

PG&E SGIP RESIDENTIAL FINANCIAL ASSISTANCE PILOT EVALUATION

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1 INTRODUCTION

California's Self-Generation Incentive Program (SGIP) provides financial incentives for the installation of energy storage systems and distributed generation technologies. Pacific Gas and Electric Company (PG&E) developed the SGIP residential financial assistance pilot in 2020 to help vulnerable residential customers install energy storage systems at their homes. Residential customers eligible for the pilot were those eligible for the SGIP Equity budget or those eligible for the SGIP Equity Resiliency budget by nature of their enrollment in medical baseline or voluntary notification to PG&E of a medical condition that would be life threatening without electricity. Customers qualifying for Equity Resiliency reside in high fire-threatened districts or experienced two or more Public Safety Power Shutoff (PSPS) events. Power outages in these fire-threatened regions would interfere with the medical equipment these customers need.

Traditionally, the SGIP provides 100% of the financial incentive to residential customers upon project completion. In contrast, the pilot provided 50% of the SGIP incentive upfront after reservation approval and the other 50% after the project was completed. Under pilot rules, developers were not allowed to require any payment from customers prior to project completion. The pilot's primary goal was to alleviate the financial burden on host customers by aiding cash flow for project developers.

The pilot was designed as part of the PG&E SGIP Marketing, Education and Outreach Plan (ME&O) which also leveraged the relationship that community-based entities have with customers. These entities, referred to as customer recruitment incentive (CRI) entities, were incentivized to identify leads and connect eligible customers with developers. CRI entities received incentive payments for referred pilot applications under the ME&O plan.

The pilot was approved and went into effect on July 16, 2020.¹ By that time, the PG&E Residential Equity budget had been fully allocated, while the PG&E Residential Equity Resiliency budget was fully allocated in September 2020.

1.1 EVALUATION GOALS

This evaluation explores how well the pilot enabled project developers to support vulnerable customers and whether it operated as originally intended.

The following research questions are addressed by this evaluation.

¹ Link to PG&E Advice Letter - Request for Self-Generation Incentive Program Financial Assistance Pilot to Support Customer Resiliency: https://www.pge.com/tariffs/assets/pdf/adviceletter/GAS_4226-G.pdf

- What is the underlying program theory? Did the pilot operate in a manner to support this model?
- Are there barriers in the implementation and administration of the pilot that may impact its success? If so, how might they be addressed?
- What roles did the CRI entities play in acquisition of pilot participants? Did they act as intended?
- Did the pilot reach host customers that it originally intended to reach?
- How many pilot participants have there been? What are the characteristics of these participants?

1.2 REPORT CONTENTS

The remainder of this report includes the following:

- **Section 2** describes the research methods and data sources used in this study.
- **Section 3** presents results from this evaluation.
- **Section 4** discusses findings and recommendations.
- **Appendix A** presents the survey instruments used for the PG&E in-depth-interview, the CRI entity interview, the developer interviews, and the host customer web survey.
- **Appendix B** presents the host customer web survey response frequencies.

2 METHODS

This section summarizes the research activities and sources of data used in this study. The primary data sources used in this evaluation include:

Pre-existing data sources:

- The SGIP Statewide Project Database
- PG&E Advice Letter - Request for Self-Generation Incentive Program Financial Assistance Pilot to Support Customer Resiliency²

Data from research activities:

- In-depth interview conducted with PG&E
- In-depth interview conducted with the Customer Recruitment Incentive (CRI) entity
- Phone interviews conducted with pilot-enrolled developers
- Web surveys completed by host customer pilot participants and non-participants

The four research activities outlined above enabled Verdant to study participants' experience and perceptions of the pilot. In particular, the PG&E in-depth interview gave context regarding the pilot's original design and intent. The phone interviews and web surveys with the CRI entity, developers, and host customers were the vehicles through which direct feedback was collected from pilot participants.

2.1 PG&E IN-DEPTH INTERVIEW

Verdant conducted an in-depth interview with PG&E to learn about the design and administration of the pilot. PG&E was interviewed on various topics including the pilot's goals, structure, and perceived successes and challenges. This interview helped inform understanding of the program's theory and implementation and guided the development of subsequent interview guides and survey instruments. Appendix A.1 presents the list of questions used to guide the PG&E in-depth interview.

² https://www.pge.com/tariffs/assets/pdf/adviceletter/GAS_4226-G.pdf

2.2 CRI ENTITY IN-DEPTH INTERVIEW

There was one Customer Recruitment Incentive (CRI) entity that was involved with the pilot. Verdant interviewed this CRI entity to learn more about their role in the pilot. Topics included the lead generation process, the incentive payment process, and their satisfaction with the pilot. Appendix A.2 presents the list of questions used to guide the CRI entity interview.

2.3 DEVELOPER INTERVIEWS

Developers enrolled in the pilot were interviewed by phone. There were nine developers enrolled in the pilot. Of those, four submitted applications to the pilot and five did not. Verdant interviewed two of the four developers that submitted applications to the pilot (applications from these two developers accounted for 98.4% of all pilot applications). Verdant also interviewed four of the five developers enrolled in the pilot which did not submit any applications. Interview questions covered topics relating to the pilot enrollment process, lead generation, the incentive payment process, barriers to participation, and satisfaction with the pilot. Appendix A.3 presents the full survey instrument used for the developer interviews.

2.4 HOST CUSTOMER SURVEY

Host customers were contacted through a web survey. Survey questions covered topics relating to the influence of the SGIP incentive and the pilot on host customer decision making, host customer financing, and marketing and lead generation. Appendix A.4 presents the full survey instrument used for the host customer web survey.

The web survey targeted two sub-populations of SGIP participants: pilot participants and non-pilot participants, as defined below. The non-pilot participant population represents host customers that theoretically could have been eligible for the pilot if their developer had the option to offer it. The inclusion of non-pilot participants in the survey allowed for direct comparison of pilot and non-pilot participants with respect to demographics, decision-making, and selected financing options.

Pilot Participants: PG&E host customers with SGIP projects submitted to the PG&E Residential Financial Assistance Pilot. Projects that were cancelled or on the waitlist were not included in the surveyed sample.

Non-Pilot Participants: PG&E host customers that submitted projects to the SGIP during 2020. These projects must be single family homes in the Equity Resiliency budget that qualified either through enrollment in a medical baseline program or notification to PG&E of a serious illness or condition. Projects that were cancelled or on the waitlist were not included in the surveyed population.

The sample targets for the host customer web survey were designed so that results could be reported with high confidence for each sub-population. Sample sizes were estimated for each sub-population to enable reporting on scalar questions at a relative precision of 15% or better, measured at 85% confidence (85/15). An assumed coefficient of variation (CV) of 0.5 was used to determine the required sample sizes. A survey invitation with a web link was emailed to all pilot participants and a simple random sample of 500 non-pilot participants. Following the initial round of completed surveys, a reminder email was sent to all host customers who had not yet responded. Table 2-1 summarizes the target and achieved host customer sample sizes for each sub-population.

TABLE 2-1: HOST CUSTOMER TARGET AND ACHIEVED SAMPLE BY PARTICIPANT TYPE

Participant Type	Host Customer Population	Host Customer 85/15 Target Sample	n Completes	Achieved Relative Precision ³
Pilot Participants	257	23	82	13.5%
Non-Pilot Participants	1,732	25	162	8.7%
Total	1,989	48	244	----

The sample targets were exceeded by a large margin in both survey sub-populations. Though the achieved CV was significantly higher than the assumed value of 0.5 (1.1 and 1.0 for pilot and non-pilot respondents, respectively), the high survey response rate allowed the survey to still meet its relative precision targets. Response frequency tables for each question in the host customer survey are included in Appendix B. Where possible, open-ended responses were grouped together and categorized. The categorized open-ended responses are also presented in the appendix tables.

³ Achieved relative precision was calculated from results of the host customer survey question: “On a scale of 0 to 10, where 0 is not at all likely and 10 is extremely likely, how likely would you have been to install an energy storage system at your home if the SGIP incentive had not been available?”

3 RESULTS

This section presents findings from the four primary data collection activities completed in this study (PG&E interview, CRI entity interview, developer interviews, and host customer web survey). Results are organized thematically, beginning with an overview of the pilot design and implementation, followed by host customer demographics, pilot influence, and barriers to participation.

