollment.

Each of these topics is covered in the remainder of this subsection.

## *Awareness of Participation*

As expected, those who auto-enrolled were much more likely to be aware that they were enrolled in the DAC-GT program. Forty-six percent of PG&E respondents who were auto-enrolled were aware they were in the DAC-GT program compared to 76 percent of CPA participant respondents (Figure 39).

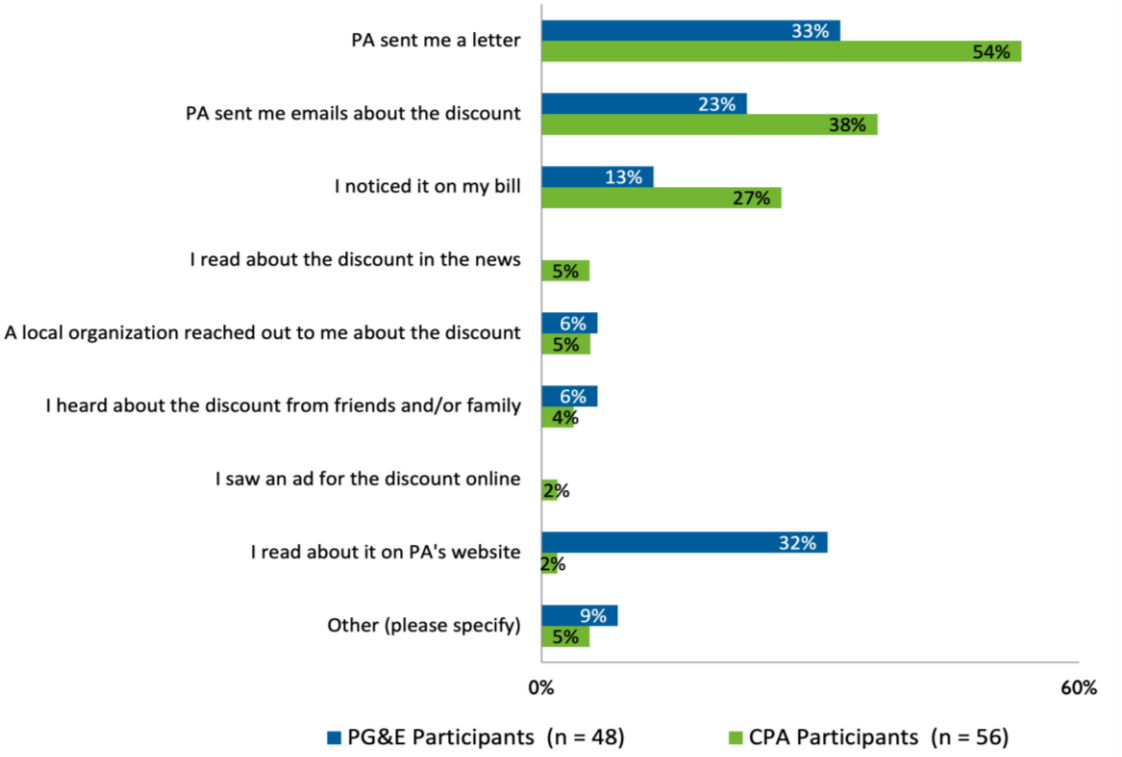
**Figure 39: Awareness of DAC-GT Program Amongst Participants**




## *Recalled Types of Information Sources*

Despite having different enrollment approaches, PG&E and CPA participants reported finding out about the DAC-GT program through similar sources such as email, letters, and PA websites, though PG&E participants were much more likely to have found out by going to the PA website than CPA participants were (Figure 40).

**Figure 40: Types of Notifications from Participants, Multiple Responses Allowed**



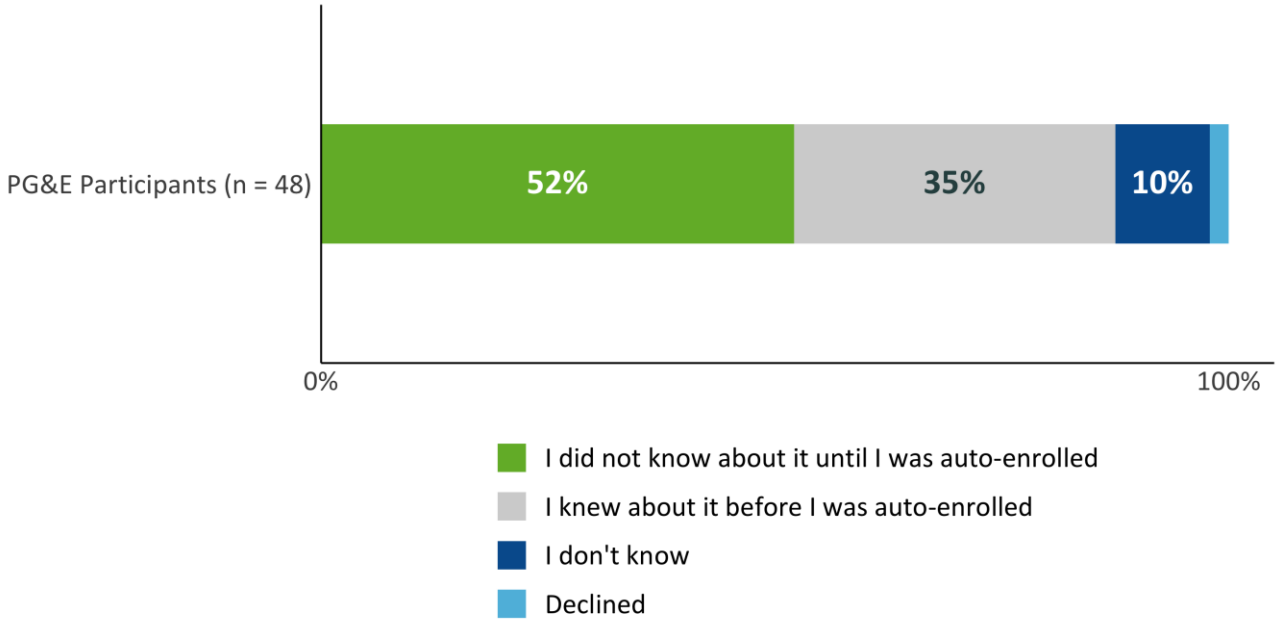

PG&E customers likely reported using the website more because 24 percent of PG&E respondents who were aware they were enrolled said they originally found out about the program by conducting research themselves (which would include going to the PA's website), and another 10 percent found out they were enrolled by noticing a change in their bill (Table 62).

**Table 62: How PG&E Participants Were Originally Notified About DAC-GT, Prompted, Multiple Responses Allowed (n=51)**

| Recollection about Notification | Percent |
|---|---|
| I received notification from PG&E | 49% |
| I found out by researching myself | 24% |
| I don't remember being notified | 12% |
| I noticed a change on my bill | 10% |

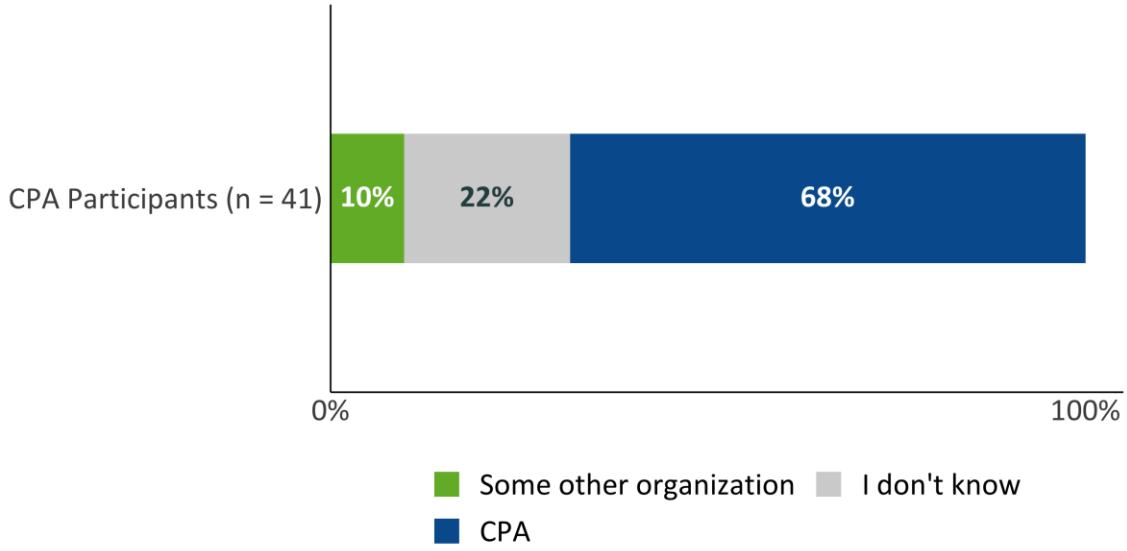
There also seemed to be some awareness of the program amongst PG&E participants *before* they were enrolled in the program, though close to half of respondents said they did not know until the enrollment had already occurred (Figure 41).

**Figure 41: Awareness of Auto-Enrollment in PG&E Participants (n=48)**




To understand the effects of marketing from CPA, we asked CPA participants how they had heard about the DAC-GT program. Most participants had heard about the program from CPA itself; however, 10 percent reported hearing about the DAC-GT program from "Some other organization" (Figure 42). We followed up with those who had heard from another organization; responses indicated that the other source was most often Southern California Edison.

**Figure 42: How CPA Participants Heard About DAC-GT (n = 41)**



## *Understanding of Program Elements*

To understand if program marketing and notification was having the effect of making customers aware of various program elements, we asked respondents if they were or were not aware of different program elements (Table 63). Across all program elements, CPA participants reported being aware of various program elements at a rate 7 to 10 percentage points higher than PG&E participants. This may be due to the way CPA customers were educated about the program through the enrollment process.

**Table 63: Participant Knowledge of Different Prompted Program Elements (n=80)**

| Element | % of Aware CPA Participants (n=38) | % of Aware PG&E Participants (n=44) | % of CPA Non-Participants Aware of Rate (n=13) |
|---|---|---|---|
| 20% bill discount | 87% | 80% | 69% |
| Offered to income eligible customers in specific communities | 82% | 73% | 69% |
| GHG reduction | 78% | 66% | 69% |
| Clean energy | 74% | 68% | 62% |
| Investments in local solar developments | 71% | 61% | 77% |
| Average knowledge level | 78% | 70% | 69% |

To understand which of the program elements resonated most with participants, we asked how important various program features were in CPA participants' decisions to enroll in the program. CPA participants most often reported that receiving the 20 percent bill discount was the most important element, followed by improving the health of Californians. These findings can be used to draft future marketing materials to relay the parts of the program that are most likely to resonate with possible participants (Table 64).

Table 64: Relative Importance of Different Program Aspects for CPA Parts (n=30)

| Prompted Program Element | Extremely Important | Very Important | Moderately important | Slightly Important | Not at all important |
|---|---|---|---|---|---|
| Receiving the 20 percent bill discount | 57% | 27% | 10% | 3% | 3% |
| Improving the health of Californians | 48% | 16% | 16% | 10% | 10% |
| Improving the health of your community | 45% | 26% | 13% | 6% | 10% |
| Reducing greenhouse gas emissions on a broader level | 43% | 27% | 13% | 10% | 7% |
| Receiving 100 percent clean energy | 33% | 33% | 23% | 7% | 3% |
| Supporting the development of local solar projects | 28% | 31% | 21% | 17% | 3% |
| Bringing jobs associated with solar developments to the state | 23% | 27% | 33% | 7% | 10% |

## *Ease of Enrollment*

While our survey results show that there is a greater awareness of program elements through self (rather than auto) enrollment, there is a tradeoff with regards to the ease of enrolling customers. Staff from PG&E, which auto-enrolled customers into DAC-GT, raised no difficulties or barriers to the auto-process with the exception of receiving some calls to their call center from customers who misunderstood the addition of the DAC-GT discount to their bill. They also likely spent less time and money on marketing to customers.

CPA, which required customers to enroll themselves, reported some potential difficulties in the online enrollment process (such as entering one's account number, which customers may not remember). CPA also reported that larger communities had lower percentages of enrollment, speculating that it could be due to increased difficulty in targeting messaging.

We asked participants about different aspects of the DAC-GT program they were enrolled in to gauge their awareness across multiple categories. Overall, CPA participants had a higher knowledge level across program aspects, on average, compared to aware PG&E participants and CPA non-participants.

Future program design will need to consider that there are tradeoffs between auto enrollment and customer enrollment. Program awareness is one component to consider, but this also must be weighed against the ability of auto-enrollment to reach certain customers and avoid barriers to participation.

## Customer Satisfaction

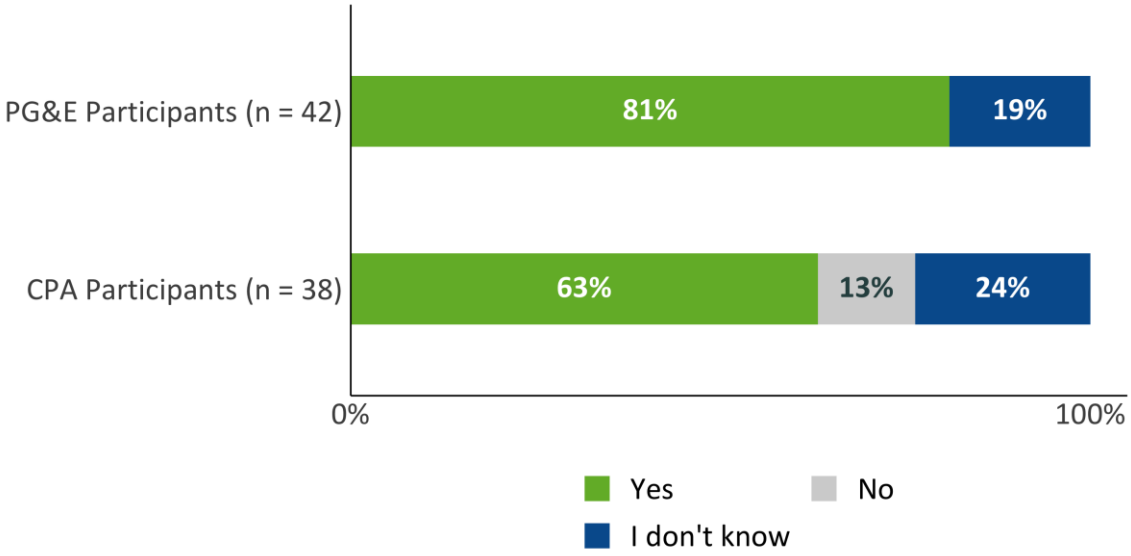
**Table 65: Measurement of Metrics Based on Evaluation Data Collected and Questions to Consider Improving Metrics in the Future**

| Program Outcome Metric | Outcomes | Measurement of Metric Based on Evaluation Data Collected |
|---|---|---|
| S3a. Share of program non-participants familiar with program | CS: M.4<br>DAC: M.1 | Just over a quarter of CPA DAC-GT non-participants were familiar with the program, though it is possible they confused the program with another bill discount program. |
| S3b. Share of non-participants that would consider enrolling in the program | CS: M.4<br>DAC: M.1 | 46 percent of CPA non-participants said they would consider future enrollment; 43 percent indicated that they were not sure. |
| S2. Share of non-auto-enrolled customers who found enrolling easy or difficult. | CS: S.5<br>DAC: S.4 | 32 percent of CPA participants found the process easy, and 28 percent found the process neither difficult nor easy. |
| S1. Share of enrolled customers satisfied with program offerings | CS: L.1<br>DAC: L.1 | 81 percent of PG&E participants and 63 percent of CPA participants were satisfied with the DAC-GT program. Only 13 percent of CPA participants (and no PG&E participants) who were aware of their participation reported that they were not satisfied. |

### *S1. Share of Enrolled Customers Satisfied with the DAC-GT Program*

Enrolled customers who were aware that they were participating in the DAC-GT program were asked about their overall satisfaction with the program thus far. Satisfaction was higher amongst PG&E respondents compared to CPA participants, though is not a statistically significant difference (Figure 43). We investigated whether the five (13%) CPA respondents who said they were not satisfied may have responded this way due to the enrollment process, since this differs between CPA and PG&E, but only one of four respondents to our follow-up question replied that enrollment was difficult.

**Figure 43: Aware Participant Satisfaction with Power Share or Green Saver Program (n=80)**




To help further understand why customers reported that they are satisfied with the program, we asked CPA and PG&E participants if they felt like they had benefitted from the DAC-GT program. The most frequent responses related to cost savings (82%) and environmental impacts (15%).

Eighty-two percent of respondents across both PG&E and CPA (n=53) gave a response about cost savings:

- "My bill is lower, so I have more money to spend on groceries for my kids."
- "I like that we are using solar power without having to have a solar system. The discount benefits us because summer costs were pretty high."
- "I see the discount on my bill."
- "Decreased my energy bill."
- "I am able to pay my bill and conserve energy in my home."
- "It has lowered cost on my electricity bill which greatly helps in time of need; specifically, during COVID times."