3.1 PILOT DESIGN AND IMPLEMENTATION

This section presents results related to the pilot's design and implementation as determined through discussions with PG&E, interviews with the CRI entity, interviews with developers, and the host customer survey.

3.1.1 Pilot Eligibility and Requirements

Developer Qualification and Enrollment

Developers had to undergo a vetting process by PG&E in order to enroll in the pilot. Developers were required to provide PG&E with proof of their license, certificates of commercial general liability and auto business insurance, and their Better Business Bureau status. They also had to be in good standing under the SGIP. Nine developers were enrolled in the pilot. Each interviewed developer reported that the pilot enrollment process was a simple and smooth experience. Of the nine developers enrolled in the pilot, four ended up submitting at least one SGIP application to the pilot. The single most active developer in the pilot was responsible for 89 percent of the total pilot application volume.

Host Customer Qualification

The pilot was open to PG&E residential host customers under the condition that they qualified for SGIP's Equity budget or SGIP's Equity Resiliency budget by means of medical baseline enrollment or having notified PG&E of their reliance on lifesaving medical equipment. In practice, all participants in the pilot qualified through the Equity Resiliency Budget as outlined in Table 3-1 below. Host customers were only offered to participate in the pilot if they were affiliated with an enrolled developer. According to participating developers, host customers were usually introduced to the pilot after an initial discussion regarding wider SGIP participation.

TABLE 3-1: PG&E RESIDENTIAL PILOT 2020 HOST CUSTOMER PARTICIPANT QUALIFICATION⁴

Criteria	Pathways for eligibility	Description
1.	a) In HFTD Tier 2 or 3; OR ,	Located in a High Fire Threat District (HFTD) Tier 2 or Tier 3.
	b) Have experienced two or more PSPS events.	Customers whose electricity was shut off during two or more discrete Public Safety Power Shutoff (PSPS) events prior to the date of application for SGIP incentive.
AND:		
2.	a) Eligible for medical baseline; OR ,	Eligible for the medical baseline program as defined in D.86087, 80 CPUC 182.
	b) Have serious illness/condition that's life-threatening if disconnected.	Customer that has notified their utility of a serious illness or condition that could become life-threatening if electricity is disconnected, as defined in D.12-03-054.

Developer and Host Customer Pilot Agreement

For each SGIP pilot application, developers and host customers were required to sign the PG&E Incentive Advance Pilot Agreement which outlined participation terms and conditions to receive the advance incentive. Under these conditions, the developer agreed not to charge the host customer any out-of-pocket costs prior to the final SGIP project incentive payment. The host customer also agreed for the 50% advance incentive to be paid directly to the developer.

Responses from the host customer web survey confirmed that developers complied with the restriction on charging customers prior to project completion. Though nine percent of pilot respondents reported they did make a payment prior to project completion, these pilot respondents reported that the upfront payments were for other equipment or services, not for the energy storage system itself. In fact, 16 percent of pilot respondents reported that they contracted additional services from their developer at the same time as the energy storage system (most commonly a solar PV system), which was allowed under program rules.

In the PG&E Advance Pilot Agreement, the developer also agreed to complete the project within 90 days from the date of the 50% advance incentive payment (unless otherwise agreed to by PG&E). If the project was not completed within 90 days, the developer would be required to pay back the 50% advance incentive to PG&E.

Per PG&E and developer feedback, there was not a case where advanced funds were pulled back from a developer due to missing the 90-day project completion window. Some developers reported equipment manufacturer delays that caused projects to extend beyond the 90-day window; however, they were able

⁴ The PG&E Residential Pilot Host Customer Eligibility Matrix is adapted from Southern California Edison's SGIP Equity Resiliency Eligibility Matrix located here: https://www.selfgenca.com/documents/handbook/res_matrix

to come to an understanding with PG&E regarding the terms of those pilot applications. In the case of a few cancelled applications (where the customer decided not to go through with the project), PG&E and the developer agreed to transfer the advanced funds to the developer's next approved pilot project to minimize administrative costs.

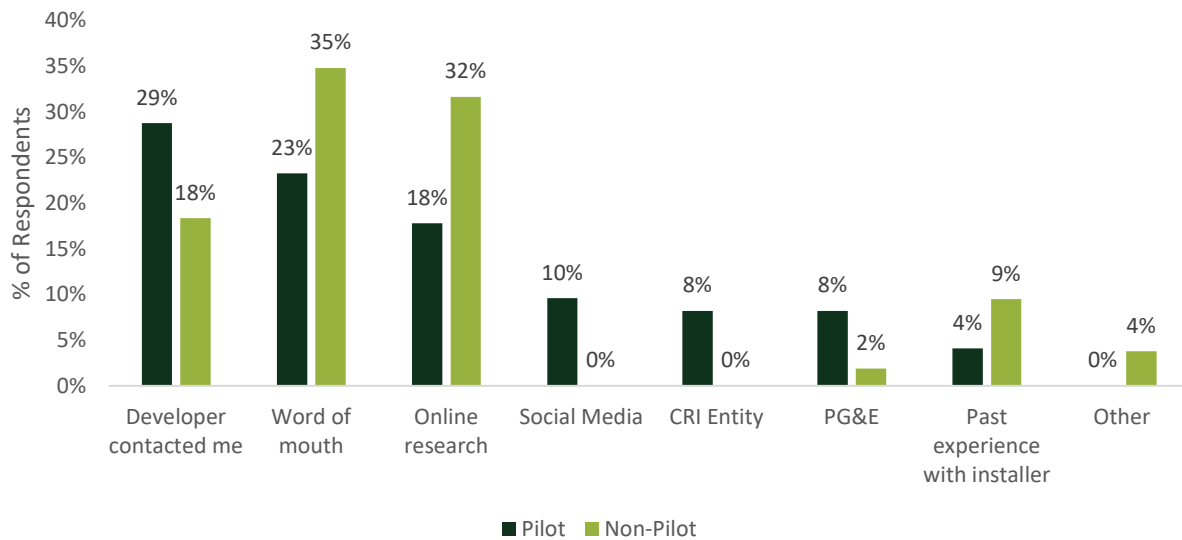
3.1.2 Marketing and Lead Generation

The pilot was designed to leverage the relationship that community-based entities have with customers. These entities, referred to as customer recruitment incentive (CRI) entities, would be incentivized to identify leads and connect eligible customers with specific developers. CRI entities would receive an incentive payment for referred pilot applications. The terms were \$300 per application for the first 30 applications, then \$60 per application after that, with a cap of \$50,000 per entity. CRI entities could include community-based organizations, community choice aggregators, and low-income program administrators.

PG&E began outreach to potential CRI entities in the first half of 2020, with trainings beginning in May 2020. However, the CRI entity structure was only officially approved in July of 2020, which did not give much time for lead generation before SGIP funds were fully subscribed in September. Due to the compressed timeline, only one CRI entity was able to recruit customers. The CRI entity passed their leads along to a single pilot enrolled developer, and 19 of those leads converted into pilot applications.

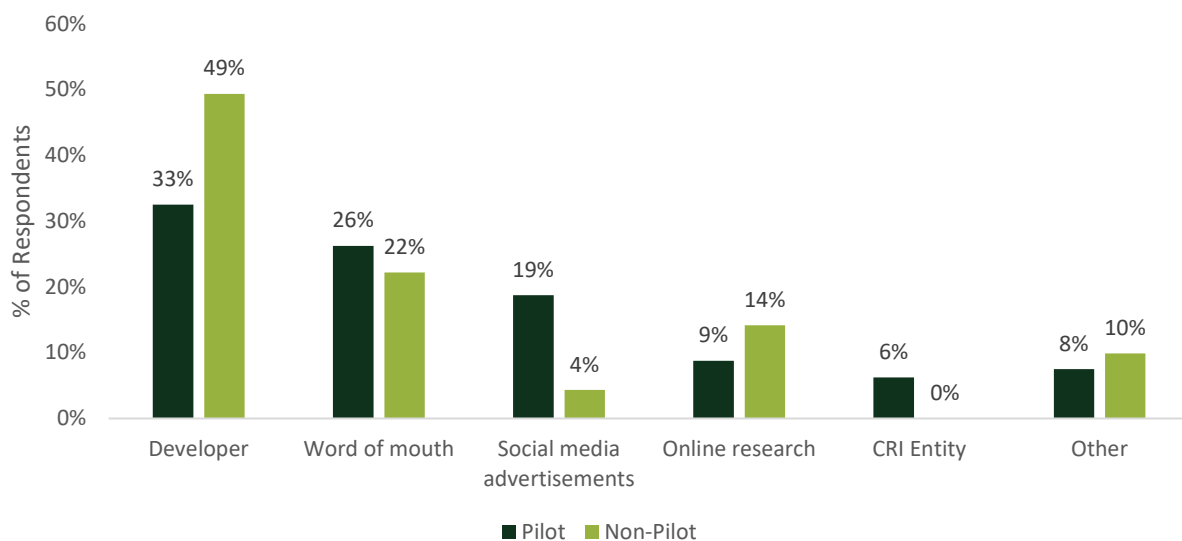
Although the CRI entity structure was not responsible for many leads, the pilot was still able to reach its participation goals with 257 projects. When customers were asked how they found the developer they worked with, the most common response from pilot participants (29 percent) was that the developer contacted them. It was also more common for pilot respondents (in comparison to non-pilot respondents) to report that they found their developer through social media, the CRI entity, or PG&E. It was more common for non-pilot respondents to proactively find their developer, in comparison to pilot respondents, implying that customers participating in the pilot were more heavily and actively recruited by either developers, PG&E, or the CRI entity. The full breakdown of responses is shown in Figure 3-1 below.

FIGURE 3-1: CHANNELS THROUGH WHICH PILOT AND NON-PILOT HOST CUSTOMERS FOUND DEVELOPER



The most common way for pilot customers (and non-pilot customers) to first hear about the SGIP incentive was through their developer. Figure 3-2 below shows that pilot customers often learned about the SGIP incentive through word of mouth and social media advertisements, as well. In contrast, it was less common for non-pilot respondents to learn about SGIP through social media advertisements and a higher proportion heard about it through online research.

FIGURE 3-2: CHANNEL THROUGH WHICH PILOT AND NON-PILOT HOST CUSTOMERS FIRST LEARNED OF SGIP INCENTIVE



3.1.3 Participant Benefits

The pilot was designed to offer various benefits to host customers, developers, and CRI entities. This section describes these intended benefits along with their perceived value by the associated stakeholders.

Host Customer

The pilot's primary benefit to host customers is that they do not have to pay the developer for the energy storage system prior to project completion. The underlying assumption is that these host customers may not have had the means to cover the upfront costs, preventing them from being able to install the energy storage system.

In the web survey, pilot customers were asked how likely they would have been to install the energy storage system if they had to pay a portion of the cost prior to project installation. Of those that said they would be unlikely to do so (57 percent of pilot respondents), the most common reasons were that the cost was too high (78 percent) and that they didn't have the cash on-hand to fund the project (35 percent).

It is also possible that host customers would have been able to purchase the energy storage system, but only if they took out a loan to cover the cost of the system. They could potentially take out a specialized loan (often with a one-year term or less, or with special provisions such as low- or no-interest or no payments required for the first year) to cover the cost before they receive the SGIP incentive. While these specialized loans are appealing, customers may not be fully educated about the consequences of taking out these loans (such as any potential impact to their credit). They may also decide not to put the full SGIP incentive towards paying off the loan, resulting in additional years servicing the loan and increased interest fees.

Responses from the host customer survey confirm that most pilot customers were able to avoid taking out a loan to finance their energy storage system. Only three percent of pilot respondents took out a loan, in contrast to 24 percent of non-pilot respondents. When asked about the type of loan they used, most customers reported going through a financial organization that their developer introduced them to (62 percent). These financial institutions are most likely to offer the specialized loan terms mentioned above. In fact, customers reported specialized loan provisions such as interest free for an initial period (43 percent), loan terms of less than one year (28 percent), and no payments required for an initial period (24 percent).

Developer

The developers stand to benefit from the pilot by receiving the 50% advanced incentive payment, which would help decrease strain on their cash flow. Additionally, the specialized loans mentioned above are often provisioned through partnership between the developer and a third-party financial institution.



Developers must often pay a dealer fee to the financial institution, which allows them to offer the finance options directly to their customers. By avoiding these third-party loans, the developer would avoid the extra associated cost.

When interviewed, some developers stressed the positive impact and importance of the pilot structure on their cash flow. However, other developers did not express a need for increased ease on their cash flow. These developers were more focused on the wider market that the pilot structure allowed them to reach, by offering zero money down energy storage systems.

CRI Entity

The primary benefit designed for the CRI entity is the referral incentive. When Verdant interviewed PG&E, they acknowledged that the incentive amount was likely not high enough to be a motivating factor for these organizations, considering the complexity of the SGIP application process and the timing of the program launch. When speaking with the CRI entity, it was clear that the incentive was not the primary motivating factor. The interviewed CRI entity participated in the pilot because it aligned with their organizational goals and philosophy.

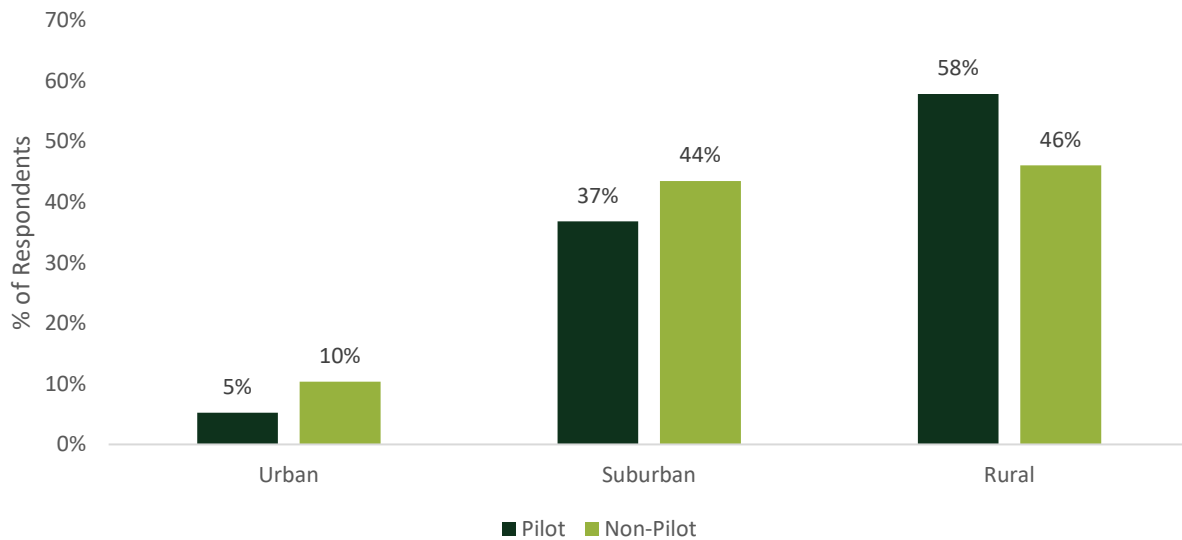
3.2 HOST CUSTOMER DEMOGRAPHICS

This section presents the host customer's self-reported demographic characteristics. Results are presented for both pilot and non-pilot respondents.

Location

Respondents were asked to report whether their home was located in an urban, suburban, or rural location. Figure 3-3 shows that a higher proportion of pilot respondents (58 percent) reported their location as rural in comparison to non-pilot respondents (46 percent). As households in rural settings are typically harder to reach and potentially more vulnerable to wildfires and PSPS events, these findings suggest the pilot successfully targeted a higher proportion of harder to reach households as defined by their rural location.