Fifteen percent of respondents cited 'positive environmental impacts' as another reason for their satisfaction:

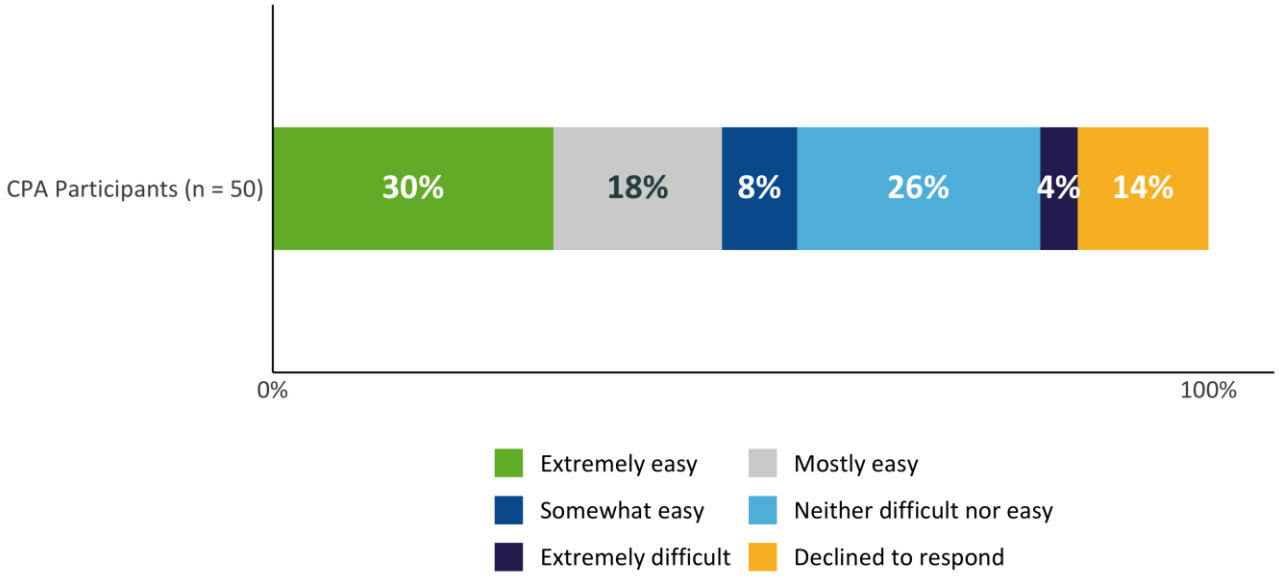
- "Not only does it discount my bill, it uses clean energy, which makes me feel great!"
- "The discount helps a lot, but knowing we are working towards more clean ways of powering our homes and businesses is very important."

- "Lower energy costs, feel better about my energy consumption."
- "I have always loved the idea of using renewable energy. If I owned my own home, I would invest in solar. Not only save money but not depend on other sources."
- "Financially. And it's important to have clean air, so that will help everyone. And it will help climate change."
- "Great and I'm for relying less on fossil fuels and more on green energy."

## *S2. Share Of Non-Auto-Enrolled Customers Who Found Enrolling to Be Easy*

Overall, most customers who were aware of their participation did not find the process to enroll in the CPA program to be difficult (Figure 44).

**Figure 44: Ease of Signing up for the DAC-GT for Aware CPA Participants**




The respondents who reported that the process was either somewhat or extremely difficult either were unaware that they signed up for the program saying either that they had not applied for it or that they thought that the program was the same as CARE. Two of the respondents who reported it was difficult noted that it was challenging to do without a computer or that the representatives they spoke with were "unaware of how billing works in terms of generation and distribution."

## *S3. Effectiveness Of Program in Addressing Barriers To Solar Adoption Facing Low-Income Customers*

To measure the effectiveness of the DAC-GT program in addressing barriers to solar adoption facing low-income customers, we measured:

- The share of program non-participants familiar with the DAC-GT program; and
- The share of non-participants that would consider enrolling in the DAC-GT program but have not yet done so.

### *a. The Share of Program Non-Participants Familiar with the DAC-GT Program*

Of the CPA non-participants we interviewed, just over a quarter had heard about the DAC-GT program, which we described as a 20 percent discount on their utility bill. Of the group that heard about the DAC-GT program, there was a wide variety of reasons why they did not sign up, which indicates that there is no single issue causing aware non-participants to not enroll. Reasons for not enrolling included that

- They did not have the right information to sign up (2 respondents);
- They did not feel they needed the discount (1);
- They forgot to sign up (1);
- They were not interested in renewable energy (1);
- Enrollment is inconvenient (1);
- They thought they were ineligible (1); and
- Other reasons (2).

### *b. The Share of Non-Participants That Would Consider Enrolling in the DAC-GT Program But Have Not Yet*

We also asked CPA non-participants who responded to our survey if they would consider signing up for the program in the future. Nearly half of the 37 respondents said yes (46%), and another 43 percent said they were not sure, indicating they would likely have to learn more about the program before deciding. The 11 percent of respondents who said they would not consider signing up declined to give any explanation for why they were uninterested.

## Customer Bill Impacts

**Table 66: Measurement of Metrics Based on Evaluation Data Collected and Questions to Consider Improving Metrics in the Future**

| Program Outcome Metric | Outcomes | Measurement of Metric Based on Evaluation Data Collected |
|---|---|---|
| B1. Changes in post participation energy usage | CS: M.2, L.1<br>DAC: M.3, L.1 | The increase in usage for PG&E participants was not statistically significant suggesting that thus far, the program has had little to no impact on energy usage. |

| | | |
|---|---|---|
| B2 and B3. Program bill discounts' impact on customer arrearages and bill payment behaviors | CS: M.2, L.1<br>DAC: M.3, L.1 | Median bill cost was lower for PG&E participants after DAC-GT enrollment. Regression modeling of billing data shows that the program significantly decreases participant bill costs. While we saw reduced arrearages for participants, we were not able to compare to non-participant data to tie to program activities. |

## *B1. Changes in Post Participation Energy Usage*

Evergreen analyzed PG&E participant and non-participant billing data to extrapolate trends between segments in customer data prior to conducting regression analyses. Table 67 shows summary statistics of interest including median daily usage for participants and non-participants during the period prior and during DAC-GT program enrollment. Notably, the median daily usage appeared to increase for both participants and non-participants.

**Table 67: PG&E Billing Data Summary**

| Program Admin | DAC-GT Participant | Pre or Post Program Period | Median Daily kWh Usage |
|---|---|---|---|
| PG&E (n=22,092) | Participant | Pre | 20.44 |
| | Participant | Post | 22.65 |
| | Non-Participant | Pre | 18.05 |
| | Non-Participant | Post | 23.04 |

Evergreen utilized fixed effects regression models with a matched comparison group to further understand changes in electricity consumption for PG&E DAC-GT program participants. The comparison group was used to help control for additional external factors that may be affecting energy use during the program implementation period, such as COVID-19 pandemic restrictions and gradual reopening.

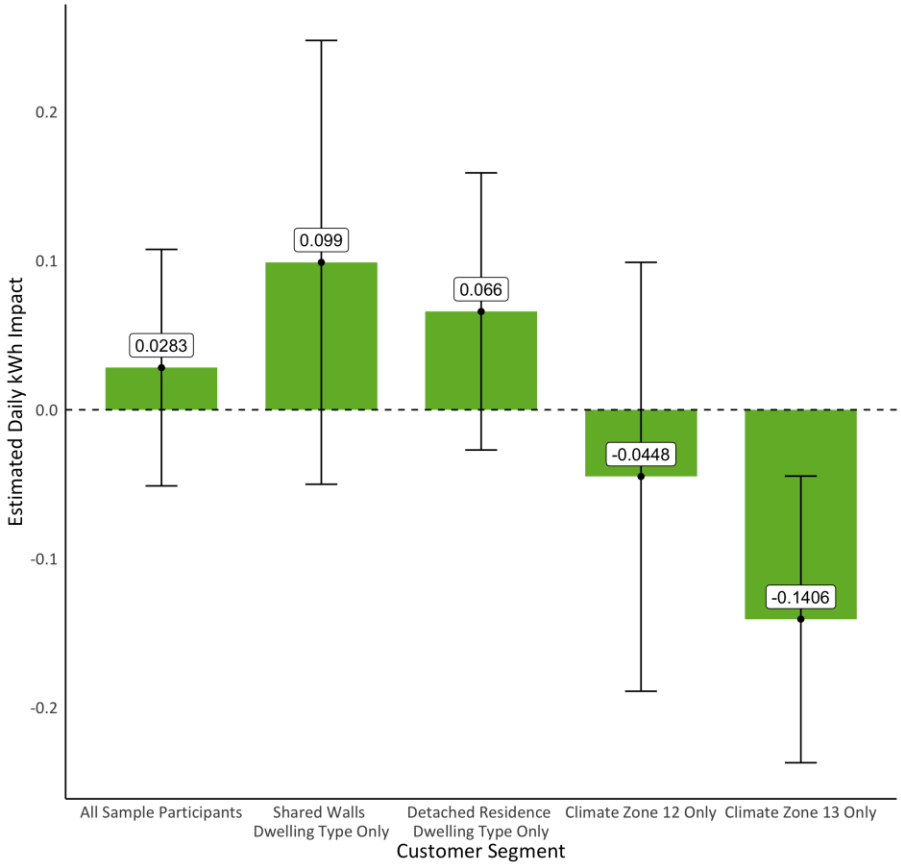
Figure 45 includes results of the regression model for electricity consumption. Metrics of note include the estimated change in energy usage attributed to the program (black point), and the 95 percent confidence interval estimate (black line). The statistical significance of each estimate is measured using the 95 percent confidence interval where an estimate is statistically significant if the confidence interval does not contain 0. In addition to the overall estimate, we estimated program impacts by dwelling type and climate zone to look for variation across customer segments. Full model outputs can be found in Appendix C: Detailed Regression Outputs.

Our model estimates a modest increase in energy usage attributable to DAC-GT participation of 0.028 kWh per day for PG&E participants; however, this estimate is not statistically significant. A

small increase in energy usage following a bill discount is not atypical in rate assistance programs and is not of great concern when the primary goal is to lower bills. Bill discounts make energy more affordable, which can lead customers to alter their behaviors in ways that would improve household comfort (e.g., setting thermostats to a more comfortable temperature, increasing energy usage for cooling). The program impacts were not statistically significant, despite a very large sample size (n=22,092)—this suggests that the program had little to no impact on energy usage.

Estimates of shared wall dwellings only and detached residence only customer segments resulted in larger energy usage values associated with DAC-GT participants of 0.099 and 0.066 kWh per day for PG&E participants. We were also interested in estimating program impacts in the two most represented CEC Building Climate Zones in our sample: climate zones 12 and 13. Climate zones are used to denote climate variations between regions, comparing the summer temperature ranges and numbers of heating and cooling degree days. Climate zones 12 and 13 represent the California Central Valley region stretching from Sacramento to Bakersfield. This region is typically characterized as energy intensive due to the high number of cooling and heating degree days compared with other climate zones. Our model estimated decreased energy usage values associated with PG&E DAC-GT participants in climate zones 12 and 13 with values of -0.0448 and -0.1406 kWh per day, respectively. Only the climate zone 13 estimate is statistically significant, as indicated by the confidence interval (black line) not overlapping with 0, but not statistically significantly different than the all-sample estimate This signifies that natural climate variation may be occurring in the post-period resulting in less cooling than in the pre-period.

**Figure 45: Program Participation Electricity Consumption Impacts**




## *B2. Monthly Bill Reductions*

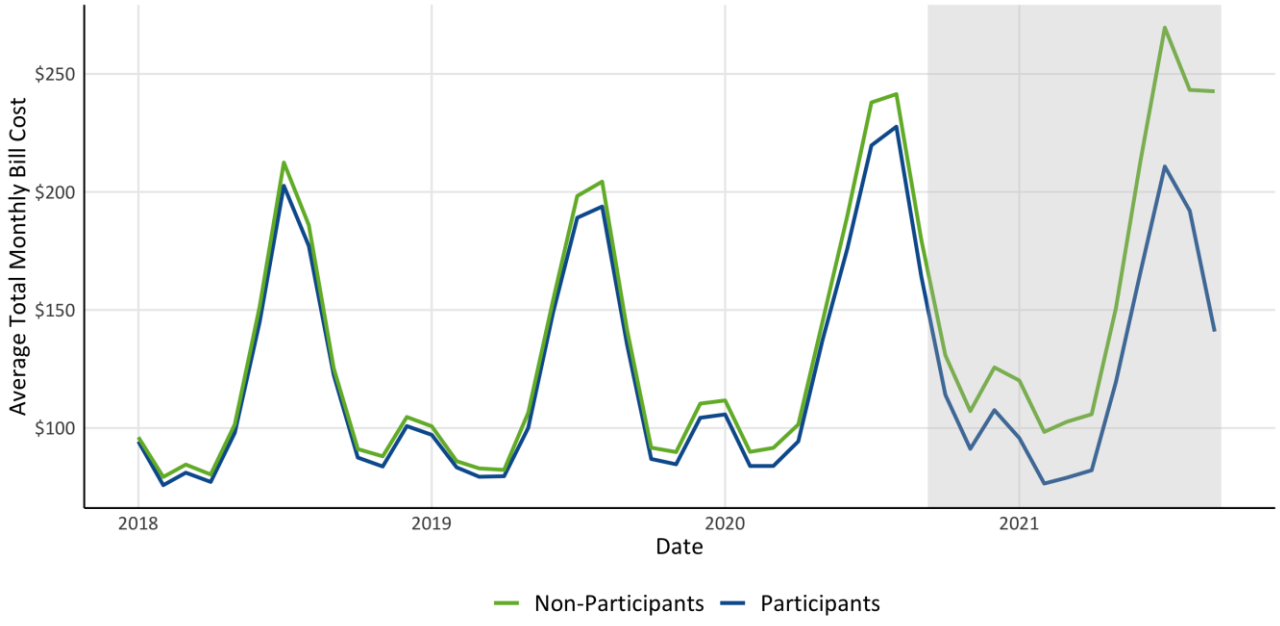
Evergreen analyzed PG&E participant and non-participant billing data to extrapolate trends between segments in customer data prior to conducting regression analyses. Table 68 shows summary statistics of interest including median daily bill cost and median daily usage for participants and non-participants during the period prior to and during DAC-GT program enrollment. Notably, the median bill cost decreases for participants during the post-period (program enrollment), while the median bill cost rises for non-participants during the post-period. This could indicate that the program discount is assisting some in paying their bills on time.

**Table 68: PG&E Billing Data Summary**

| Program Admin | DAC-GT Participant | Pre or Post Program Period | Median Daily Bill Cost ($) | Median Daily kWh Usage |
|---|---|---|---|---|
| PG&E (n=22,092) | Participant | Pre | $3.34 | 20.44 |
| | Participant | Post | $3.32 | 22.65 |
| | Non-Participant | Pre | $2.90 | 18.05 |
| | Non-Participant | Post | $5.44 | 23.04 |

Figure 46 examines the average total monthly bill cost across the study period for both non-participants (green) and participants (blue). The lines show an expected seasonal pattern where bill costs rise with winter heating and peak in the summer with cooling. The shaded area (grey) represents the program enrollment period. Also as expected, we observed a large gap in bill costs in this period where participant bill costs diverge from the non-participant peak, signaling lowered bill costs as the program takes effect.

**Figure 46: PG&E Average Monthly Bill Cost Change Over Time**



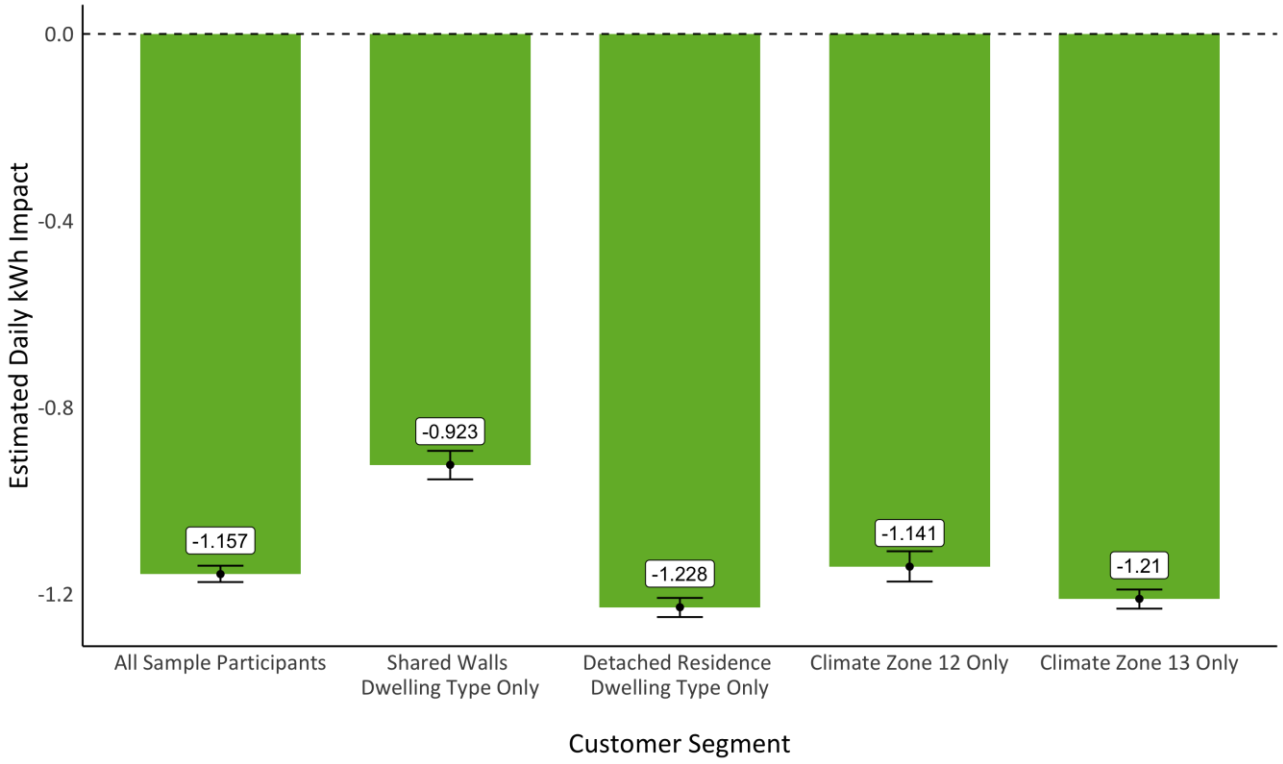

We also analyzed bill impacts to determine the impact of the bill credits on total bill amount. Once again, a fixed effects regression model was used to estimate these changes. A matched comparison group was utilized to control for the impact of external factors as with the electric consumption model (previous model).