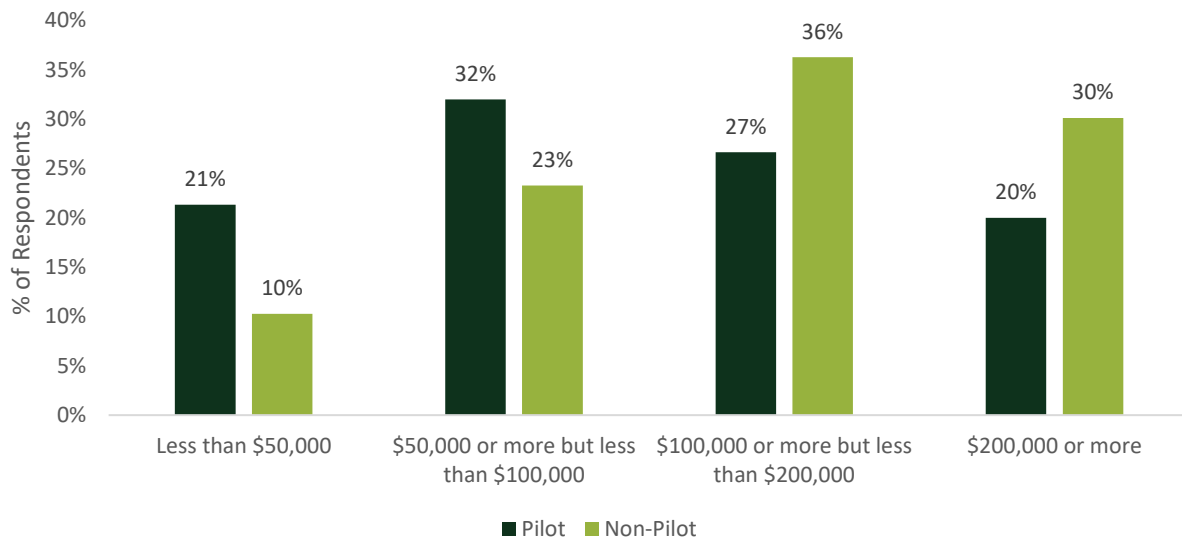
FIGURE 3-3: SELF-REPORTED LOCATION OF PILOT AND NON-PILOT HOST CUSTOMERS



Household Income

The self-reported household income level of pilot and non-pilot participants is shown in Figure 3-4 below. Pilot participants had a higher concentration of lower income households than non-pilot participants; participants earning less than \$100,000 made up 53 percent of the pilot participant responses, and 34 percent of non-pilot respondents. A significant proportion of pilot respondents reported earnings of less than \$50,000 (21 percent). These findings indicate that the pilot was successful in reaching a larger proportion of lower income households in comparison to regular SGIP participants. However, there was still a significant proportion of high-income households that were able to participate in the pilot (20% with \$200,000 or more).

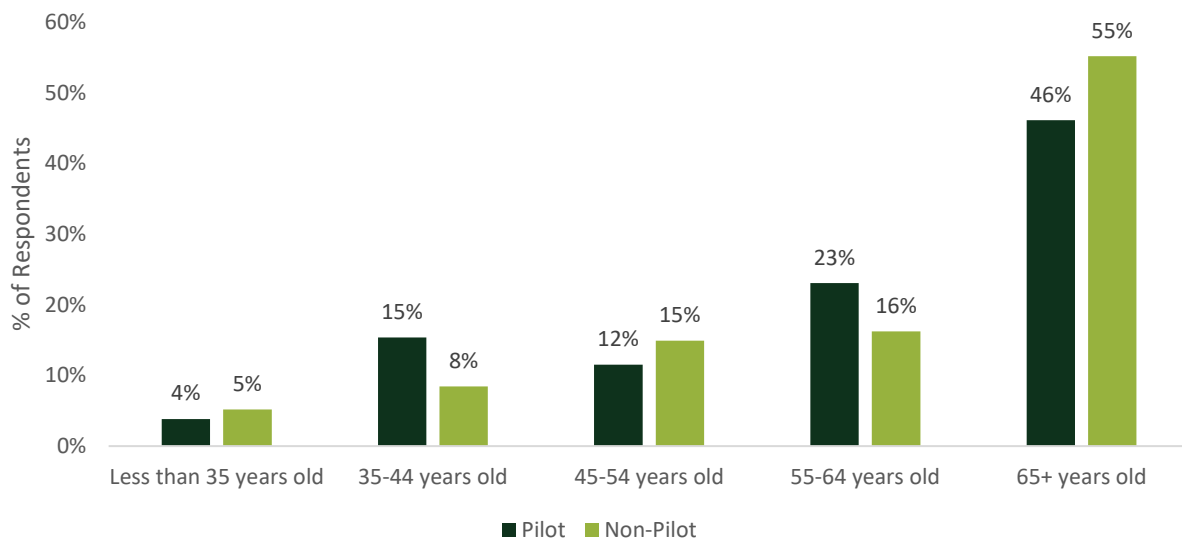
FIGURE 3-4: HOUSEHOLD INCOME OF PILOT AND NON-PILOT HOST CUSTOMERS



Head of Household Age

The head of household age distribution of pilot and non-pilot participants is shown in Figure 3-5 below. In both populations, the largest percentage of participants were 65 years of age or older. Pilot participants skewed a bit younger than non-pilot participants, with higher proportions of 35- to 44-year-olds and 55- to 64-year-olds.

FIGURE 3-5: HEAD OF HOUSEHOLD AGE OF PILOT AND NON-PILOT HOST CUSTOMERS

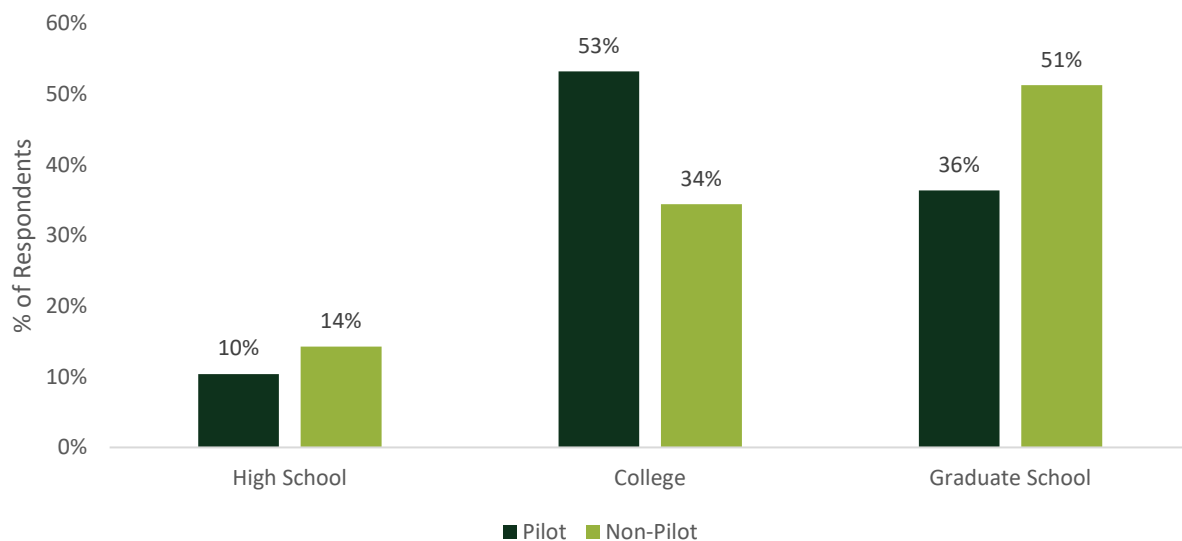


As mentioned above (Section 3.1.2), pilot participants were also more likely to find their developer through social media. These findings suggest there could be a correlation between the younger participants and their acquisition through social media. Verdant suggests exploring whether any special social media campaigns were used by developers, the CRI entity, or PG&E to target pilot participants, as this could explain why the population skewed slightly younger than non-pilot participants.

Head of Household Education

The head of household education level of pilot and non-pilot participants is shown in Figure 3-6 below. The pilot had a lower concentration of participants that completed graduate school compared to non-pilot participants. These findings indicate that the pilot reached a population with lower levels of education than regular SGIP participants, however in both populations the vast majority of respondents had a college education or higher.