Figure 47 reports the key results of the regression model for bill costs. The all-sample estimate for bill costs indicates that program participants experienced a statistically significant reduction in average daily bill costs of $1.16. The full regression output can be found in Appendix C: Detailed Regression Outputs.

For shared-wall dwellings, we observed a modest decrease to an estimated reduction in average daily bill costs of $0.92. Detached residence-only PG&E DAC-GT participants resulted in a larger average daily bill cost reduction of $1.23. Model estimates for climate zones 12 and 13 resulted in average daily bill cost reductions of $1.14 and $1.22, respectively. All estimates are statistically significant as denoted by estimate confidence intervals (black line) not overlapping with 0 (Figure 47). Thus, program participation had a significant impact in decreasing participant bill costs.

We determined that the average daily bill cost for participants prior to program enrollment was $4.04. For a 30-day billing period, this would translate to an average monthly bill cost of $121.20. Applying the all-sample participant estimate ($1.16 per day) to this average indicates a monthly bill cost reduction of 19 percent as a result of program participation.

**Figure 47: Program Participation Bill Cost Impacts**



## *B3. Program Bill Discounts' Impact on Customer Arrearages and Bill Payment Behaviors*

To investigate if the DAC-GT program helped to reduce arrearages for participating customers, we reviewed billing data to compare how many participants were in arrearages before and after participation. For PG&E participants, there appeared to be a decrease in the percentage of customers in arrearages, though we are unable to compare this to non-participants to see if the same trend happened overall for PG&E customers. We were also unable to review arrearages data from CPA participants and non-participants, though we believe a review of those data would be helpful to have as a comparison for future evaluations.

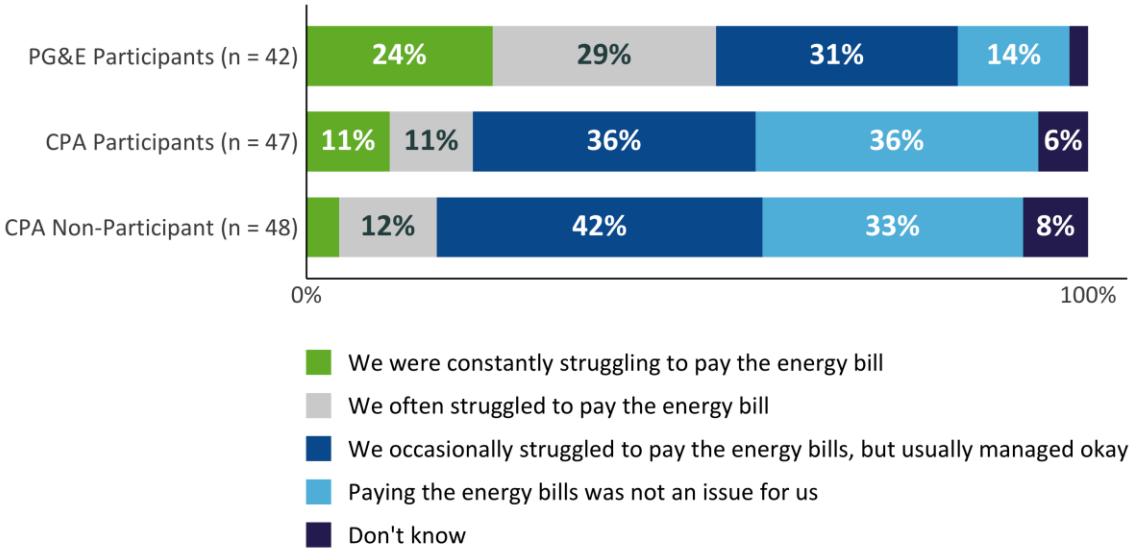
**Table 69: PG&E Billing Data Summary**

| Program Admin | DAC-GT Participant | Pre or Post Program Period | Percent of Participant Bills in Arrears |
|---|---|---|---|
| PG&E (n=22,092) | Participant | Pre | 87% |
| | Participant | Post | 82% |
| | Non-Participant | Pre | NA |
| | Non-Participant | Post | NA |

To understand if customers felt that they were able to better pay their bills after participation in the program, we first asked customers if they felt that they had trouble paying their bills *before* they received the reduced rate. PG&E participating customers were more likely to report that they struggled to pay their bills compared to CPA participating customers (Figure 48). This is likely due to the targeted way that PG&E identified customers to auto-enroll in the program who had arrearages, suggesting that the group that they auto-enrolled were already struggling with their bills.

Figure 48 also shows that customer survey respondents from CPA who enrolled in the program were more likely to say they were constantly struggling to pay their energy bills before the program participation period compared to the non-participants. This may explain why the CPA participants chose to go through the enrollment process.

**Figure 48: Difficulty in Paying Bills Before DAC-GT Program**




We asked participants how their ability to pay their home's energy bills changed *since* they were enrolled in the DAC-GT program. Responses indicated that 40 percent of CPA participants and 25 percent of PG&E participants reported struggling somewhat less or much less (Figure 49), though there are still participants who reported struggling more or having about the same ability to pay their bills. This can be attributed to a number of factors outside of the scope of this evaluation, though we did ask participants if they had spent more time at home since the start of the COVID-19 pandemic (Figure 50).

**Figure 49: Effect of Bill Discount on Ability to Pay Energy Bills**

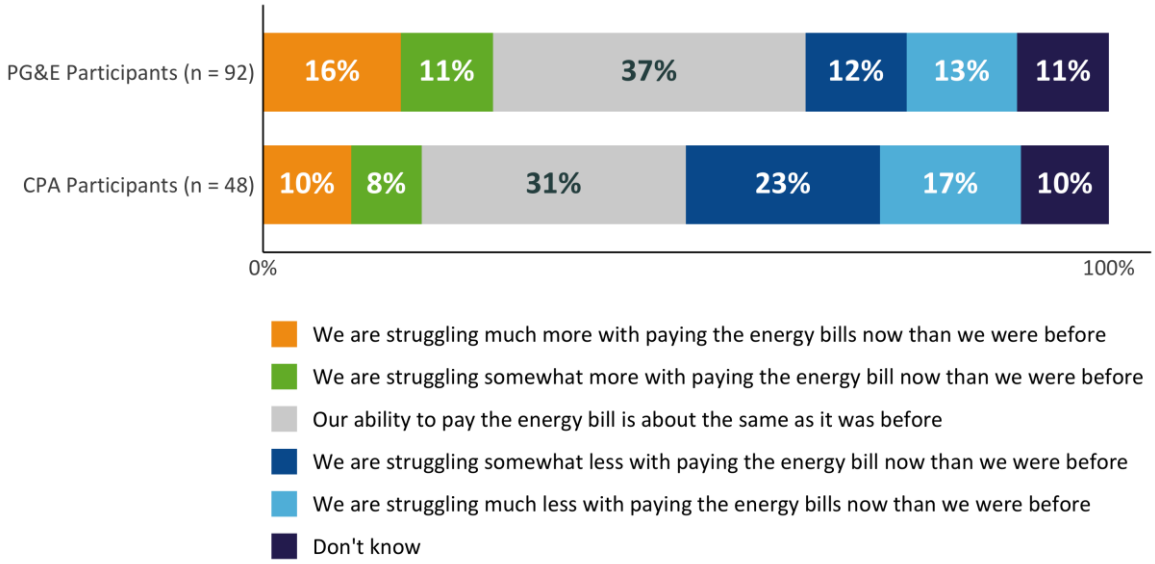
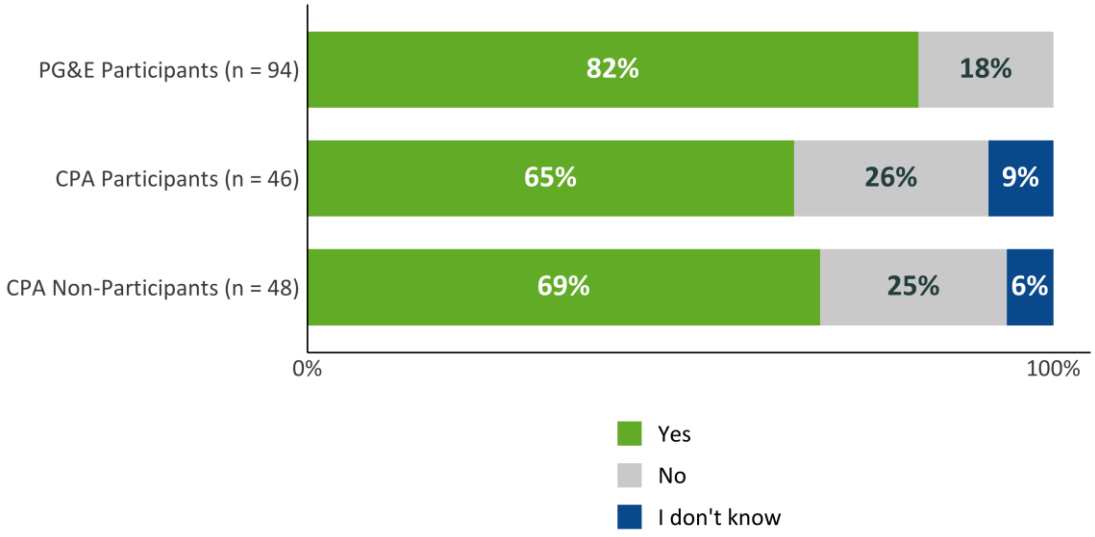


Figure 50: COVID-19 Effects




## Environmental Benefits

Table 70: Measurement of Metrics Based on Evaluation Data Collected and Questions to Consider Improving Metrics in the Future

| Program Outcome Metric | Outcomes | Measurement of Metric Based on Evaluation Data Collected |
|---|---|---|
| E1. Share of customers who feel that they are contributing to renewable energy | CS: L.1<br>DAC: L.1 | The majority of participants felt as though they would be unable to contribute to renewable energy in absence of the DAC-GT program. |
| E2. Share of customers that think the program reduces GHG emissions | CS: L.1<br>DAC: L.1 | Many participants from PG&E and CPA were not sure that the DAC-GT program could reduce GHG emissions. |
| E3. Estimated environmental benefits | CS: L.1<br>DAC: L.1 | Analysis shows 29,717 metric tons of avoided CO2 emissions and estimated solar generation of 130,753 MWh from the interim resources serving these customers. This is an estimate of what would have been abated if customers had been served with new resources, rather than interim resources. |

## *E1. Participating Customer Perception of Benefits*

In interviews, we asked each of the PAs about what benefits of the DAC-GT and CSGT programs they see as being the most important benefits for eligible customers. Half (five) of the interviewed PAs highlighted the 20 percent bill discount as the biggest benefit that customers would associate with the programs, with one going as far to say that when given a choice between renewable power and a bill discount, the customers would choose the latter over the former.

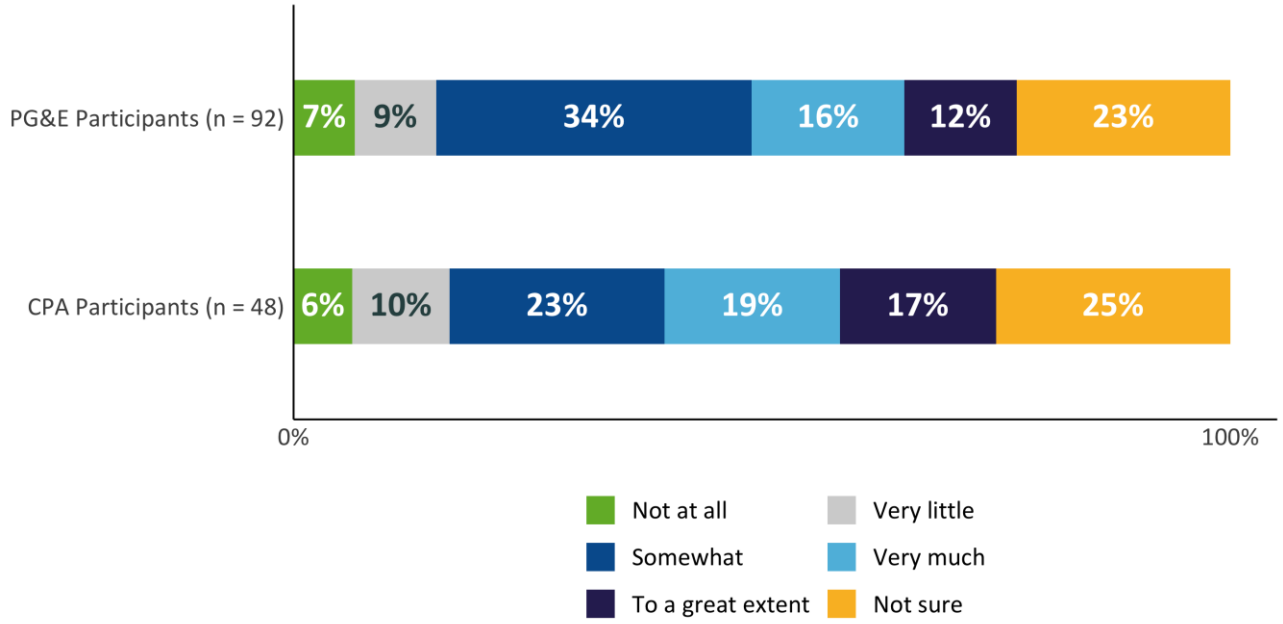
Not all PAs highlighted financial benefits as the primary customer benefit. Others highlighted local communities' participation in renewable energy (n=4), the general environmental benefits of renewable power (n=3), the reduction of pollution and health benefits of renewable power (n=1), and the education of customers about energy sources and renewable energy (n=1) as important benefits of the program.

Community sponsors and implementers were also asked what benefits matter most to the residents that they serve, and the majority answered that the bill discount is the most important benefit to customers. While the bill discount was mentioned as the primary benefit in most interviews (n=8), it was not the only important benefit raised by community organizations. One organization highlighted the fact that the programs provide an opportunity to reduce the shame that is often associated with using bill assistance programs. Multiple sponsors and implementers highlighted the important health benefits of reduced emissions due to the use of renewable power, and that the health impacts of pollution are salient to the communities they serve (n=3). One sponsor highlighted the fact that the bill discount itself can have health impacts for low-income community members, as the money that would otherwise be spent on energy can be spent on food, clothing, and other necessities.

We also asked customers about their perceptions of the programs' environmental and societal benefits.

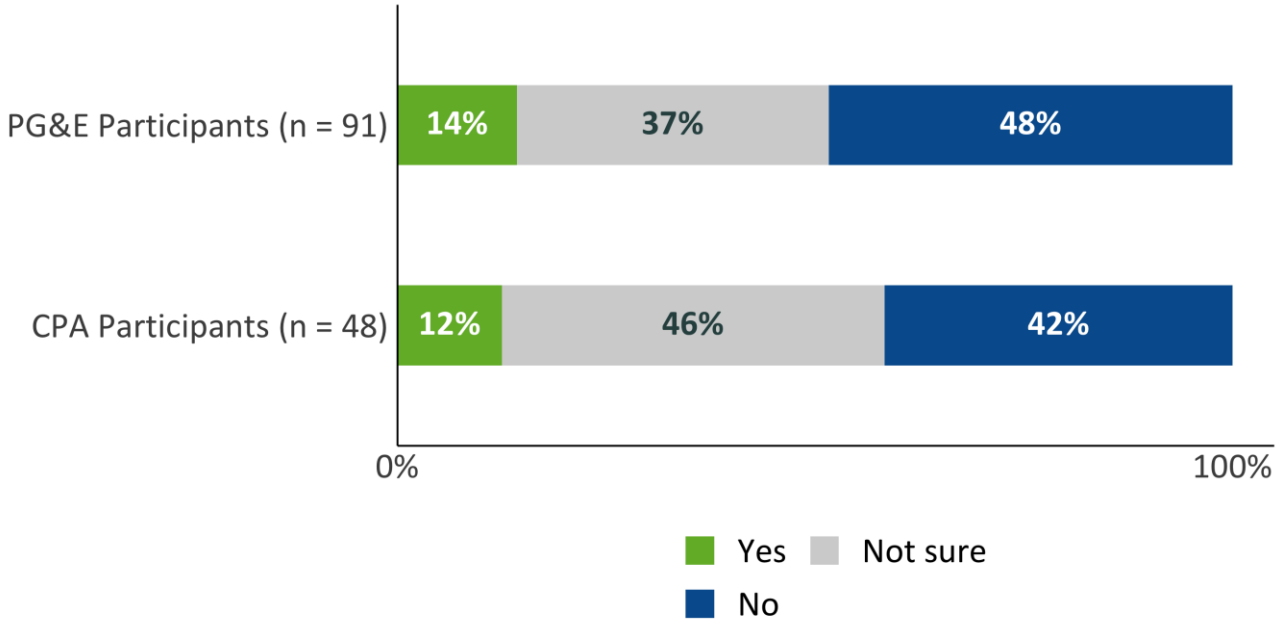
To assess customer understanding of the program benefits, particularly related to accessing renewable energy, we asked participants how much they feel they are contributing to clean energy by being enrolled in the DAC-GT program. Only 6 percent of CPA participants respondents and 7 percent of PG&E participants respondents felt that they were not at all contributing to clean energy, though a quarter of all participants were not sure (Figure 51).