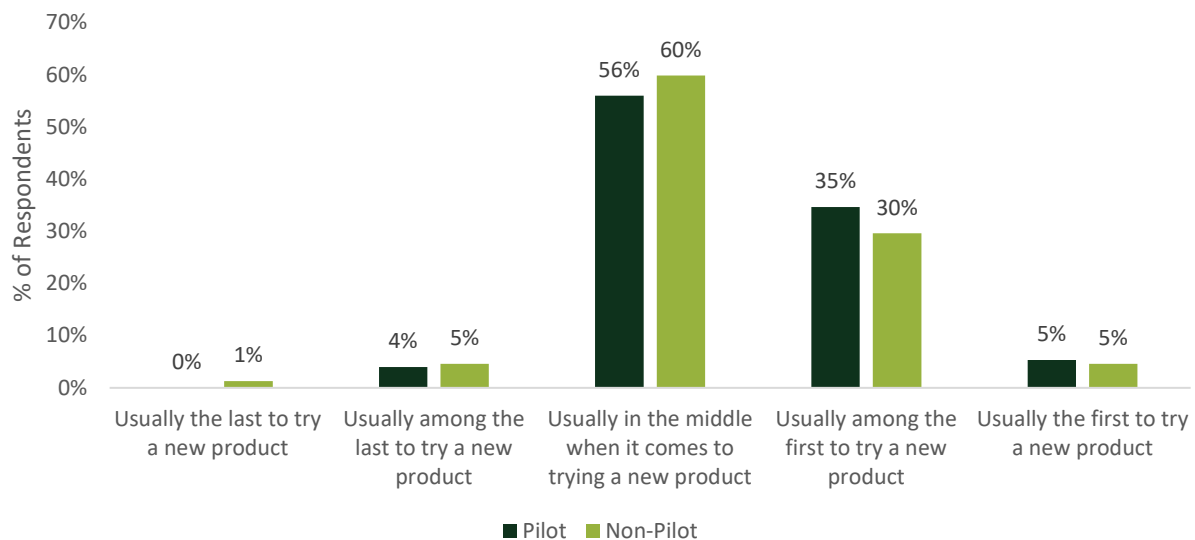
FIGURE 3-6: HEAD OF HOUSEHOLD EDUCATION LEVEL OF PILOT AND NON-PILOT HOST CUSTOMERS



Early Adopters

Respondents were asked to report whether they are usually among the first or last to try a new product. Figure 3-7 shows that pilot respondents had a slightly higher proportion of participants that usually are “among the first” or are “the first” to try a new product (40 percent) in comparison to non-pilot participants (34 percent). Though this suggests that pilot participants may have been more naturally inclined to install an energy storage system without the SGIP incentive, their lower income levels indicate that they may still have been unable to do so without the pilot.

FIGURE 3-7: NEW PRODUCT ADOPTION RATES OF PILOT AND NON-PILOT HOST CUSTOMERS



3.3 PILOT INFLUENCE

The influence of the pilot on customers' decision to install the energy storage system was explored through a series of survey questions.

Respondents were asked to report on a scale of 0 to 10, where 0 is not at all likely and 10 is extremely likely, how likely they would have been to install an energy storage system at their home if the SGIP incentive had not been available. Pilot respondents were also asked to rate the likelihood of installation if they would have had to pay a portion of the cost prior to installation (i.e., without the pilot). Table 3-2 below shows the average response to both questions.

TABLE 3-2: HOST CUSTOMER LIKELIHOOD OF ENERGY STORAGE SYSTEM INSTALLATION

Question	Group	Average Response	% Respondents Rating 0	% Respondents Rating 10
...the SGIP incentive had not been available?	Pilot	2.8	37%	6%
	Non-Pilot	2.9	32%	6%
... you had to pay a portion of the cost prior to installation?	Pilot	3.8	19%	6%

Both pilot and non-pilot groups reported similar levels of likelihood when considering the absence of the SGIP incentive (2.8 pilot average and 2.9 non-pilot average). They also had similar proportions of respondents (around one-third) that rated their likelihood of installation as zero if the SGIP incentive had not been available. Most respondents (91 percent of pilot participants and 84 percent of non-pilot participants) also reported that they learned about the availability of the SGIP incentive before they decided to install the energy storage system at their home. These results imply that the SGIP incentive was fairly influential on their decision and likelihood to install an energy storage system.

When pilot respondents were asked about their likelihood of installation if they had to pay a portion of the cost upfront, their average likelihood score was slightly higher than in the absence of the SGIP incentive (3.8 versus 2.8). This suggests that the SGIP incentive is the most crucial element to influence the likelihood of installation; however, the pilot was also important to participants. Most pilot respondents (89 percent) also reported that they were aware there would be no upfront payment before they decided to install the energy storage system at their home. These results imply that the pilot was fairly influential on their decision and likelihood to install an energy storage system.

Influence Level by Household Income

The average likelihood levels reported by respondents is broken out by self-reported household income in Figure 3-8 and Figure 3-9 below. The error bars show the 85 percent confidence interval on the average reported likelihood levels. Pilot and non-pilot respondent groups with higher levels of income also reported higher levels of likelihood to install when considering the absence of the SGIP incentive. Those with higher levels of income also reported higher levels of likelihood to install if they had to pay a portion of the cost upfront. These results suggest that the pilot has stronger influence on those with lower income levels.

FIGURE 3-8: PILOT AND NON-PILOT HOST CUSTOMER LIKELIHOOD OF INSTALLATION IF THE SGIP INCENTIVE HAD NOT BEEN AVAILABLE BY HOUSEHOLD INCOME

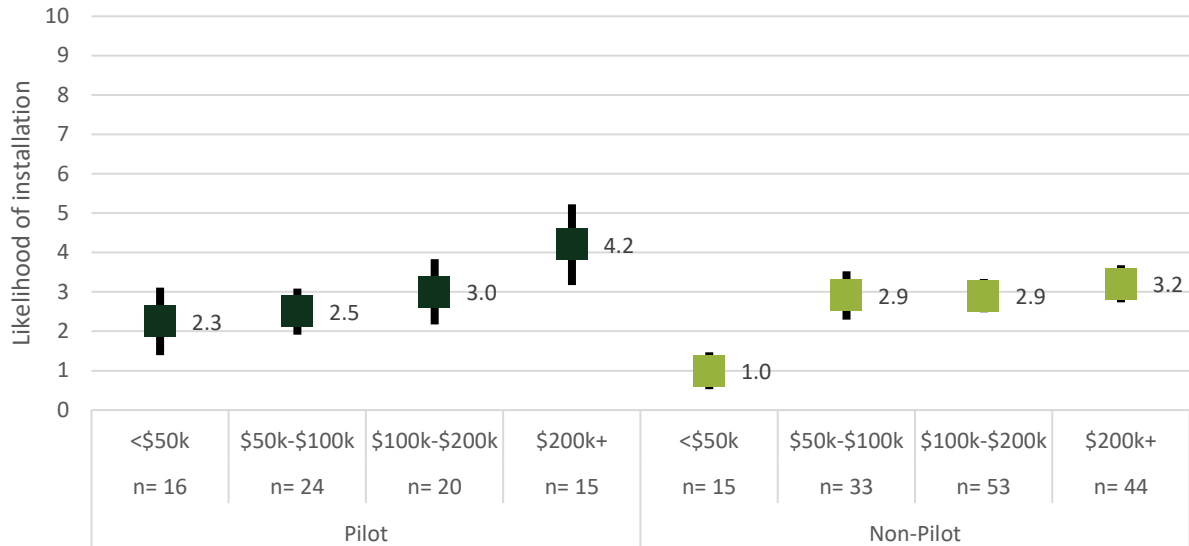
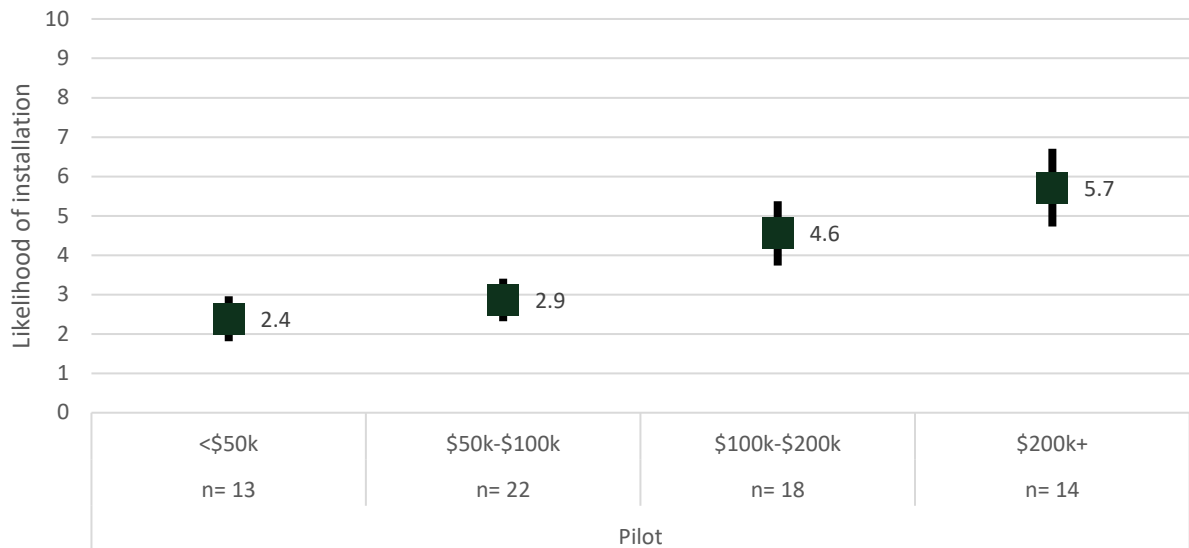