**Figure 51: Perception of How Much Respondents Contribute to Clean Energy**




We asked participants if they thought they would have been able to contribute to adding solar energy to the grid without the DAC-GT program, since the program aims to help customers who otherwise would not be able to put solar on their rooftops due to financial barriers or because of ownership barriers. Close to 85 percent of all participants said that they were not sure or that they knew they would be unable to contribute to adding clean energy to the grid without this program (Figure 52), suggesting that participants are under the impression that the program is the only option for them to contribute cleaner energy to the grid.

**Figure 52: Perception of Ability to Contribution to Clean Energy Without Program**

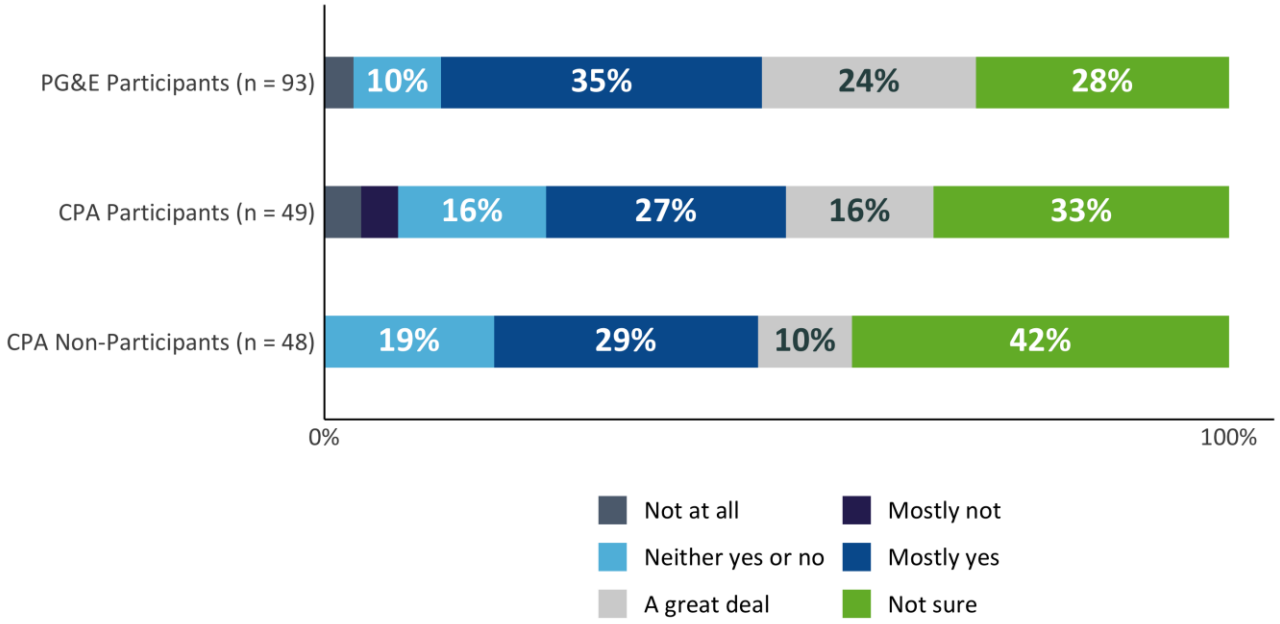



When we broke out participants by those that are aware and unaware of the DAC-GT program, participants who were aware of the program were more likely to say that they did not think that they could contribute to solar energy on the grid *without* this program, though this difference was not statistically significant.

## *E2. Share of Customers That Think the Program Reduces GHG Emissions*

We asked participants if they thought the DAC-GT program ultimately lowers greenhouse gas (GHG) emissions in California. Over half of respondents felt that it does a great deal to reduce or mostly reduces GHG emissions. Less than 10 percent of CPA participants felt that the program had little to no affect, with 4 percent reporting "mostly not" and 4 percent reporting "not at all." (Figure 53).

**Figure 53: Perceptions of GHG Reduction Among Respondents**




## *E3. Estimated Environmental Benefits*

Evergreen quantified avoided emissions resulting from participation in program years 2020 and 2021. During this period, no new capacity was installed, and all participation relied on interim RPS resources. Table 71 below presents the results of the avoided emissions analysis. The only PA to enroll participants in the 2020 program year was PG&E. During program year 2021, CPA also began enrollment. All avoided emissions are based on DAC-GT program participation; no CSGT participation was recorded by PAs in program years 2020 or 2021.

**Table 71: DAC-GT Program Year 2020 and 2021 Annual Avoided Emissions**

| Program Year | Program | Program Administrator | Estimated Solar Generation (MWh) | Estimated Avoided Emissions (mt-$CO_2$) |
|---|---|---|---|---|
| 2020 | DAC-GT | PG&E | 20,845 | 4,740 |
| 2021 | DAC-GT | PG&E | 127,902 | 29,083 |
| 2021 | DAC-GT | CPA | 3,232 | 721 |

The method used to estimate the avoided emissions reported in Table 71 aligns with the method used in the Solar on Multifamily Affordable Housing (SOMAH) evaluation with the purpose of estimating avoided emissions that can be compared across similar programs. Program year 2020

findings are based on REC retirements for interim RPS resources. Because program year 2021 was still in progress at the time of reporting, Evergreen leveraged participant billing data to estimate total consumption over the program year to serve as a proxy for the interim RPS resource generation and subsequent program avoided emissions.

To better understand the progress of the DAC-GT program in terms of potential avoided emissions, Evergreen compared the annual avoided emissions achieved to date relative to the estimated total potential annual avoided emissions based on the program capacity allocated to each PA. As of the time of reporting, Evergreen estimates that PG&E has achieved approximately 95 percent of potential avoided emissions based on its maximum capacity allocation. Similarly, we estimate CPA has achieved approximately 13 percent of potential avoided emissions based on its allocated capacity. These estimates assume a solar PV system capacity factor of 23 percent.[59]

In addition to this analysis, Evergreen also estimated avoided emissions using the California Air Resources Board's (CARB's) annual average emissions factor. The results of this analysis are presented in Table 72. Of note is the relative similarity in estimated avoided emissions between this evaluation and the CARB estimate despite the different methods used in each calculation.

**Table 72: DAC-GT Program Year 2020 and 2021 Annual Avoided Emissions – CARB Reporting**

| Program Year | Program Administrator | GHG Allowance Funding Allocation | Estimated Solar Generation (MWh) | Estimated Avoided Emissions ($CO_2$) |
|---|---|---|---|---|
| 2020 | PG&E | 100% | 20,845 | 4,415 |
| 2021 | PG&E | 100% | 127,902 | 27,092 |
| 2021 | CPA | 100% | 3,232 | 685 |

The CARB avoided emissions also reflect the allocation of GHG allowance proceeds used to fund the DAC-GT program in 2020 and 2021, as CARB requires avoided emissions reporting based on a *pro rata* basis of funds provided. This policy will have reporting implications in subsequent program years as the DAC programs will provide customer volumetric discounts, which cannot be funded by GHG allowance proceeds. Consequently, the DAC programs will be funded through a combination of GHG allowance proceeds as well as public purpose program funding resources. The proportion of the GHG allowance proceeds will need to be applied *pro rata* to future avoided emission estimates when reporting to CARB. These changes in funding sources are expected to begin during the 2022 program year. Additionally, any previous reporting to CARB that reflects

[59] These estimates assume a solar PV system capacity factor of 23 percent. Actual PV system performance will depend on multiple factors (location, tracking vs. fixed, etc.) that will ultimately impact the actual avoided emissions achieved.

lifetime avoided emissions that have been reported across all program years since the program's inception in 2019 should be revised to reflect the updated funding allocation.

## Local Jobs and Training (CSGT Program Only)

**Table 73: Measurement of Metrics Based on Evaluation Data Collected and Questions to Consider Improving Metrics in the Future**

| Program Outcome Metric | Outcomes | Measurement of Metric Based on Evaluation Data Collected |
|---|---|---|
| J1. # of leveraged job training programs | CS: M.1 | Not able to determine at this time. |
| J2. # of local job hires linked to program | CS: M.1 | |
| J3. # of trainees and job outcomes | CS: M.1 | |

### *J1. Number of Leveraged Job Training Programs*

Our initial data request from PAs asked for any data or tracking that they could provide for local jobs and local hiring, but given the early status of the contracted CSGT projects at that point, PAs were unable to provide Evergreen with these data.

Most of the information we received regarding local jobs and trainings was received directly from GRID Alternatives, which is the workforce development partner for each of the currently contracted CSGT projects. GRID Alternatives is a large, non-profit solar installer based out of Oakland, CA.

Workforce development attestations provided initial detail into how GRID Alternatives proposed to implement the CPUC's local jobs and training requirements for the CSGT program. These attestations point to relationships with local governments and non-profits in project census tracts and existing workforce development programs established by GRID Alternatives that will be leveraged to meet the CPUC's requirements. At the time these attestations were submitted, specific numbers of trainees were not provided, as they are dependent upon the number of people enrolled in CSGT.

In our interview with GRID Alternatives, they provided more clarity on how they intend to implement this portion of the program. GRID Alternatives specified that they engage with local high schools and colleges to provide training programs focused at different populations (such as veterans, high school students, and women). GRID Alternatives also highlighted relationships with local workforce investment boards and unions as important to their goal of broadening access to

solar work as much as possible, and these local relationships will help them to meet the local jobs and training requirement.

GRID Alternatives reported that they will likely be physically building the projects they are involved in, though even if they do not, they could still implement the same workforce development initiatives described above. Assuming GRID Alternatives builds the CSGT projects, they estimated that they would have 10 positions with multiple openings for trainees from their programs, with an estimated target of at least 50 percent local hires. GRID Alternatives also stated that they have training logs and other methods of tracking hires and training requirements.

### *J2. Number of Local Job Hires Linked to the CSGT Program*

We asked community sponsors if they had hired any additional staff for the CSGT program thus far; no new staff were reported by the six community sponsors that we asked about hiring. They were also unable to give an estimate for the labor income in order to allow us to look at labor income and community economic output.

### *J3. Number of Trainees and Job Outcomes*

Since most PAs had not yet launched the CSGT program at the time of the data request we sent to PAs, and that those who had successfully contracted CSGT projects had not yet begun construction, PAs were not able to provide us with specific estimates of the number of job trainees or specific workforce development metrics and goals. We did receive workforce development attestations provided in accepted CSGT offers.

# Appendix G: Sensitivity Analysis

The following tables demonstrate sensitivity analysis findings with the alteration of eligibility requirements under the following scenarios for CSGT:

1. Baseline: Top 25% DACs and 5-mile buffer
2. Scenario 1: Top 30% DACs and 5-mile buffer
3. Scenario 2: Top 40% DACs and 5-mile buffer
4. Scenario 3: Top 25% DACs and 10-mile buffer
5. Scenario 4: Top 25% DACs and 15-mile buffer

**Table 74: CSGT Baseline (Top 25%) Project Eligibility Summary**

| PA | Avg Eligible Customers per 100,000 People | Cumulative Eligible Customers | Median Land Cost ($/Acre) | Total Solar Land (Acres) | Total Solar Capacity (MW) | Median Distance to Transmission (Miles) | Median Cost of Living Index |
|---|---|---|---|---|---|---|---|
| PG&E | 8,485 | 181,617 | $9,700 | 3,749,820 | 485,600 | 3.01 | 106.1 |
| SCE | 10,152 | 474,184 | $11,700 | 728,910 | 94,393 | 1.69 | 101.8 |
| SDG&E | 11,659 | 25,287 | $21,200 | 1,930 | 250 | 0.48 | 112.6 |

**Table 75: CSGT Scenario 1 (Top 30%) Project Eligibility Summary**

| PA | Avg Eligible Customers per 100,000 People | Cumulative Eligible Customers | Median Land Cost ($/Acre) | Total Solar Land (Acres) | Total Solar Capacity (MW) | Median Distance to Transmission (Miles) | Median Cost of Living Index |
|---|---|---|---|---|---|---|---|
| PG&E | 7,563 | 197,020 | $9,100 | 4,040,939 | 523,299 | 3.19 | 106.1 |
| SCE | 8,844 | 509,314 | $11,700 | 749,479 | 97,057 | 1.57 | 101.8 |
| SDG&E | 9,612 | 28,559 | $21,200 | 3,646 | 472 | 0.95 | 112.6 |

### Table 76: CSGT Scenario 2 (Top 40%) Project Eligibility Summary

| PA | Avg Eligible Customers per 100,000 People | Cumulative Eligible Customers | Median Land Cost ($/Acre) | Total Solar Land (Acres) | Total Solar Capacity (MW) | Median Distance to Transmission (Miles) | Median Cost of Living Index |
|---|---|---|---|---|---|---|---|
| PG&E | 6,331 | 212,610 | $8,200 | 4,839,676 | 626,735 | 3.18 | 105.0 |
| SCE | 7,519 | 538,528 | $11,700 | 809,944 | 104,887 | 1.59 | 101.8 |
| SDG&E | 5,524 | 30,183 | $18,600 | 22,835 | 2,957 | 0.51 | 107.8 |

### Table 77: CSGT Scenario 3 (10-mile Buffer) Project Eligibility Summary

| PA | Avg Eligible Customers per 100,000 People | Cumulative Eligible Customers | Median Land Cost ($/Acre) | Total Solar Land (Acres) | Total Solar Capacity (MW) | Median Distance to Transmission (Miles) | Median Cost of Living Index |
|---|---|---|---|---|---|---|---|
| PG&E | 7,563 | 197,020 | $9,700 | 4,480,445 | 580,215 | 2.92 | 106.1 |
| SCE | 8,844 | 509,314 | $11,700 | 760,918 | 98,539 | 1.69 | 101.8 |
| SDG&E | 9,612 | 28,559 | $19,100 | 7,663 | 992 | 0.66 | 111.9 |

### Table 78: CSGT Scenario 4 (15-mile Buffer) Project Eligibility Summary

| PA | Avg Eligible Customers per 100,000 People | Cumulative Eligible Customers | Median Land Cost ($/Acre) | Total Solar Land (Acres) | Total Solar Capacity (MW) | Median Distance to Transmission (Miles) | Median Cost of Living Index |
|---|---|---|---|---|---|---|---|
| PG&E | 6,331 | 212,610 | $9,500 | 4,937,223 | 639,368 | 2.83 | 106.1 |
| SCE | 7,519 | 538,528 | $11,700 | 787,233 | 101,946 | 1.53 | 101.8 |
| SDG&E | 5,524 | 30,183 | $19,100 | 17,914 | 2,320 | 1.15 | 111.9 |

# Appendix H: Evaluability Assessment

Given that the CSGT and DAC-GT programs are in the early stages of their implementation, this research was done with an eye towards what should be measured in the future to understand if the programs are meeting outcomes in the logic models.

Table 79 maps the outcomes to the CSGT and DAC-GT logic models included in Appendix B. Each metric is evaluated on a rating of 1 to 4 and color coded as shown below.

| | |
|---|---|
| 1 | Able to evaluate with current data |
| 2 | Able to evaluate partially but additional data needed |
| 3 | Not able to evaluate and need additional data |
| 4 | Too soon to evaluate but can be evaluated in the future. |

The second to last column of Table 79 includes recommendations for what additional data can be collected in future evaluations to better assess the metrics for the programs.

Through this assessment, we identified questions for those involved in program design to consider for each metric to better understand the intent behind the program design or to better set targets to identify program success in achieving the outcomes set forth in the logic models. Those questions are identified in the last column.

**Table 79: Evaluability Assessment of Metrics Tied to Logic Model Outcomes**

| Metric | Outcomes | Score | Recommendations for Improving Evaluability | Considerations for Improving Metric (where identified) |
|---|---|---|---|---|
| C1. Capacity procured and online by program PA | CS: O.4, S.2<br>DAC: O.3, S.1 | 2 | Verify solar project performance through methods such as monitoring energy generation. | How much capacity is expected on what timeline? |
| C2. Number of bids received per RFO | CS: O.3<br>DAC: O.2 | 2 | PAs should report both the number of conforming and non-conforming bids and differentiate the number submitted offers vs. the number of proposed projects in those offers. | What is the minimum acceptable number of *conforming* bids, and how many conforming bids would be ideal? |
| C3. Number and type of project sponsors (CSGT only) | CS: O.2 | 2 | PAs report any outreach done with potential sponsors, messaging and materials used for that outreach, and the list of potential sponsors contacted. | |
| C4. Results from program in both costs and benefits: number of MW installed/costs | CS: S.2<br>DAC: S.1 | 4 | | Provide MW cost to evaluators. |
| C5. Results from program costs to non-program PV | CS: S.2<br>DAC: S.1 | 4 | Track so that you can compare this program to other similar programs. See additional suggested analysis in Appendix F section C.5 | Provide MW cost to evaluators. If interested in evaluating MW allocation of program, need to define the amount of cost burden the program is willing to place on non-Participants. Any comparison to other programs should take into account that non-participant cost is partially balanced by the non-participant experiencing the benefit of a cleaner grid. |
| E1. Share of enrolled customers aware of program and program marketing | CS: O.6, S.6<br>DAC: A.6, S.4 | 1 | | What level of awareness of the program by participants is ideal? Is |

| Metric | Outcomes | Score | Recommendations for Improving Evaluability | Considerations for Improving Metric (where identified) |
|---|---|---|---|---|
| | | | | awareness of benefit an integral part of the program? |
| E2. Share of enrolled customers aware of specific program features | DAC: S.3, S.4 | 2 | Future evaluations should also account for program attrition and compare attrition between auto-enrolled customers and opt-in customers. | What percentage of awareness is important for the program? |
| P1. # and location of eligible customers enrolled | CS: S.5<br>DAC: S.3 | 2 | Location of DAC-GT and CSGT generation would facilitate a geospatial analysis of program coverage across the state, including the geographic spread of participating customers. | What priority should different eligible geographies have? Is further geographic targeting of interest to the program? |
| P2. Overall participation levels in relation to customer segment size | CS: S.5,<br>DAC: S.3 | 3 | We recommend that participation levels are reviewed in future evaluations if it is determined that the program has a goal of reaching customers in certain customer segments. | Is a goal of the program reaching customers in specific segments (such as households with primary languages other than English, certain household compositions, or households receiving utility assistance)? |
| P3. # of customers enrolled in CARE/FERA during enrollment process/total enrollees | CS: O.7<br>DAC: O.4 | 1 | | |
| P4. # of master metered customers participating in the CSGT program | CS: S.5 | 4 | CIS data indicating which customers are master metered. | What share of eligible customers for CSGT being enrolled would constitute a success? |
| P5. Additional participation in other clean energy programs | CS: S.5,<br>DAC: S.4 | 2 | CIS data indicating customer participation in clean energy programs. | What additional enrollment targets would the program like to see? |
| S3a. Share of program non-participants familiar with program | CS: M.4<br>DAC: M.1 | 1 | | |

| Metric | Outcomes | Score | Recommendations for Improving Evaluability | Considerations for Improving Metric (where identified) |
|---|---|---|---|---|
| S3b. Share of non-participants that would consider enrolling in the program | CS: M.4<br>DAC: M.1 | 1 | | |
| S2. Share of non-auto-enrolled customers who found enrolling easy or difficult. | CS: S.5<br>DAC: S.4 | 1 | | |
| S1. Share of enrolled customers satisfied with program offerings | CS: L.1<br>DAC: L.1 | 1 | | |
| B1. Changes in post participation energy usage | CS: M.2, L.1<br>DAC: M.3, L.1 | 2 | We were unable to review data from CPA non-participants. | |
| B2 and B3. Program bill discounts' impact on customer arrearages and bill payment behaviors | CS: M.2, L.1<br>DAC: M.3, L.1 | 2 | Arrearage data for non-participants | |
| E1. Share of customers who feel that they are contributing to renewable energy | CS: L.1<br>DAC: L.1 | 1 | | What percentage of customers would the program expect to see who feel that they are contributing to renewable energy? |
| E2. Share of customers that think the program reduces GHG emissions | CS: L.1<br>DAC: L.1 | 1 | | What percentage of customers would the program like to achieve in terms of customers feeling like the program reduces GHG emissions? |
| E3. Estimated environmental benefits | CS: L.1<br>DAC: L.1 | 2 | Changes in funding sources are expected to begin during the 2022 program year. Additionally, any previous reporting to CARB that reflects lifetime avoided emissions should be revised to reflect the updated funding allocation. | What goals would the program like to set for environmental benefits? |

| Metric | Outcomes | Score | Recommendations for Improving Evaluability | Considerations for Improving Metric (where identified) |
|---|---|---|---|---|
| J1. # of leveraged job training programs | CS: M.1 | 4 | PA tracking of job training programs used in the process of solar project development, including the organizations conducting the training, the training curricula and the number of trainees engaged with given programs. | What is the number of leveraged job training programs expected? |
| J2. # of local job hires linked to the program | CS: M.1 | 4 | We recommend that in future program years, local hiring and training data is tracked, collected, and submitted to utilities and the evaluator so that economic and jobs impacts can be estimated. We also recommend that IOUs update their workforce development attestation requirements to require specific hiring and training metrics, goals and outcomes that can then be returned to throughout the solar development process. | What are the number of local job hires and trainees expected? |
| J3. # of trainees and job outcomes | CS: M.1 | 4 | | |

*Display This Question:*

If utility_customer = PG&E

The purpose of this survey is to gather information improve PG&E's Green Saver program. The survey will take approximately 10-15 minutes to complete, and all information collected will be kept confidential. Thank you for your time in completing this survey. Shortly after you complete all of the survey questions we will send a link to choose a **$5 digital gift card** from a number of popular retailers like Amazon, Target, and Starbucks to thank you for your time.

*Display This Question:*

If utility_customer = CPA

The purpose of this survey is to gather information improve Clean Power Alliance's (CPA) Power Share Program. The survey will take approximately 10-15 minutes to complete, and all information collected will be kept confidential. Shortly after you complete all of the survey questions we will send a link to choose a **$5 digital gift card** from a number of popular retailers like Amazon, Target, and Starbucks to thank you for your time.

Q1. Do you own or rent your home?

a. Own
b. Rent

*Display This Question:*
*If Do you own or rent your home? = Rent*
Q2 Do you pay your own electric bills or is electricity included as part of your rent?

- ○ Pay electric bills (1)
- ○ Included in rent (2)
- ○ Other (please specify): (3) _____

*Display This Question:*
*If utility_customer = CPA*
*And part_non_part = Non-Part*

Q3 Now we'd like to hear about your awareness about the Power Share program sponsored by CPA.

The Power Share rate is a program from CPA that gives customers 20% off of their utility bill. It is tied to a new renewable energy project. Before we mentioned it, had you heard of the Power Share rate?

- No (1)
- Yes (2)

*Display This Question:*
*If utility_customer = PG&E*
Q4a
We are reaching out because your household was automatically signed up for a PG&E rate that discounts your energy bill and sources your home's energy from solar energy projects. It is called the Green Saver program. Before we mentioned it, were you **aware** that your household is signed up for this reduced rate?

- No (1)
- Yes (2)
- Don't know (3)

*Display This Question:*
*If part_non_part = Part*
*And utility_customer = CPA*

Q4b We are reaching out to you because your household signed up for a CPA rate that discounts your energy bill and sources your home's energy from renewable energy projects. It is called the Power Share program. Before we mentioned it, were you **aware** that your household is signed up for this reduced rate?

- No (1)
- Yes (2)
- Don't know (3)

*Display This Question:*
*If We are reaching out because your household was automatically signed up for a PG&E rate that disco... = No*
*Or We are reaching out because your household was automatically signed up for a PG&E rate that disco... = Don't know*

*And utility_customer = PG&E*
Q4c Before we mentioned it, had you **heard** of the Green Saver rate?

- ○ No (1)
- ○ Yes (2)
- ○ Don't know (3)

*Display This Question:*
*If We are reaching out to you because your household signed up for a CPA rate that discounts your en... = No*
*Or We are reaching out to you because your household signed up for a CPA rate that discounts your en... = Don't know*
*And utility_customer = CPA*

Q4d Before we mentioned it, had you **heard** of the Power Share rate?

- ○ No (1)
- ○ Yes (2)
- ○ Don't Know (3)

*Skip To: End of Block If Before we mentioned it, had you heard of the Power Share rate? = No*
*Display This Question:*
*If utility_customer = CPA*
*And part_non_part = Part*
*And We are reaching out to you because your household signed up for a CPA rate that discounts your en... = Yes*
Q5 Did you hear about the program from CPA or from some other organization?

- ○ CPA (1)
- ○ Some other organization (2)
- ○ Don't know (3)

*Display This Question:*
*If Did you hear about the program from CPA or from some other organization? = Some other organization*
Q5b Which organization did you hear about the program from?
_____

_____
_____
_____
_____

*Display This Question:*
*If utility_customer = PG&E*
*And We are reaching out because your household was automatically signed up for a PG&E rate that disco... = Yes*
Q6 Had you heard of the Green Saver rate before you were auto-enrolled, or was that the first you had learned about it?

- ○ I knew about it before I was auto-enrolled (1)
- ○ I did not know about it until I was auto-enrolled (2)
- ○ I don't know (3)

*Display This Question:*
*If utility_customer = PG&E*
*And We are reaching out because your household was automatically signed up for a PG&E rate that disco... = Yes*
Q7 Do you remember how you were originally notified that PG&E signed you up for the Green Saver rate? (Select all that apply)

- ☐ I received notification from PG&E (1)
- ☐ I noticed a change on my bill (2)
- ☐ I found out by researching myself (3)
- ☐ I found out another way (please specify) (4)
  _____
- ☐ ⊗I don't remember being notified (5)

*Display This Question:*
*If utility_customer = PG&E*
*And We are reaching out because your household was automatically signed up for a PG&E rate that disco... = Yes*
*Or Before we mentioned it, had you heard of the Green Saver rate? = Yes*

*Or Had you heard of the Green Saver rate before you were auto-enrolled, or was that the first you ha... = I knew about it before I was auto-enrolled*

Q8a How did you hear about the Green Saver rate? (select all that apply)

- ☐ PG&E sent me a letter (1)
- ☐ PG&E sent me emails about the discount (2)
- ☐ I read about it on PG&E's website (3)
- ☐ I saw an ad for the discount online (4)
- ☐ I heard about the discount on social media (e.g., Facebook) (5)
- ☐ A local organization reached out to me about the discount (6)
- ☐ I read about the discount in the news (7)
- ☐ I heard about the discount from friends and/or family (8)
- ☐ I noticed it on my bill (10)
- ☐ Other (please specify) (9) _____

*Display This Question:*
*If utility_customer = CPA*
*And We are reaching out to you because your household signed up for a CPA rate that discounts your en... = Yes*
*Or Before we mentioned it, had you heard of the Power Share rate? = Yes*
*Or Now we'd like to hear about your awareness about the Power Share program sponsored by CPA. The P... = Yes*

Q8b How did you hear about the Power Share rate? (select all that apply)

- ☐ CPA sent me a letter (1)
- ☐ CPA sent me emails about the discount (2)
- ☐ I read about it on CPA's website (3)

☐ I saw an ad for the discount online (4)

☐ I heard about the discount on social media (e.g., Facebook) (5)

☐ A local organization reached out to me about the discount (6)

☐ I read about the discount in the news (7)

☐ I heard about the discount from friends and/or family (8)

☐ I noticed it on my bill (10)

☐ Other (please specify) (9) _____

*Display This Question:*
*If utility_customer = PG&E*
*And We are reaching out because your household was automatically signed up for a PG&E rate that disco... = Yes*

Q9a Please share what you know about the Green Saver rate.

_____
_____
_____
_____
_____

*Display This Question:*
*If We are reaching out to you because your household signed up for a CPA rate that discounts your en... = Yes*
*Or Now we'd like to hear about your awareness about the Power Share program sponsored by CPA. The P... = Yes*
*And utility_customer = CPA*

Q9b Please share what you know about the Power Share rate.

_____
_____
_____
_____
_____

*Display This Question:*
*If utility_customer = PG&E*
*And We are reaching out because your household was automatically signed up for a PG&E rate that disco... = Yes*

Q10a Below is a list of components of the Green Saver program. For each, please tell us if you were aware of that aspect of the program before taking this survey?

| | Yes (1) | No (2) | I don't know (3) |
|---|---|---|---|
| I was aware that the Green Saver program discounts 20% from my energy bill (1) | ○ | ○ | ○ |
| I was aware that the Green Saver program provides my home with 100% clean energy (energy that comes from processes that are constantly replenished like solar or wind) (2) | ○ | ○ | ○ |
| I was aware that the Green Saver program invests in local solar energy developments (3) | ○ | ○ | ○ |
| I was aware that the Green Saver program is offered to income-eligible customers in specific communities (4) | ○ | ○ | ○ |
| I was aware that the Green Saver program is intended to reduce greenhouse gas emissions in my community (greenhouse gasses trap heat and make the planet warmer) (5) | ○ | ○ | ○ |

*Display This Question:*
*If utility_customer = CPA*
*And We are reaching out to you because your household signed up for a CPA rate that discounts your en... = Yes*
Q10b Below is a list of components of the Power Share program. For each, please tell us if you were aware of that aspect of the program before taking this survey?

| | Yes (1) | No (2) | I don't know (3) |
|---|---|---|---|
| I was aware that the Power Share program discounts 20% from my energy bill (1) | ○ | ○ | ○ |
| I was aware that the Power Share program provides my home with 100% clean energy (energy that comes from processes that are constantly replenished like solar or wind) (2) | ○ | ○ | ○ |
| I was aware that the Power Share program invests in renewable energy developments (3) | ○ | ○ | ○ |
| I was aware that the Power Share program is offered to income-eligible customers in specific communities (4) | ○ | ○ | ○ |
| I was aware that the Power Share program is intended to reduce greenhouse gas emissions in my community (greenhouse gasses trap heat and make the planet warmer) (5) | ○ | ○ | ○ |

*Display This Question:*
*If utility_customer = CPA*

*And part_non_part = Non-Part*
*And Now we'd like to hear about your awareness about the Power Share program sponsored by CPA. The P... = Yes*
Q10c Below is a list of components of the Power Share program. For each, please tell us if you were aware of that aspect of the program before taking this survey.

| | Yes (1) | No (2) | I don't know (3) |
|---|---|---|---|
| I was aware that the Power Share program discounts 20% from my energy bill (1) | ○ | ○ | ○ |
| I was aware that the Power Share program provides my home with 100% clean energy (energy that comes from processes that are constantly replenished like solar or wind) (2) | ○ | ○ | ○ |
| I was aware that the Power Share program invests in renewable energy developments (3) | ○ | ○ | ○ |
| I was aware that the Power Share program is offered to income-eligible customers in specific communities (4) | ○ | ○ | ○ |
| I was aware that the Power Share program is intended to reduce greenhouse gas emissions in my community (greenhouse gasses trap heat and make the planet warmer) (5) | ○ | ○ | ○ |

*Display This Question:*
*If utility_customer = CPA*
*And part_non_part = Part*
*And We are reaching out to you because your household signed up for a CPA rate that discounts your en... = Yes*

Q11b How important were each of the following factors to you when you initially signed up for the Power Share rate?

| | Not at all important 1 (1) | Slightly Important 2 (2) | Moderately important 3 (3) | Very important 4 (4) | Extremely important 5 (5) |
|---|---|---|---|---|---|
| to receive the 20 percent bill discount (1) | ○ | ○ | ○ | ○ | ○ |
| to receive 100 percent clean energy (2) | ○ | ○ | ○ | ○ | ○ |
| to support the development of local solar projects (3) | ○ | ○ | ○ | ○ | ○ |
| to reduce greenhouse gas emissions on a broader level (4) | ○ | ○ | ○ | ○ | ○ |
| to improve the health of your community (5) | ○ | ○ | ○ | ○ | ○ |
| to bring jobs associated with solar developments to the state (6) | ○ | ○ | ○ | ○ | ○ |
| to improve the health of Californians (8) | ○ | ○ | ○ | ○ | ○ |

| | | | | | |
|---|---|---|---|---|---|
| ⊗Other (please specify): (7) | ○ | ○ | ○ | ○ | ○ |

**End of Block: Program Marketing and Enrollment Effectiveness ( +awareness of auto-enrollment)**

**Start of Block: Customer Satisfaction**
*Display This Question:*
*If utility_customer = PG&E*
*And part_non_part = Part*
*And We are reaching out because your household was automatically signed up for a PG&E rate that disco... = Yes*

Q12a
Next, we'd like to hear about your satisfaction and experience with the Green Saver Program.

Do you feel like you have benefitted from being on the Green Saver rate?

- ○ No (1)
- ○ Yes (2)
- ○ I don't know (3)

*Display This Question:*
*If We are reaching out to you because your household signed up for a CPA rate that discounts your en... = Yes*
*And utility_customer = CPA*
*And part_non_part = Part*

Q12b
Next, we'd like to hear about your satisfaction and experience with the Power Share program.

Do you feel like you have benefitted from being on the Power Share rate?

- ○ No (1)
- ○ Yes (2)

- ○ I don't know (3)

*Display This Question:*
*If Next, we'd like to hear about your satisfaction and experience with the Green Saver Program. Do y... = Yes*
*Or Next, we'd like to hear about your satisfaction and experience with the Power Share program. Do y... = Yes*

Q13 How do you feel the rate has benefitted you?

_____
_____
_____
_____
_____

*Display This Question:*
*If utility_customer = CPA*
*And part_non_part = Part*

Q14 How easy or difficult was it to sign up for the rate?

- ○ Extremely difficult 1 (2)
- ○ Mostly difficult 2 (3)
- ○ Somewhat difficult 3 (8)
- ○ Neither difficult nor easy 4 (9)
- ○ Somewhat easy 5 (10)
- ○ Mostly easy 6 (11)
- ○ Extremely easy 7 (14)

*Display This Question:*
*If How easy or difficult was it to sign up for the rate? = Extremely difficult 1*
*Or How easy or difficult was it to sign up for the rate? = Mostly difficult 2*
*Or How easy or difficult was it to sign up for the rate? = Somewhat difficult 3*
*And utility_customer = CPA*

Q15 Why do you say that?