FIGURE 3-9: HOST CUSTOMER LIKELIHOOD OF INSTALLATION IF HAD TO PAY PORTION OF COST PRIOR TO INSTALLATION BY HOUSEHOLD INCOME



3.4 BARRIERS TO PARTICIPATION

Pilot-enrolled developers that did not submit any pilot applications were asked to explain what prevented them from doing so. This section presents a few of the common themes that emerged.

SGIP funds ran out quickly after pilot enrollment. The SGIP Equity Resiliency budget was initially designed for a four-year period; however, funds were fully subscribed within the first year. Many developers stated that they did not have enough time to recruit for the pilot before SGIP funds were fully exhausted. Some developers also noted that they had very high volumes of non-pilot SGIP applications, preventing their teams from focusing specifically on pilot participation.

Lack of clarity regarding pilot eligibility. Some developers reported that it was unclear what the requirements were for pilot participation. Due to this lack of clarity, they had difficulty recruiting customers for the pilot. These developers mentioned that they would have benefited from more hands-on training from PG&E to get a better handle on the pilot eligibility requirements.

Language barrier due to a lack of Spanish language SGIP forms. Some developers mentioned that they had difficulty signing with customers whose primary language is Spanish. Though some SGIP forms and pilot agreements are available in Spanish, not all required SGIP paperwork is. The SGIP and the pilot should make an effort to provide Spanish language documentation wherever possible to enable these customers to more easily participate.

4 FINDINGS AND RECOMMENDATIONS

In this section we present a summary of the key findings from the evaluation's research activities. Findings presented in this section identify areas of the pilot that worked well, as well as areas of the pilot where improvements could be made.

4.1 FINDINGS

The pilot successfully targeted a higher proportion of disadvantaged customers when compared to non-pilot PG&E SGIP participants. Pilot survey respondents had higher shares of lower income households and rural residents. There also appeared to be more proactive customer recruitment amongst the pilot population (where customers were contacted by developers, the utility, or the CRI entity; not vice versa), which suggests the pilot had a higher likelihood of reaching people less informed about energy storage systems and the SGIP incentive. Customers reported that the pilot had a high level of influence on their likelihood to install the energy storage system, and most of these pilot customers reported that the cost would have been prohibitive if they had to pay upfront. Pilot customers were also able to avoid taking out a loan for their energy storage system, which was a more common occurrence among non-pilot customers.

Developers also benefited through the pilot when customers avoided taking out a loan as these loans usually require developer fees to financial institutions. Many developers reported that the pilot was critical for their cash flow needs, though others were more focused on the financial benefit to their customers and the ability to reach a wider customer market. All interviewed developers reported highly satisfactory interactions with PG&E staff, and all but one developer said they would participate in the pilot in the future if it were offered.

There are two areas that could be improved in the pilot's implementation. Though the pilot population consisted of more lower income customers than the non-pilot population, there was still a large proportion of high-income participants in the pilot population (20 percent had a household income of \$200,000 or more). It is likely that these participants would have had the means to install the system without the pilot's aid. PG&E may want to consider implementing an income restriction as part of the eligibility requirements for the pilot and potentially the overall SGIP Equity Resiliency budget. Additionally, some developers reported that they did not participate in the pilot due to a lack of understanding of the pilot eligibility requirements. Additional training may be helpful as part of future developer enrollment and onboarding.

4.2 RECOMMENDATIONS FOR FUTURE ADVANCE INCENTIVE PROGRAMS

The evaluation team identified a series of recommended practices for future advance incentive programs based on the results of this study. Some of the recommendations below are practices that the pilot already had in place, while others are recommendations for further improvement.

4.2.1 Enrollment and Qualification

- **Increased lead time from onboarding to pilot launch.** Where possible, allow for more lead time to enroll and onboard developers and CRI entities prior to launch. In the case of the pilot, the short lead time from pilot approval in July 2020 to the exhaustion of PG&E's Equity Resiliency funds in September 2020 prevented many developers and CRI entities from participating.
- **Enhanced training during developer onboarding.** This will help improve developers' understanding of customer eligibility requirements.
- **Simple developer enrollment process.** Developers reported that the process to enroll in the pilot was very simple. Verdant recommends continuing this enrollment and vetting structure in future advance incentive programs.
- **Income-restricted eligibility requirements.** There was a significant proportion of pilot customers with high household incomes. Since the pilot is meant to help customers who would have found the up-front costs prohibitive, Verdant recommends restricting participation to lower income customers. Other program designs such as direct-install should be considered given the difficulty in reaching low-to-middle income customers.

4.2.2 Lead Generation

- **CRI entity referral model.** Though there was only a single CRI entity involved in the pilot, the referral model was successful for the associated developer. Verdant recommends continuing to expand the CRI entity referral model to more organizations.

4.2.3 Project Documentation and Approval

- **Non-English language forms and documentation.** Though some SGIP forms and pilot agreements are available in non-English options, not all required SGIP paperwork is. Providing versions of all required forms in other commonly spoken languages allows for increased adoption by customers when English is not their primary language.

- **Automated pilot approval.** Some developers requested that pilot approval be automated within the SGIP portal. Increased visibility to pilot approvals would allow developers and CRI entities to set more realistic expectations for their customers.
- **Simple host customer pilot form requirements.** The pilot required simple forms for its application process. Verdant recommends future advance incentive programs minimize and simplify any additional required forms, when possible.

4.2.4 Incentive Payments

- **Streamlined payment process.** As the pilot was launched quickly, and without automated processes, some developers experienced initial problems as they began to receive the advance incentive payments from PG&E. There were initial issues mapping payments to specific projects, as well as instances of duplicate payments. While these issues were quickly resolved by the PG&E team, Verdant recommends a review of the payment process to ensure it is streamlined and less prone to error if the pilot were to be continued and expanded.
- **Improve visibility into timeline for the second 50% payment.** Some developers reported they were wary of participating in the program as they were not sure how long it would take to receive the final 50% incentive payment. These developers rely heavily on the SGIP incentive to bolster their cash flow. With increased visibility into the timeline, developers may feel more confident in planning their cash flows and ultimately participating in the pilot. We understand that ultimate receipt of the incentive is incumbent on the developer successfully completing an application and cannot be guaranteed. Working with a successful developer and developing case studies of success stories may increase confidence and encourage others to participate.
- **Flexible incentive payment reassignment.** In the case of cancelled projects, developers reported that PG&E was flexible with advance incentives which had already been paid to the developer. They were able to come to an agreement where these payments would be applied to future pilot participants, instead of PG&E asking developers to immediately return the advance. Verdant recommends continuing this type of flexibility in future advance incentive programs.



APPENDIX A INTERVIEW GUIDES AND SURVEY INSTRUMENTS

This section contains the following interview guides and survey instruments:

- A.1 PG&E In-Depth Interview Guide
- A.2 CRI Interview Guide
- A.3 Project Developer Interview Guide
- A.4 Host Customer Survey Instrument

A.1 PG&E IN-DEPTH INTERVIEW GUIDE

Organization

1. **[For each person participating in the interview]** What is your position/title role at PG&E? What are your responsibilities for the SGIP Residential Financial Assistance pilot?
2. Is there anyone else involved in the administration of the pilot? How is the rest of the team structured?