_____
_____
_____
_____
_____

*Display This Question:*
*If Did you hear about the program from CPA or from some other organization? = Some other organization*

Q16 Did receiving information about the Power Share rate from another source make you trust it more, the same or less than if you had heard about it directly from CPA?

- ○ More (1)
- ○ About the same (2)
- ○ Less (3)

**End of Block: Customer Satisfaction**

**Start of Block: Effectiveness of programs in addressing barriers to participation**
*Display This Question:*
*If utility_customer = CPA*
*And part_non_part = Non-Part*
*And Now we'd like to hear about your awareness about the Power Share program sponsored by CPA. The P... = Yes*

Q17c You had heard about the Power Share program before, but did not enroll. Below is a list of reasons why a household might not have signed up for the Power Share rate. Please let us know which of these apply to you.

- ☐ Was not aware of the program (1)
- ☐ Not eligible (2)
- ☐ Enrollment is inconvenient (3)
- ☐ Not interested in renewable energy (4)

- [ ] Did not need the bill discount (5)
- [ ] Bill discount is insufficient (6)
- [ ] Forgot to sign up (7)
- [ ] Did not have the right information to sign up (8)
- [ ] No specific reason (9)
- [ ] Other (please specify): (10) _____

*Display This Question:*
*If utility_customer = CPA*
*And part_non_part = Non-Part*
*And Now we'd like to hear about your awareness about the Power Share program sponsored by CPA. The P... = No*

Q18 Would you consider signing up for the Power Share program, a program that offers 100% renewable energy with a 20% bill discount?

- ○ No (1)
- ○ Yes (2)
- ○ I don't know (3)

*Display This Question:*
*If utility_customer = CPA*
*And Would you consider signing up for the Power Share program, a program that offers 100% renewable e... = No*

Q19c Why do you say that?

_____
_____
_____
_____
_____

*Display This Question:*
*If utility_customer = PG&E*
*And We are reaching out because your household was automatically signed up for a PG&E rate that disco... = No*
*Or We are reaching out because your household was automatically signed up for a PG&E rate that disco... = Don't know*

Q20a If you wanted more information about the Green Saver program, what steps would you take? Please check all that apply.

- ☐ Visit the PG&E website (4)
- ☐ Do a web search (5)
- ☐ Ask a friend (6)
- ☐ ⊗I don't know (7)
- ☐ ⊗I don't want more information (8)

*Display This Question:*
*If utility_customer = CPA*
*And We are reaching out to you because your household signed up for a CPA rate that discounts your en... = No*
*Or We are reaching out to you because your household signed up for a CPA rate that discounts your en... = Don't know*

Q20b If you wanted more information about the Power Share program, what steps would you take? Please check all that apply.

- ☐ Visit the CPA Website (4)
- ☐ Do a web search (5)
- ☐ Ask a friend (6)
- ☐ ⊗I don't know (7)
- ☐ ⊗I don't want more information (8)

*Display This Question:*
*If CARE_DAC = Yes*
*And part_non_part = Part*
*And utility_customer = CPA*

Q21 Were you aware that you were also signed up for the CARE rate (which also reduces energy bills) at the same time that you were signed up for the Power Share program?

- ○ No (1)
- ○ Yes (2)
- ○ Don't know (3)

Q22 Do you participate in any utility financial assistance and/or energy efficiency programs? Please check all that apply.

- ☐ ⊗None (1)
- ☐ CARE/FERA (bill discount) (2)
- ☐ ESA (energy savings assistance - equipment upgrades) (3)
- ☐ All-Electric Baseline (4)
- ☐ Medical Baseline (rate discount) (5)

*Display This Choice:*
*If SJV Pilot = Yes*

- ☐ A program to replace your heating and cooking appliances to be all electric (6)
- ☐ ⊗Don't know (7)
- ☐ Other (8) _____

**End of Block: Effectiveness of programs in addressing barriers to participation**

**Start of Block: Information on any non-routine electricity usage**

transition4 Next, we'd like to hear about your household's composition and energy usage.

Q23 How many people live in your household? Please count yourself and anyone who lives with you at least half of the time
▼ 1 (1) ... 10+ (13)
Q24 How many school-aged children (18 or under) live in your household?
▼ 0 (1) ... 10+ (13)

Q25 Since the start of the COVID-19 pandemic, have any members of your household significantly increased the amount of time they spend at home (around 10 hours or more a week)? This would include changes like job losses, working from home more often, school closures, or additional family members moving in.

- ○ No (1)
- ○ Yes (2)
- ○ I don't know (3)

*Display This Question:*
*If part_non_part = Non-Part*

Q26 Over the past year and a half, how many times have you personally moved?

- ○ 0 (1)
- ○ 1 (2)
- ○ 2 (3)
- ○ 3+ (4)

*Display This Question:*
*If utility_customer = PG&E*
*And part_non_part = Part*
Q26a How many times have you personally moved since ${e://Field/sign-up%20month} ${e://Field/sign-up%20year}?

- ○ 0 (1)
- ○ 1 (2)
- ○ 2 (3)

- 3+ (4)

*Display This Question:*
*If utility_customer = CPA*
*And part_non_part = Part*
Q26b How many times have you personally moved since ${e://Field/sign-up%20month} ${e://Field/sign-up%20year}?

- 0 (1)
- 1 (2)
- 2 (3)
- 3+ (4)

*Display This Question:*
*If part_non_part = Part*
Q27a Since ${e://Field/sign-up%20month} ${e://Field/sign-up%20year}, have you or your household taken any steps to try and actively reduce energy use in your house?

- No (1)
- Yes (2)
- Not sure (3)

*Display This Question:*
*If part_non_part = Non-Part*
Q27b Over the past year and a half, have you or your household taken any steps to try and actively reduce energy use in your house?

- No (1)
- Yes (2)
- Not sure (3)

*Display This Question:*
*If Since ${e://Field/sign-up%20month} ${e://Field/sign-up%20year}, have you or your household taken... = Yes*
Q28 Since ${e://Field/sign-up%20month} ${e://Field/sign-up%20year}, what changes have you made to how you use energy in your home?

_____
_____
_____
_____
_____

*Display This Question:*
*If Over the past year and a half, have you or your household taken any steps to try and actively red... = Yes*

Q28b Over the past year and a half, what changes have you made to how you use energy in your home?

_____
_____
_____
_____
_____

**End of Block: Information on any non-routine electricity usage**

**Start of Block: Effect of bill discount on ability to pay energy bills**
*Display This Question:*
*If part_non_part = Part*
*And Do you own or rent your home? = Own*
*Or Do you pay your own electric bills or is electricity included as part of your rent? = Pay electric bills*
Now, we'd like to hear about how your ability to pay your bills has changed since ${e://Field/sign-up%20month} ${e://Field/sign-up%20year}.

*Display This Question:*
*If utility_customer = PG&E*
*And part_non_part = Part*
*And Do you pay your own electric bills or is electricity included as part of your rent? != Included in rent*
*And Do you pay your own electric bills or is electricity included as part of your rent? != Other (please specify):*
*And Do you pay your own electric bills or is electricity included as part of your rent? Text Response Is Empty*

*And We are reaching out because your household was automatically signed up for a PG&E rate that disco... = Yes*

Q29a Think back to BEFORE you started getting the Green Saver rate. Which of the following best describes your household's experience with paying energy bills?

- ○ Paying the energy bills was not an issue for us (1)
- ○ We occasionally struggled to pay the energy bills, but usually managed okay (4)
- ○ We often struggled to pay the energy bill (5)
- ○ We were constantly struggling to pay the energy bill (6)
- ○ Don't know (7)

*Display This Question:*
*If utility_customer = CPA*
*And part_non_part = Part*
*And Do you pay your own electric bills or is electricity included as part of your rent? != Included in rent*
*And Do you pay your own electric bills or is electricity included as part of your rent? != Other (please specify):*
*And Do you pay your own electric bills or is electricity included as part of your rent? Text Response Is Empty*

Q29b Think back to BEFORE you started getting the Power Share rate. Which of the following best describes your household's experience with paying energy bills?

- ○ Paying the energy bills was not an issue for us (1)
- ○ We occasionally struggled to pay the energy bills, but usually managed okay (4)
- ○ We often struggled to pay the energy bill (5)
- ○ We were constantly struggling to pay the energy bill (6)
- ○ Don't know (7)

*Display This Question:*
*If utility_customer = CPA*
*And part_non_part = Non-Part*
*And Do you pay your own electric bills or is electricity included as part of your rent? != Included in rent*

*And Do you pay your own electric bills or is electricity included as part of your rent? != Other (please specify):*
*And Do you pay your own electric bills or is electricity included as part of your rent? Text Response Is Empty*

Q29c Think about the past year and a half. Which of the following best describes your household's experience with paying energy bills?

- ○ Paying the energy bills was not an issue for us (1)
- ○ We occasionally struggled to pay the energy bills, but usually managed okay (4)
- ○ We often struggled to pay the energy bill (5)
- ○ We were constantly struggling to pay the energy bill (6)
- ○ Don't know (7)

*Display This Question:*
*If utility_customer = PG&E*
*And Before we mentioned it, had you heard of the Green Saver rate? = No*
*And Do you pay your own electric bills or is electricity included as part of your rent? != Included in rent*
*And Do you pay your own electric bills or is electricity included as part of your rent? != Other (please specify):*
*And Do you pay your own electric bills or is electricity included as part of your rent? Text Response Is Empty*

Q29d Think about the past year and a half. Which of the following best describes your household's experience with paying energy bills?

- ○ Paying the energy bills was not an issue for us (1)
- ○ We occasionally struggled to pay the energy bills, but usually managed okay (4)
- ○ We often struggled to pay the energy bill (5)
- ○ We were constantly struggling to pay the energy bill (6)
- ○ Don't know (7)

*Display This Question:*
*If utility_customer = PG&E*
*And Do you pay your own electric bills or is electricity included as part of your rent? != Included in rent*
*And Do you pay your own electric bills or is electricity included as part of your rent? != Other (please specify):*
*And Do you pay your own electric bills or is electricity included as part of your rent? Text Response Is Empty*

Q30a How has your ability to pay your home's energy bill changed since you were enrolled in the Green Saver rate in ${e://Field/sign-up%20month} ${e://Field/sign-up%20year}?

- ○ We are struggling **much more** with paying the energy bills now than we were before (1)
- ○ We are struggling **somewhat more** with paying the energy bill now than we were before (4)
- ○ Our ability to pay the energy bill is **about the same** as it was before (5)
- ○ We are struggling **somewhat less** with paying the energy bill now than we were before (6)
- ○ We are struggling **much less** with paying the energy bills now than we were before (7)
- ○ Don't know (8)

*Display This Question:*
*If part_non_part = Part*
*And utility_customer = CPA*
*And Do you pay your own electric bills or is electricity included as part of your rent? != Included in rent*
*And Do you pay your own electric bills or is electricity included as part of your rent? != Other (please specify):*
*And Do you pay your own electric bills or is electricity included as part of your rent? Text Response Is Empty*

Q30b How has your ability to pay your home's energy bill changed since you signed up for the Power Share rate in ${e://Field/sign-up%20month} ${e://Field/sign-up%20year}?

- ○ We are struggling **much more** with paying the energy bills now than we were before (1)
- ○ We are struggling **somewhat more** with paying the energy bill now than we were before (4)

- Our ability to pay the energy bill is **about the same** as it was before (5)
- We are struggling **somewhat less** with paying the energy bill now than we were before (6)
- We are struggling **much less** with paying the energy bills now than we were before (7)
- Don't know (8)

**End of Block: Effect of bill discount on ability to pay energy bills**

**Start of Block: Environmental/social benefits**

transition Now, we'd like to hear about your perception of the environmental benefits of the ${e://Field/program_name} program.

*Display This Question:*
*If utility_customer = PG&E*

Q31a Overall, do you think increasing access to solar energy would be beneficial to your community?

- Not beneficial at all 1 (1)
- Slightly beneficial 2 (2)
- Neither beneficial or hurtful 3 (3)
- Mostly beneficial 4 (4)
- Extremely beneficial 5 (5)
- Not sure (6)
- 

*Display This Question:*
*If utility_customer = CPA*

Q31b Overall, do you think increasing access to renewable energy would be beneficial to your community?

- Not beneficial at all 1 (1)

- ○ Slightly beneficial 2 (2)
- ○ Neither beneficial or hurtful 4 (3)
- ○ Mostly beneficial 5 (4)
- ○ Extremely beneficial 6 (5)
- ○ Not sure (6)

*Display This Question:*
*If utility_customer = PG&E*

Q32a Do you think the Green Saver program is ultimately lowering green house gas emissions (gases which trap heat and make the planet warmer) in California?

- ○ Not at all 1 (1)
- ○ Mostly not 2 (2)
- ○ Neither not at all or a great deal 3 (3)
- ○ Mostly yes 4 (4)
- ○ A great deal 5 (5)
- ○ Not sure (6)

*Display This Question:*
*If utility_customer = CPA*
*Or utility_customer = CPA*
*And part_non_part = Non-Part*

Q32b Do you think the Power Share program is ultimately lowering green house gas emissions (gases which trap heat and make the planet warmer) in California?

- ○ Not at all 1 (1)
- ○ Mostly not 2 (6)

- ○ Neither yes or no 3 (7)
- ○ Mostly yes 4 (8)
- ○ A great deal 5 (9)
- ○ Not sure (11)

*Display This Question:*
*If utility_customer = PG&E*

Q33a How important is it for you that there are opportunities for **you** to have access to solar energy?

- ○ Not important at all 1 (28)
- ○ Somewhat important 2 (29)
- ○ Neither important or unimportant 3 (30)
- ○ Very important 4 (31)
- ○ Extremely important 5 (32)
- ○ Not sure (33)

*Display This Question:*
*If utility_customer = CPA*

Q33b How important is it for you that there are opportunities for **you** to have access to renewable energy?

- ○ Not important at all 1 (28)
- ○ Somewhat important 2 (29)
- ○ Neither important or unimportant 3 (30)
- ○ Very important 4 (31)

- ○ Extremely important 5 (32)
- ○ Not sure (33)

*Display This Question:*
*If utility_customer = PG&E*

Q34a How important is it for you that there are opportunities for **your community** to have access to solar energy?

- ○ Not at all important1 (6)
- ○ Somewhat important2 (7)
- ○ Neither unimportant or important3 (8)
- ○ Very important4 (9)
- ○ Extremely important5 (10)
- ○ Not sure (11)

*Display This Question:*
*If utility_customer = CPA*

Q34b How important is it for you that there are opportunities for **your community** to have access to renewable energy?

- ○ Not at all important1 (6)
- ○ Somewhat important2 (7)
- ○ Neither unimportant or important3 (8)
- ○ Very important4 (9)
- ○ Extremely important5 (10)

- ○ Not sure (11)

*Display This Question:*
*If part_non_part = Part*
*And utility_customer = PG&E*

Q35a One goal of the program is to help residents contribute to adding solar energy to the grid, which distributes power from a source to homes and businesses, that otherwise wouldn't be able to. Do you think you would have been able to contribute to adding solar energy to the grid without this program?

- ○ No (6)
- ○ Yes (7)
- ○ Not sure (8)

*Display This Question:*
*If part_non_part = Part*
*And utility_customer = CPA*

Q35b One goal of the program is to help residents contribute to adding solar energy to the grid, which distributes power from a source to homes and businesses, that otherwise wouldn't be able to. Do you think you would have been able to contribute to adding solar energy to the grid without this program?

- ○ No (6)
- ○ Yes (7)
- ○ Not sure (8)
- ○

*Display This Question:*
*If utility_customer = PG&E*

Q36a How much do you feel that you are contributing to clean energy, energy that comes from processes that are constantly replenished like solar or wind, by being enrolled in the Green Saver program?

- ○ Not at All 1 (4)
- ○ Very Little 2 (10)
- ○ Somewhat 3 (5)
- ○ Very Much 4 (6)
- ○ To a great extent 5 (7)
- ○ Not Sure (9)

*Display This Question:*
*If utility_customer = CPA*
*And part_non_part = Part*

Q36b How much do you feel that you are contributing to clean energy, energy that comes from processes that are constantly replenished like solar or wind, by being enrolled in the Green Saver program?

- ○ Not at All 1 (4)
- ○ Very Little 2 (10)
- ○ Somewhat 3 (5)
- ○ Very Much 4 (6)
- ○ To a great extent 5 (7)
- ○ Not Sure (9)

**End of Block: Environmental/social benefits**

**Start of Block: SJV Pilot**

*Display This Question:*
*If SJV Pilot = Yes*
*And utility_customer = PG&E*

Q37 It appears that you live in a community that is being offered the opportunity to replace your gas appliances with electric appliances (including AC, your stove, and your water heater). Is this something you have heard of?

- ○ No (1)
- ○ Yes (2)
- ○ Not sure (3)

*Display This Question:*
*If SJV Pilot = Yes*
*And utility_customer = PG&E*
*And It appears that you live in a community that is being offered the opportunity to replace your gas... = Yes*

Q38 When you heard about that program did they mention bill protection, or this 20% bill discount or both of those things?

- ○ I heard about bill protection (1)
- ○ I heard about this 20% bill discount (2)
- ○ I heard about both (3)
- ○ Not sure (4)

*Display This Question:*
*If SJV Pilot = Yes*
*And utility_customer = PG&E*
*And It appears that you live in a community that is being offered the opportunity to replace your gas... = Yes*

Q39 Have you participated in the appliance change out program and had new items installed?

- ○ No (1)

- ○ Yes (2)
- ○ Not sure (3)

*Display This Question:*
*If SJV Pilot = Yes*
*And utility_customer = PG&E*
*And Have you participated in the appliance change out program and had new items installed? = Yes*

Q40 How helpful has the 20% bill discount been in keeping your electric bill lower with the addition of the new appliances?

- ○ Not at all helpful 1 (1)
- ○ Slightly helpful 2 (8)
- ○ Somewhat helpful 3 (2)
- ○ Very helpful 4 (3)
- ○ Mostly helpful 5 (5)
- ○ Extremely helpful 6 (6)
- ○ Not sure (7)

**End of Block: SJV Pilot**

**Start of Block: email address**

incentive_email Please fill out this form with the following information in order to receive a $5 gift card to a popular retailer of your choice including Amazon, Target, or Starbucks. We will send the incentive to the email address you provide us with.

If you have any questions or concerns, please reply to the email with the link to this form and we'll respond promptly. Thank you.

- ○ Email: (4) _____

○ Preferred Retailer: (5) _____

**End of Block: email address**

# Appendix J: Compiled Comments Received on Draft Report

| # | Section | Source | Comment/Feedback/Change Requested | Evaluator Response |
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| 1 | California Center for Sustainable Communities at UCLA (CCSC) | Executive Summary | The draft report notes that the evaluation included a survey of customers, solar developers, and PAs. We believe the program evaluation should include interviews with community based organizations (CBOs) representing disadvantaged / low-income areas across the State to assess their familiarity with the program, how understandable the program rules and processes are to them, and how feasible they believe it would be to serve as a community sponsor of a project. Based on these discussions, Evergreen should evaluate the appropriateness of various program rules, as well as the adequacy of program funding to support the community-based efforts envisioned by the CSGT. We have already provided insights in the previous section of this memo, based on 3 years of work with six CBOs based in LA County, SCE territory. | Thank you for sharing. The additional research here can be considered for a future evaluation. Evergreen did speak with participating CBOs that were signed on as partners, and at this early stage, they were largely unaware of their role. |
| 2 | PG&E | Executive Summary | What does "most attractive" mean when discussing differences in land costs and availability across the state? Lowest cost? | We mean easier to install since rooftop projects may incur greater costs. Added clarification to the report. |
| 3 | PG&E | Executive Summary | Under workforce development, please add that there are no enrolled CSGT customers which is also why there has not been much advancement in local jobs. | Added clarification to Executive Summary. |
| 4 | Coalition for Community Solar Access (CCSA) | 1.1 | The report did not point out that an important attribute of the DAC-GT and CSGT programs compared to the broader GTSR-ECR program is the utility PPA. Projects in the DAC programs are paid via a PPA with one of the Program Administrators (PAs). In contrast, projects in the GTSR-ECR programs recover revenues | Noted. No action item in report. |

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| | | | from project subscribers who are credited via a volatile pricing formula which sometimes yields negative value to the subscriber, compared to their otherwise applicable tariff. Although market-based pricing can be used successfully for community solar (e.g., New York's VDER), the GTSR-ECR program does not provide a financeable revenue stream, while the DAC programs have provided a stable source of revenues and, as a result, have spurred development. | |
| 5 | PG&E | 1.3 | Statement does not read well: "Using the logic model… meeting the goals identified in the logic model." | Edited the sentence for clarity. |
| 8 | PG&E | 2.2.2 | CIS has not been defined. | Added definition. |
| 9 | PG&E | 2.3.1 | What was the proportion of customer surveys that were incentivized? | All customer surveys were incentivized. |
| 10 | CCSA | 4.2.4 | The report misstates project location requirements. The program requires that a project be located wholly within a DAC. Eligible customers must be residents of the same DAC or residents of another DAC that is within 5 miles of the DAC where the project is located. An eligible project may not simply be within 5 miles of a customer's DAC as suggested in several places in the report. This misunderstanding does not invalidate the corrective suggestions made in the report. | Per the 2018 decision, page 17: “As discussed in Section 6.5, we target the new Community Solar Green Tariff program to the top 25% of communities per CalEnviroScreen, while allowing the projects themselves to be located in either the same communities or top 25% communities within 5 miles of the benefitting customers’ community". Some more detail from the follow up decision 18-10-007: "[...]the proper reading of the decision on this point is that the disadvantaged community (as opposed to the potential customer) must be within five miles of the project. The language supports this reading and |

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| | | | | clarifies that such disadvantaged communities must be "located in whole or in part" within five miles of the project. We clarify here that the proper interpretation of D.18-06-027 is that potential customers must be in a CalEnviroScreen 3.0-designated disadvantaged community (as defined in D.18-06-027) that is, in whole or in part, within five miles of the location of the project." (p.11). Projects must also be located in a DAC. Both DACGT and CSGT projects must be located in DACs. Specifically, CSGT projects must be located in DACs within 5 miles of DAC(s) where subscribing customers reside or within 40 miles for SJV pilot communities. |
| 11 | CCAs (specific CCAs identifie in each comment) | 4.2.4 | Support of CES 3.0 DAC customers participating in the Programs should be added to the recommendation list, if that is the Evergreen's intent. If customer participation is modified, should also discuss project siting within CES 3.0 DACs - would similarly encourage more potential project sites (like increasing urban cost cap) - PCE, SJCE, MCE, SDCP, CPA, EBCE | We are keeping the analysis in the report but are not making a recommendation to broaden it. This should be discussed in the upcoming applications/proceeding. |
| 12 | CCAs | 4.2.4 | Language on these pages and other areas within the report (including graphics) do not recognize that there are two CSGT siting requirements. It should be updated for clarity so that the eligible area for CSGT siting only includes DACs that are w/in the 5-mile border of participant DACs - PCE, MCE, SDCP | Removed graphic to avoid confusion and added text to clarify. |

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| 13 | RID Alternative | 4.2.4 | Support: aggregating contiguous DACs to better align with communities or creating new boundaries (legislative). | Recommendation redacted from report. |
| 14 | RID Alternative | 4.2.4 | Support: recommendation to look into community solar models in other states. | Thank you for the feedback. |
| 15 | PG&E | 4.2.4 | Tables 11-15 and 17-18: It will be helpful to also see the cumulative eligible customers. At the moment, all that is shown is that density of eligible customers decreases as you move through the scenarios. | We have added this to the report. |
| 16 | PG&E | 4.2.4 | Please clarify the following sentence: "A five-mile buffer includes 27 square miles, which can surround a DAC that is less than one square mile." | Removed sentence to avoid confusion. Was saying that if you can build a project within five miles of a census tract in any direction, the radius becomes very large, removing the project from the community it is intended to serve. |
| 17 | PG&E | 4.3.1 | Table 19 - PG&E would like to request that the "Planned Start Date" be removed from the report as this information is not publicly available and has not been filed in an advice letter. PG&E recommends that only "Planned Production Date" be included. It may also be beneficial to include a footnote to this table that these dates are subject to change. Lastly, PG&E's latest filing of advice letter 6510-E notes more projects to include on this list: (1) East Cleveland Road Solar, (2) Utica Ave Power Solar Project, and (3) Kings CSG 3. | We are including projects we know about through Q2 2021. We have removed the planned start date and have also added the footnote requested. |
| 18 | PG&E | 4.3.2 | Remove first "Finding" from the first bullet point. | Made edit. |
| 19 | PG&E | 4.4.4 | Were changing rates or COVID-related usage changes controlled for in the pre/post analysis? It is surprising to PG&E that the non-participant post daily bill is nearly double the pre-period. Additional explanation would be helpful here. | We excluded customers who transitioned to CARE during the study period to limit the impact of changing rates on the analysis. COVID-related usage changes were not |

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| | | | | explicitly controlled for in the pre/post analysis. The purpose of the comparison group is to estimate the impact of these factors on a similar population, to provide an estimate of changes over time that should not be attributed to the program. In Figure 18, you can see non-participant bill cost increasing year after year from a summer peak of $205 in 2018 and 2019 with larger jumps in 2020 and 2021. |
| 20 | CalAdvocates | 4.5 | There are multiple references to carbon abatement throughout the report. For example, page 4 states that "Analysis showed 29,717 metric tons of avoided CO2 emissions and estimated solar generation of 130,753 MWh from the interim resources serving DAC-GT customers." Table 26 also contains estimate of total CO2 abatement. On page 19, the report states that "At the outset of the evaluation, no new capacity had been installed nor was any capacity expected to be installed prior to or during the evaluation period." Because DAC-GT and CSGT have resulted in zero new capacity by the time of evaluation, the correct amount of CO2 abated is zero. Please either correct the estimates or include the caveat: "This is an estimate of what would have been abated if the customers had been served with new resources, rather than interim resources." | We suggest that future evaluations review what may have happened to the interim resources had they not been allocated to this program. For now, we have added a note that these calculations represent what would have occurred if the resources were new. |
| 21 | PG&E | 4.5 | Contextualize the GHG impacts - Can more details be provided on the avoided emissions calculations and assumptions? For example, what emission factors were used, and do they reflect the current levels of non-GHG-emitting resources supplying power to CA? Also this report should note that no new renewable | The following outlines how we calculated avoided emissions along with our assumptions:<br>Various data sources and tools were used to estimate the achieved |

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| | projects have yet come online, and these emissions reductions are associated with pre-existing resources used on an interim basis. PG&E recommends that the report provide an idea of where GHG impacts are at the moment and where it is going in the future and their location. How does this program contribute or affect overall mix of resources supplying the grid? | program-avoided emissions.<br>• For program year 2020, we utilized the Western Renewable Energy Generation Information System (WREGIS) reporting and solar project specifications associated with the interim resources in order to derive total solar generation.<br>• This same data (i.e. WREGIS data) were not available for program year 2021; therefore, we used 2021 participation data and participant billing data to estimate total consumption during the 2021 program year. This served as the proxy for total solar energy generated through the program for 2021.<br>• Having established total solar generation for the interim resources, we allocated the generation across each program year based on the PVWatts output to estimate solar generation at hourly intervals.<br>• 2020 hourly marginal emissions data from WattTime were matched to the hourly solar generation profile to estimate hourly avoided emissions data for each PA. WattTime utilizes a real-time emissions index, which provides a real-time signal indicating the marginal carbon intensity |

for the local grid for the current time (updated every 5 minutes) and is returned as a raw Marginal Operating Emissions Rate (MOER) value. We converted the 5-minute MOER value to an hourly value to align with the hourly generation data discussed above.
For additional context, WREGIS is an independent, web-based tracking system for renewable energy certificates (REC) that covers the Western Interconnection territory.
In addition to analyzing avoided emissions using the process just described, we also calculated emissions based on CARB's annual average emissions factor and applying it to the total solar generation. The CARB's annual average emissions factor value utilized for this approach was 0.00021182 MTCO2e per kWh. This factor was developed by CARB and is an average California grid electricity emission factor based on total in-state and imported electricity emissions divided by total generation. It is correct that interim RPS resources should not be counted toward avoided CO2. More generally, the RPS program does not have accounting in place for avoided CO2

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| | | | | emissions, and the IRP team is responsible for tracking avoided CO2. We adopted CalAdvocates' suggestion to annotate the avoided CO2 costs and note that "This is an estimate of what would have been abated if the customers had been served with new resources, rather than interim resources." In response to the comment about GHG impacts at the moment: This is outside the scope of this project and appears to be a question better answered by CPUC staff through an analysis of all GHG impacts reported through the programs offered by the utilities and the CPUC. |
| 22 | CCSC | 5.1.1 | Allow Storage. We recommend modifying the CSGT and DAC-GT programs to allow energy storage and to allow a solar installation to operate both as community solar during normal grid operations and as an island-able resilience center during a grid outage, thereby providing much needed energy resilience for underserved communities. Rapidly develop a set of equipment standards and communications protocols to support such dual operation. | This is out of scope for this evaluation and may be more appropriate to bring up in the upcoming proceeding. |
| 23 | CCSC | 5.1.1 | Set mandatory community solar targets. We recommend that not only should program capacity caps be removed, but IOUs should be required to build out the amount of MW of solar PV to meet needs of DAC and low-income residents, with progressive targets annually through 2045. These targets would be developed through the spatial analyses described above. In addition, values for the | This is out of scope for this evaluation. |

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| | | | minimum MW of solar to be built at a sub-regional level (by city or zip code cluster) should be established, to ensure proportional implementation across the State. | |
| 24 | CCAs | 5.1.1 | Recommendations for increasing time and resources into developing contact lists for potential solar developers must coincide with a reconsideration of the 10% program administration budget cost cap. Program Administrators would also benefit from suggestions for engagement strategies with solar developers pursuant to this recommendation. An increase in solar developer engagement does not change the larger barriers for developers that have been recognized by stakeholders such as space and geographical location in relation to the customer base. - CPA, EBCE, MCE, SDCP, PCE | Budget cap is out of the scope of this research but ideally, a centralized effort would save money overall on ME&O. With increased awareness, we can better assess the barriers for solar developers, and we also suggest further research with non-participating solar developers to better understand their thoughts on such bids. |
| 25 | RID Alternative | 5.1.1 | Would extending the solicitation timeline (to a minimum of 6-8 months or an annual vs. semi-annual solicitation, for instance) result in any foreseeable problems? | Procurement contracts themselves would not be handled by the central entity. It would serve as more of a "clearinghouse" or an entity that collects and distributes information. |
| 26 | CCSC | 5.1.2 | Auto-enrollment of customers is theoretically the ideal arrangement, eliminating the need to spend effort on outreach. However, it is not clear how either approach currently achieves a fair allocation of benefits. With an outreach-based approach, households who are more connected to local activities and social media will have first opportunity to enroll, leaving others out. An auto-enrollment system will have the same challenges, as long as the supply of solar is lower than consumption, and must therefore be carefully thought through, transparent, and well-described. We recommend allowing auto-enrollment, but requiring a fair and transparent system, ideally a single consistent method statewide. One possible mechanism would be for qualifying | This recommendation does not apply to Community Solar. Will add clarification in the report. |

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| | | | households to be auto-enrolled based upon a rank prioritization that was derived from their geographic proximity to the local community solar generation site. Such a "nearest-neighbor" prioritization would have a number of benefits, for example:<br>• It would guarantee local representation in terms of the program participant group actually receiving benefits from the development of the solar potential of the facilities in the local community.<br>• It would minimize potential concerns of grid operators about the geographic distance separating the location of the generator site and the locations of customers being virtually allocated its output under the virtual net-metering program.<br>• It would motivate local community members and leaders interested in receiving benefits from the program to petition potential local property owners/managers to participate as site hosts. Auto-enrollment would also have the benefit of freeing up community resources that could instead be used for community engagement around siting and workforce development. | |
| 27 | CCAs | 5.1.2 | PAs should retain the option of auto-enrolling or self-enrolling DAC-GT participants. Self-enrollment enhances customer education about renewable generation and program awareness. The recommendation to require mandatory auto-enrollment should not be solely predicated upon increased funds available for customer bills discounts and preventing disconnections. While the customer bill discount is an important aspect of the DAC-GT and CSGT programs, the primary purpose of the programs is to "promote the installation of renewable generation among residential customers in disadvantaged communities" as directed by state legislation (D.18-06-027 at pg. 2). Policy redesign recommendations must balance the benefits and costs of this policy objective of | Yes, auto-enrollment enhances customer awareness of the program, but program awareness is not an objective of the program. The program aims to promote installation, not awareness of installation. |

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| | | | expanding residential use of renewable energy. - CPA. | |
| 28 | CCAs | 5.1.2 | The CPUC does not require specific autoenrollment criteria. See Resolution E-5124 at 31 (OP 25), "It is reasonable for participating CCAs to automatically enroll eligible DAC-GT customers as long as their enrollment criteria are in alignment with the spirit of D.20-07-008 and target customers at high risk of disconnection." Auto enrollment is therefore only favorable when both elements are feasible. - PCE,MCE, SDCP, CPA | This recommendation does not apply to Community Solar. Will add clarification in the report. |
| 29 | CCAs | 5.1.2 | While auto-enrollment can save money on outreach, there remain equity barriers such as language that are difficult to overcome without customers electing to enroll. Targeted outreach utilizing community-based organizations helps to minimize outreach spending while ensuring underserved residents get a fair chance at enrolling. - SJCE, CPA | This recommendation does not apply to Community Solar. Will add clarification in the report. |
| 30 | CCAs | 5.1.2 | We recommend clarifying that the report's auto-enrollment recommendation does not apply to the CSGT program. Auto-enrollment for CSGT would remove the community education element, which is critical to achieve the program objectives of CSGT. - CPA, SDCP, MCE | Clarified that auto enrollment does not apply to Community Solar. |
| 31 | GRID Alternatives | 5.1.2 | Would defaulting to auto-enrollment to reduce outreach & marketing costs undermine the program's intention to involve the community in solar development? | This recommendation does not apply to Community Solar. Will add clarification in the report. |
| 32 | CCSA | 5.1.3 | Developer awareness. The report suggests that developers were unaware of the opportunity and therefore did not respond. However, the consultants provided data in the workshop showing that more than 4,000 emails had been sent out to solar companies and that the PA contact lists were not overlapping. Regardless of whether the addressee had the job title "developer", that level of outreach is more than adequate to | We note the interconnection challenges in our research. We asked solar developers if they remember hearing about the opportunity and they said no, which means we cannot assume they saw it and decided it was not worth their time, although |