Goals & Process

3. What are the objectives of the pilot?
4. What does success look like for the pilot?

[Now we will walk through each participating actor, to get a sense of their role in the pilot...]

Process – CRI Entity

5. Can you walk me through, at a high-level, how the **pilot** works overall for a specific project – from start to finish, from the perspective of the **CRI Entity**? *(Please focus specifically, on differences from the regular SGIP process)*
 - a. How do developers or CRI entities decide who to include in the pilot population?
6. What is the application process for CRI entities to participate in the pilot?
7. What is the value proposition for the CRI entity? What is the financial incentive or benefit they receive? How do they receive this?
 - a. Tell me about the CRI referral payment.... How is that tracked? At what point does the CRI entity get paid?
8. Tell me about the CRI entity that has participated? What kind of organization are they?
 - a. Why do you think there **aren't MORE** CRI entities participating in the pilot?



9. Based on what you've seen so far... How does the actual experience vary from the planned/ideal experience?

Process - Developer

10. Can you walk me through, at a high-level, how the **pilot** works overall for a specific project – from start to finish, from the perspective of the **Developer**? *(Please focus only, where possible, on differences from the regular SGIP process)*
 - a. How does a developer decide to offer the **pilot** to a particular host customer?
11. What is the application process for developers to participate in the pilot?
12. What is the value proposition for them? What is the financial incentive or benefit? How do they receive this?
13. Based on what you've seen so far... How does the actual experience vary from the planned/ideal experience?

Process – Host Customer

14. Can you walk me through, at a high-level, how the **pilot** works overall for a specific project – from start to finish, from the perspective of the **Host Customers**? *(Please focus only, where possible, on differences from the regular SGIP process)*
 - a. How do most host customers learn about the **pilot**? What role do developers and CRI entities have?
15. What is the application process for host customers to participate in the pilot? What additional forms or steps are required for host customers, if their project is participating in the pilot? *(Please focus only, where possible, on differences from the regular SGIP process)*
16. What is the value proposition for them? What is the financial incentive or benefit? How do they receive this?
17. Based on what you've seen so far... How does the actual experience vary from the planned/ideal experience?

Incentive Distribution

18. With regards to incentive distribution....

a. The 50% upfront incentive:

- Which entity receives the incentive (Developer or Host customer)?
- At what point does the 50% payment get sent? Which Stage/Status (RRF Approval?)? Are any additional forms required beyond the standard SGIP forms to receive the upfront payment?
- There is a requirement that host customers should not have to advance any money to the developer, is that correct? What would happen in a scenario when a storage system is paired with PV? Does the customer then have to then put some payment upfront? Is that monitored?

b. The final 50% incentive:

- There is a time requirement between RRF and installation, is that right? How long? When final steps must be passed to receive the final incentive? Any additional forms required?

c. Have any projects missed the deadline? Has the upfront incentive been retracted for any projects?

19. In general... Is there any additional application status tracking/monitoring required beyond the standard tracking for SGIP? How is that monitored?

20. How/when would you decide that a project may not move forward (i.e., to give those funds to another applicant?) Has this occurred?

Success Metrics

21. How well do you think the pilot is reaching its goals of:

- alleviating the financial burden on host customers
- aiding cash flow for project developers

22. Have you defined “key performance indicators” or metrics of success for the program? If so, what are they?

- a. For each of these, have you defined the “level” of success for each KPI? If so, please walk us through them. How are you doing with respect to these KPIs?

23. What are you required to report (to the CPUC?) ? (e.g., what KPIs/metrics?)

- a. Have you issued any reports/results yet?

24. Based on what you’ve seen – How are things going?

Wrap Up

25. Is there anything else about the pilot you would like to mention? Are there any particular areas of success, or challenges/barriers, that we have not covered already?

26. We will be surveying participating and non-participating project developers, the CRI entity, and host customers – Do you have any questions for them that we could help answer? What would you like to learn from them?

Next Steps

27. Information/data request: Follow up on any materials requested.

A.2 CRI INTERVIEW GUIDE

1. Before we begin, do I have your consent to record our discussion?
2. **Background.** Tell me about your role at <organization>, and as it relates to SGIP and the SGIP pilot.
Prompt if necessary:
 - a. What are your primary activities and responsibilities in your current role as it relates to the SGIP pilot? Who else is involved with this?
3. **Decision to Participate.** Why did <organization> decided to get involved in the SGIP pilot? *Prompt if necessary:*
 - a. What factors influenced this decision – What were the primary motivations?
 - b. Who were the decision makers?
 - c. Were there any concerns that would have prevented <organization> from getting involved as a CRI entity?
4. **Onboarding, Engagement, and Training.** Do you know what steps were involved to getting started as a customer recruitment incentive (CRI) Entity?
 - a. What worked well in this process?
 - b. Were there any barriers or difficulties? *Probe on ways to resolve these.*
5. **Lead generation.**
 - a. How does <organization> identify leads for the pilot?
 - Is there any upfront vetting process completed for eligibility?
 - Do you educate customers about the program? How?
 - Did you continue to recruit for the traditional SGIP incentive option to eligible customers at the same time that you recruited for the pilot? How did you choose which customers were offered the pilot?
 - How do leads get passed along to PG&E or developers? Can you walk me through the process?
 - Have you experienced any challenges generating leads for the pilot? Please describe. How have you attempted to overcome these challenges?
6. **Payment.** What is the payment process like? How much timing between passing along a lead and receiving money?
 - a. How was your experience with that process?



7. What benefits has your business experienced by participating as a CRI entity? *[probe for financial benefits]*
8. How would you rate your satisfaction with the pilot overall on a scale from 0 (very dissatisfied) to 10 (very satisfied)? *Prompt the following, and ask for reasons for rating:*
 - a. CRI Entity enrollment process
 - b. Pilot specific interactions with PG&E
 - c. Timeline for payment of incentive
 - d. Financial Assistance Pilot, Overall
9. What feedback do you have about the pilot? We are interested how any parts of the process might be improved.
 - a. What is going well/working about the pilot?
 - b. What isn't working so well?
 - c. What changes would you make to improve the pilot?
10. Would you continue to participate in the upfront financing assistance pilot, if it is available in the future? Why or why not?
11. **Wrap-up:** Is there anything we haven't discussed today that you would like to share with me?

Thank you again for participating in this interview! We so appreciate the time you have taken to speak with us.

A.3 PROJECT DEVELOPER INTERVIEW GUIDE

12. Before we begin, do I have your consent to record our discussion?
13. **Background.** Can you start by telling me about your company and your role within it in general and as it relates to the SGIP pilot? *Prompt if necessary:*
- How long has your company been in business?
 - How long have you been with your company?
 - About how many employees are in the company?
 - What services/types of projects does your company offer/do?
 - What is a typical project team structure in your company?
 - What are your primary activities and responsibilities in your current role as it relates to the SGIP pilot? Who else is involved with this?
14. **Decision to Participate.** Why did your company decide to enroll in the SGIP pilot? *Prompt if necessary:*
- What factors influenced this decision – What were the primary motivations?
 - Who were the decision makers?
 - Were there any concerns that would have prevented your company from enrolling in the SGIP pilot?
15. **Pilot onboarding, Engagement, and Training.** What steps were involved in enrolling in PG&E's Residential Financial Assistance Pilot?
- What worked well in this process?
 - Were there any barriers or difficulties? *Probe on ways to resolve these.*

[ASK PARTICIPANTS ONLY]

16. **Lead generation.** How has your business gone about generating leads for the pilot?
- Do you approach customers or vice versa?
 - [ASK ONLY FOR <Developer with referrals from CRI Entity>]** Were any customers referred to you by <CRI Entity>? Did those customers approach you, or vice versa?
 - If you approach them, are you educating them on the program, and if so, how?
 - How do you identify eligible customers?
 - Did you continue to offer the traditional SGIP incentive option to eligible customers at the same time that you recruited for the pilot? How did you choose which customers were offered the pilot?