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| | | | ensure that solar development companies are aware of a program. Clearly, the majority of developers immediately dismissed the opportunity, and the reasons are obvious: the opportunities presented by the PAs were too small and the bid requirements too onerous for the market to respond. For example, PG&E made 100% of its CSGT capacity of approximately 14 MWs available in every RFO but limited the maximum project size to < 5MWs. SCE, in contrast, only made 5 MWs of CSGT capacity available in any RFO. In addition, interconnection requirements in the first series of RFOs were onerous. PG&E's initial RFO contemplated that the project would have gone through a cluster process, either at the CAISO or through PG&E's distribution system cluster study process. In either case, a 5 MW project generally cannot pay for these studies or the required interconnection deposits on an 'at risk' basis. Only projects eligible for FastTrack interconnection had the flexibility to schedule their interconnection deposits such that they would be able to respond to the RFOs. Utility Fastrack applications are limited to 3 MWs and many projects are not able to pass the eligibility screens in the Fastrack process. Later rounds of the RFOs responded to industry input and modified the interconnection requirements. | of course that is a possibility. |
| 33 | CCSA | 5.1.3 | The report suggests that developers need as much as 8 months after the issuance of an RFO to secure a site, obtain an interconnection agreement and bid into the program. Elsewhere, the report notes that the IOUs offer the capacity twice each year. There is no need for such a long period of time after the announcement of an RFO. Developers interested in the program have two opportunities each year to offer their projects. What is lacking in the current process is program capacity and transparency on the uptake of the capacity--developers know the | Procurement contracts themselves would not be handled by the central entity. It would serve as more of a “clearinghouse” or an entity that collects and distributes information. |

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| | | | program is small and likely assumed the capacity was gone after the initial rounds. | |
| 34 | CCSC | 5.1.3 | We recommend the development of a set of program data support tools. This should include a master mapping tool, to provide a definitive source of on-line, interactive, census tract-scale information on eligibility that can be used by everyone involved in the program. This would be consistent with the report's recommendation to centralize other aspects of the program administration. Such a tool should also identify the solar potential on government owned and community-oriented building rooftops within the geographies defined by the program. The tool should allow users to interact with all relevant data layers (aggregated as needed for privacy-protection). | Beyond the low response rate, there was also low awareness of the opportunities in general, and we might see that if PG&E solar developers become aware of other opportunities, they may be able to help with capacity in other regions as well. CCSC at UCLA recommends a data support tool that we also noted in the report would be helpful. This can be further discussed in the proceeding. |
| 35 | CCAs | 5.1.3 | A central coordinator for CSGT developer/community organization outreach would likely still raise issues - (1) would a central coordinator save ME&O costs if they are unable to reach all the possible/interested CBOs in a Program Administrator's (PA) service territory (especially true for CCAs)? (2) How would ME&O costs be allocated across the PAs? What if the services meant to be provided by the central coordinator do not provide the PA benefits (e.g., bidder finds the RFO through contact with the PA, CBO sponsor is found w/o the central coordinator)? How would these ME&O costs be estimated by the individual PAs for their Annual Budget ALs? How would the FTE for a central coordinator be established with so many CCA and IOU specific programs with varying load capacities to facilitate and partner with CBOs? IOUs have much more solar capacity allocated to them; having a central coordinator could lead to the central coordinator serving the needs of the larger IOUs, and not on the individual needs of the CCAs with small allocations. - PCE, MCE, SDCP. | Identified by CPUC as something to be considered during applications/proceeding. CCAs can still assist and coordinate with the central entity on marketing/outreach per the CPUC. |

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| 36 | CCAs | 5.1.3 | It is not recommended to centralize and coordinate solar developer outreach and solicitation process. The three IOU regions are very diverse with multiple layers of differences among them. Ensuring that the local PA maintains local contacts and outreach is important to the success of the program as they maintain and build relationships that are important. - SDCP, CPA, EBCE | Would like to see extrapolation as to why local contacts and outreach are key to success. These relationships can still be leveraged with a centralized ME&O process. |
| 37 | CCAs | 5.1.3 | Collection of all information and materials relating to project sponsor outreach over a three-year period would require significant staff hours and must be considered within the context of a 10% program administration cost cap. - CPA, PCE | We added clarification. For future evaluations it would be helpful to review the event dates, number and type of attendees, and types of outreach done prior to event. |
| 38 | PG&E | 5.1.3 | PG&E recommends including for consideration, leveraging existing reporting methods such as the DG stats web portal to submit DAC data on a quarterly basis to in lieu of the quarterly filing of the DAC progress report to avoid redundancy and eliminate creation of a new data platform specific to this program. This would incorporate data into an existing, centralized location and create consistency across the program administrators. The intent of this seems to be a consolidation of progress in consistent ways across the state; DG stats is a strong, existing location for data (contingent upon this replacing a quarterly filing); provides data in a more useful way across administrators. | Identified by the CPUC as something to be considered during applications/proceeding. CCAs can still assist and coordinate with the central entity on marketing/outreach per the CPUC. |
| 39 | PG&E | 5.1.3 | While PG&E believes centralization can provide benefits and streamline processes, PG&E is concerned that the recommendation for centralization is based on extremely low response rates from solar developers (e.g., ~1% of PG&E contacts). This information may not represent the population of solar developers and may not be adequate to base recommendations on process/program changes, namely centralizing solar developer outreach/solicitation. Solicitation has been | Beyond the low response rate, there was also low awareness of the opportunities in general, and we might see that if PG&E solar developers become aware of other opportunities, they may be able to help with capacity in other regions as well. CCSC at UCLA recommends |

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| | | | successful for its DAC program with both programs approaching fully procured. From PG&E's perspective, it does not make sense to commit to centralizing solicitation and outreach for its program. If there is centralization, the PAs should have an option to participate in the centralized solicitation process. However, PG&E notes that there remain open questions to be resolved prior to centralizing the process such as: (1) What structure will the centralized solicitation process take? (2) Who will be executing contracts? (3) Who will be negotiating terms and conditions? (4) What additional costs/resources would be required to initiate this process? (5) What cost recovery mechanism would be used, especially light in light of LSEs that have partially or fully met their procurement obligation? | a data support tool that we also noted in the report would be helpful. This can be further discussed in the proceeding. |
| 40 | SCE | 5.1.3 | If a coordinating organization is considered, SCE is opposed to having a centralized entity conducting solicitations on behalf of SCE's bundled service customers. It's unclear whether this would improve program results, particularly considering that Load Serving Entities' (LSEs) with procurement obligations and extensive experience are best suited to administer Request for Offers (RFOs). Establishing a centralized entity to procure Renewable Resources in DACs would be costly, complex and time consuming to establish with no clear benefit to SCE's customers or the program objectives. | Procurement contracts themselves would not be handled by the central entity. It would serve as more of a "clearinghouse" or an entity that collects and distributes information. |
| 41 | SCE | 5.1.3 | SCE requests to clarify if the report did not find a significant overlap in contact list amongst PAs - there may not be an added value to sharing. In addition, sharing contact lists may have confidentiality issues. | We suggest sharing because of the minimal overlap. This means that there are solar developers who may be interested in bidding on this type of work in one area who do not ever hear about work in another. |

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| 42 | SCE | 5.1.3 | SCE runs two RFOs per year and has launched those RFOs at the same time since these programs started. As part of the submission requirements for developers on this and all other RFO's SCE conducts, prerequisites to determine project viability include site control and either an interconnection study or executed Interconnection Agreement. SCE proposes that solicitations be run annually, rather than bi-annually and is open to extending the offer submission window but is not open to easing the project viability requirements. | Easing of viability requirements has been removed as a report recommendation. |
| 43 | SDG&E | 5.1.3 | It's not clear to us if having a centralized approach for solicitation information would increase bid activity in SDG&E's territory since the hurdles seem unrelated to developers knowledge of the RFPs and are directly related to land costs and the fewer number of DACs overall. Recommend that this part of the report discussion should probably indicate that this approach will not solve all lack of participation in all territories. | For PG&E, of the 37 solar developers we reached, 24% heard of DAC-GT and 24% heard of CSGT. |
| 44 | CCSC | 5.1.4 | We agree with the observations about the complexity of the program geographic boundaries. It was obvious from discussion at the workshop that there was not a consistent understanding of the geospatial rules that would apply to determine eligible sites and/or customers. | Recommendation redacted from report. |
| 45 | CCAs | 5.1.4 | Expanding to tribal nations would allow PAs to better serve, at their discretion, the residents and businesses located there. It may also potentially increase the amount of land available for procurement. - SDCP | It is noted that SCE does not support this recommendation, and GRID and the CCAs do. |
| 46 | CCAs | 5.1.4 | Request clarity on recommendation for contiguous DAC participation in CSGT projects. Meant to be applied just to program participant eligibility? Or eligibility of DACs for siting purposes? Is the suggestion that customers can participate if they are beyond the 5-mile radius but abut a DAC that is within | Recommendation redacted from report. |

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| | | | the 5-mile radius? And/or could a project be sited in a DAC that is not within the 5-mile radius of participating customers but abuts a DAC that is within the 5-mile radius? - PCE, CPA, MCE | |
| 47 | RID Alternative | 5.1.4 | GRID Alternatives enthusiastically supports the expansion of the program siting ability to tribal territories, for all of the same reasons presented in the DAC-SASH program justification. We believe this will greatly increase the adoption of DAC-GT/CSGT, especially in SDG&E territory. | It is noted that SCE does not support this recommendation, and GRID and the CCAs do. |
| 48 | SCE | 5.1.4 | Aggregation should consider the Program Administrator's ability to track/monitor eligibility. For example, SCE does not have the ability to identify legislative boundaries and thus, would not be in favor of aggregation at this level due to the complexity that this feature will present. City boundaries could be a consideration. | It is noted that SCE does not support this recommendation, and GRID and the CCAs do. |
| 49 | CCAs | 5.1.5 | We request clarity as to what is expected regarding the Workforce Development aspect of the CSGT program - MCE | Thank you for the feedback. |
| 50 | CCAs | 5.1.5 | Cautions against requiring CSGT developers to include hiring and training metrics, goals, and outcomes in attestations or other administrative requirements as it is already difficult to get developer enthusiasm for the program. - PCE, MCE, SDCP, CPA | Thank you for the feedback. |
| 51 | RID Alternative | 5.1.5 | GRID Alternatives supports the inclusion of job training requirements, data tracking and overall developer accountability to workforce development in the DAC-GT program, to be aligned with the DAC-CSGT program in all service territories. This has already been enacted in many CCA territories, where each CCA has acted upon themselves to include workforce development and job training requirements in their DAC-GT program offerings. We believe this should be made standard in all utility territories across all programs, with clean goals and objectives that | Thank you for the feedback. |

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| | | | all developers can follow, while keeping both sides of the program (CSGT and DAC-GT) aligned and with similar standards throughout the state. | |
| 52 | SCE | 5.1.5 | This information [number of job training programs leveraged] is provided by Developers upon SCE's request. As such, SCE agrees with the recommendation to provide this information as provided by Developer no more than once per year. | No change needed. |
| 53 | CCAs | 5.2.1 | Location of DAC-GT and CSGT generation is already provided in Program Administrators' Quarterly Reports. - CPA, PCE | Clarified in report that data are available from CCAs and from SCE. |
| 54 | CCAs | 5.2.1 | Tracking and reporting customer information regarding participation in other cross-promoted clean energy programs would require significant staff hours and must be considered within the context of a 10% program administration cost cap. It is unclear whether master metered data is available, and it should be noted that any data provided should not be attributable to individual, identifiable customers. - CPA, SDCP, MCE, PCE, EBCE | These data are important to have to show that participation is happening, though we do recognize that these data are outside of the CIS and are complicated to pull. This should be considered in the RTR and applications/proceedings. |
| 55 | PG&E | 5.2.1 | Both the number of conforming and non-conforming bids differentiated by the number of submitted offers vs. the number of proposed selected projects from those offers (confidential and market sensitive). | Added clarification that this was available with follow up from PG&E and in SCE's IE report. |
| 56 | PG&E | 5.2.1 | Comparing arrearage for participants and non-participants may not be the way to analyze the data (is challenging to use this as a measure of program success for PG&E since participants were auto-enrolled for very specific reasons and a relevant comparison non-participant group may be difficult to identify). | If reducing arrearages is a key metric of program success, then it will be important to find an appropriate baseline to measure from. PG&E and SCE raise a good point that non-participants with a history of arrearages are defaulted into the program. Pre/post without a comparison group is not ideal but may be the best |

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| | | | | option in this case. We withdrew this recommendation. |
| 57 | SCE | 5.2.1 | SCE does not support this recommendation [to report number of conforming and non-conforming bids by offer] since the information is confidential and already provided to Energy Division via the Independent Evaluator report. | Added clarification that this was available with follow up from PG&E and in SCE's IE report. |
| 58 | SCE | 5.2.1 | SCE requests that more specificity be provided on what is considered outreach beyond documentation and materials. For example, for Community Based Organization's outreach to sponsors, are we tracking meeting dates, event name, etc.? | We added clarification. For future evaluations, it would be helpful to review the event dates, number and type of attendees, and types of outreach done prior to event. |
| 59 | SCE | 5.2.1 | SCE would be unable to provide this information [number of MW installed/costs] because the costs of installed MWs would come from developers and could vary greatly from project to project. The developers do not share this information with SCE. (p.78-79) | We think it would be helpful to explore getting this confidential information from developers but if this is not possible, we suggest looking to other cost metrics such as the $/MW in the purchase agreement. |
| 60 | SCE | 5.2.1 | SCE is unclear on the data requested and asks for the Independent Evaluator to provide more specificity. If the recommendation is in reference to costs of installed MWs, the costs of installed MWs is a developer's proprietary information, and these values would vary greatly from project to project. The developers do not share this information with SCE. (p.79) | We think it would be helpful to explore getting this confidential information from developers, but if this is not possible, we suggest looking to other cost metrics such as the $/MW in the purchase agreement. |
| 61 | SCE | 5.2.1 | Data has shown little or no attrition. SCE does not support a proposal to monitor attrition rate since the assumption is that most customers would want the 20% bill discount. It is SCE's belief that attrition would likely only be a result of customers closing their account. This is not informative and would be hard to | Data are small at this point and we cannot yet assess if attrition is occurring. There are many other reasons why customer may leave the program, such as a move, and this will impact |

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| | | | determine reason for dropping out of the program. | the total number of customers served. |
| 62 | SCE | 5.2.1 | SCE already reports out the customer count by census tract, along with the census tract that the project is in for each program. If needed, SCE can separate the reporting out by Project as opposed to program. However, customer-specific information is confidential and cannot be shared. | Clarified in report that data are available from CCAs and from SCE. |
| 63 | SCE | 5.2.1 | SCE supports having accurate data, but SCE questions the usefulness of this data as it relates to any modifications to the DAC-GT/CSGT programs. In addition, SCE requests clarification of clean energy programs that would be tracked, since DAC GT/CSGT customers are not eligible for NEM and other green energy programs. Program participation data would have to be limited to what is available in SCE system(s). For example, we may have minimal (if any) program participation information for customers on a master meter or served by a CCA. If the data is regarding SJV customers, SCE already provides this information at the census tract level in the quarterly progress report. Customer-specific information is confidential and cannot be shared. | These data are important to have to show that participation is happening, though we do recognize that these data are outside of the CIS and are complicated to pull. This should be considered in the RTR and applications/proceedings. |
| 64 | SCE | 5.2.1 | SCE does not believe that comparing arrearage for participants vs non-participants would provide an accurate comparison and be informative. If customers in arrears are auto-enrolled for this program, then comparing customers in the program vs not in the program would not provide a fair comparison and is not recommended. If anything, arrears should be measured before they join the program and compared to while they are on the program. | If reducing arrearages is a key metric of program success, then it will be important to find an appropriate baseline to measure from. PG&E and SCE raise a good point that non-participants with a history of arrearages are defaulted into the program. Pre/post without a comparison group is not ideal, but may be the best option in this case. We withdrew this recommendation. |

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| 65 | SCE | 5.2.1 | SCE recommends that we leverage DG Stats to submit DAC data on a quarterly basis and also eliminate the quarterly filing of the DAC progress report. Instead, incorporate into the data that would be submitted to DG Stats. | Discussion about using DG stats can happen in the applications/proceeding. |
| 66 | SDG&E | 5.2.1 | Should also note as a "con" [of PA data coordinator] in that table that contracting with a separate centralized portal, third party or website would add costs to the program administration not currently budgeted for. The evaluator has that as a "con" on Table 29 already but not in Table 28. This may not be what was intended, but another con to be added for both these tables is that RFPs have confidentiality requirements that are not contemplated in moving to a central approach. It is not known how one location would run multiple RFPs and maintain required competitiveness, confidentiality, how complex that would be, how firewalls would be regulated, etc. The recommendation does not address or mention those issues. | SDG&E should bring this up in the response to recommendations. |
| 67 | PG&E | 5.2.2 | PG&E believes the overall capacity goals of the program are clear and stepped goals are not necessary at this time. Some PAs have nearly met their capacity goals and others are just beginning administration. | This is out of scope for this evaluation. |
| 68 | PG&E | NA | Will there be a "threats to validity" section added to the final report and if not, why? | See limitations section. |

# Appendix K: Responses to Recommendations

This section includes responses to recommendations from:

- CPA
- CPSF
- EBCE
- MCE
- PCE
- PG&E
- SCE
- SDG&E
- SJCE