- c. Have you experienced any challenges generating leads for the pilot? Please describe. How have you attempted to overcome these challenges?
- 17. How far along has your team made it with an application through the pilot? *[Reservation Request Form, Incentive Claim Form, Project Completion/Final Payment]*
 - a. Have you received the 50% upfront payment on any of your pilot projects?
 - i. How was your experience with that process?
- 18. Can you walk me through the steps you go through for a pilot project?
 - a. How do you gather information to determine eligibility for the pilot?
 - b. How does the application process compare with other non-pilot SGIP applications?
- 19. To your knowledge, what is the impact of the upfront incentive on the host customer's decision to participate in SGIP?
 - a. Of the pilot applications your business has submitted, what percent do you think would have moved forward with SGIP, but without the pilot?
 - b. Do you know the ownership model or financing structure that pilot participants tended to use? Did this differ from non-pilot participants?
 - c. If host customers combined the SGIP system with additional equipment or services (such as a PV System); Are they required to pay your business any money before the project is completed?
- 20. What benefits has your business experienced by participating in PG&E's upfront financing pilot (as opposed to the regular SGIP program)? *[probe for financial benefits]*

[ASK NON-PARTICIPANTS ONLY]

- 21. Our records show that you did not submit an application for the SGIP pilot. Can you tell me more about this? *Prompt if necessary:*
 - a. What is the primary reason you did not submit any project applications to the pilot?
 - b. Were there obstacles or requirements that made participation unviable for your company? *Probe for as many reasons as possible.*
 - c. How might these issues be addressed?
 - d. In general, how would you suggest improving the pilot to make it easier for business like yours to participate?
 - e. Would you consider participating a program like the upfront financial assistance pilot in the future? Why or why not?



- f. Is there anything that the pilot could do or change that would make you want to participate? Please describe.

[RESUME FOR ALL]

- 22. How would you rate your satisfaction with the pilot overall on a scale from 0 (very dissatisfied) to 10 (very satisfied)? *Prompt the following, and ask for reasons for rating:*
 - e. Pilot developer enrollment process
 - f. Additional pilot requirements within project application
 - g. Pilot specific interactions with PG&E
 - h. Timeline for payment of upfront 50% incentive
 - i. Financial Assistance Pilot, Overall
- 23. What feedback do you have about the pilot? We are interested how any parts of the process might be improved.
 - d. What is going well/working about the pilot?
 - e. What isn't working so well?
 - f. What changes would you make to improve the pilot?
- 24. **[Participants Only]** Would you continue to participate in the upfront financing assistance pilot, if it is available in the future? Why or why not?
- 25. **Wrap-up:** Is there anything we haven't discussed today that you would like to share with me?

Thank you again for participating in this interview! We so appreciate the time you have taken to speak with us.

A.4 HOST CUSTOMER SURVEY INSTRUMENT

SURVEY INPUT VARIABLES

Variable	Description
Developer Name	Name of developer associated with host customer
Pilot_flag	Flag indicating whether host customer's project was part of the Pilot
CRI flag	Flag indicating whether host customer was referred by CRI Entity
Incentive_flag	Flag indicating whether host customer will be eligible to receive incentive

Introduction

[Only SHOW IF Pilot_Flag = 1]

Intro_P. Thank you for agreeing to fill out this survey. You will be asked a few questions regarding your experience with California's Self Generation Incentive Program (SGIP) and PG&E's associated Residential Financial Assistance Pilot.

[Only Show if Pilot_Flag = 0]

Intro_NP. Thank you for agreeing to fill out this survey. You will be asked a few questions regarding your experience with California's Self Generation Incentive Program (SGIP).

Background

A1. Our records indicate that you or your developer (<developer_name>) applied for an incentive from California's Self-Generation Incentive Program (SGIP) for an energy storage system at your home. Is that correct?

- a. Yes
- b. No
- 99. Don't Know

[IF A1 = 'No' or 'Don't Know', SKIP TO TERMINATE]

Marketing/Lead Generation

B1. How did you first learn about the availability of the SGIP incentive for energy storage systems?

- 1. Through <developer_name>

2. **[IF CRI_FLAG = 1]** Through <CRI Entity>
3. Online Research
4. Social media advertisements
5. Through my utility
6. Through SGIP materials
7. Word of mouth
8. Other, specify: **[RECORD]**
99. Don't Know

B2. How did you find the developer you worked with (<developer_name>) to install the energy storage system at your home?

1. **[SHOW IF CRI_Flag =1]** Through materials provided by <CRI Entity>
2. Through online research
3. Through mail or email communication from my utility
4. The developer contacted me (by phone, email, mail, or at my home)
5. Word of mouth
6. Other, specify: **[RECORD]**
99. Don't Know

B3. Why did you decide to install the energy storage system at your home? (Select all that apply)

[MULTI-SELECT]

1. To save money on my electric bill
2. To shift load in response to time-of-use price signals
3. To help the grid by shifting load from on-peak to off-peak times
4. To provide backup/emergency power for my home
5. Because of the SGIP incentive
6. Other, specify: **[RECORD]**
99. Don't Know

[IF Pilot_Flag = 0, SKIP TO C1]

[IF Pilot_Flag = 1, ASK A2]

A2. Are you aware that your SGIP application was part of PG&E's Residential Financial Assistance Pilot?

1. Yes
2. No
99. Don't Know

[IF (A2 = 'No' or 'Don't Know'), ASK A3]

[IF A2 = 'Yes', SKIP TO C1]



A3. PG&E's Residential Financial Assistance Pilot provides 50% of the SGIP incentive to your project developer (<developer_name>) at the time your project is confirmed and the remaining 50% of the incentive when the project is complete. The project developer cannot require you to pay for any portion of the energy storage system prior to the project completion. Does this sound familiar?

1. Yes
2. No
99. Don't Know

Financing

[ASK IF Pilot_Flag = 0, ELSE SKIP TO C2]

C1. Did you buy the energy storage system or are you leasing it?

1. Bought it
2. Leasing it
99. Don't Know

[ASK IF C1 = 'Bought it' OR Pilot_Flag = 1, ELSE SKIP TO C7]

C2. Did you take out a loan to finance the purchase of the energy storage system?

1. Yes
2. No
99. Don't Know

[ASK IF C2 = 'Yes', ELSE SKIP TO C7]

C3. How did you finance the purchase of the energy storage system?

1. I leveraged my mortgage (e.g., HELOC or Home Equity Loan)
2. Through a financial organization that my developer introduced me to
3. Through my developer
4. Through my bank
5. Other, specify: **[RECORD]**
99. Don't Know

[ASK IF C3 != "Don't Know", ELSE SKIP TO C7]

C4. What was the primary reason you chose this financing option?

[OPEN END]

[ASK IF C3=' Through a financial organization that my developer introduced me to' OR 'Through my developer', ELSE SKIP TO C7]

C5. What was the term of the loan?



1. One year or shorter
2. More than one year but shorter than five years
3. Five years or longer
99. Don't Know

C6. Did the loan have any of the following special provisions? (Select all that apply) **[MULTI-SELECT]**

1. Interest-free for an initial period
2. Interest-free for the whole loan term
3. No payments required for an initial period
4. Lower monthly payments for an initial period
5. Other, specify: **[RECORD]**
6. The loan did not have any special provisions
99. Don't Know

C7. After the SGIP incentive, approximately what was your total out of pocket cost for the energy storage system? *(Reminder: Your individual response will be kept completely confidential. It will only be reported in aggregate with all study participants)*

1. Enter approximate out of pocket cost (\$): **[Record \$]**
99. Don't Know

C8. In addition to the energy storage system, did you contract with <developer_name> for any of the following additional services or equipment? (Select all that apply) **[MULTI-SELECT]**

1. Solar PV System
2. Home improvement upgrades (i.e., roof updates, insulation work, etc.)
3. Other, specify: **[RECORD]**
4. No additional services or equipment
99. Don't Know

C9. Were any payments made to <developer_name> prior to completion of the energy storage system project?

1. Yes
2. No
99. Don't Know

[ASK IF C9 = 'Yes' and C8 = ('Solar PV System' or 'Home improvement upgrade' or 'Other'), ELSE SKIP TO D1]



C10. Were these payments for the energy storage system or for other equipment or services? (Select all that apply) **[MULTI-SELECT]**

1. Energy storage system
2. **[SHOW IF C8 = 'Solar PV System']** Solar PV System
3. **[SHOW IF C8 = 'Home improvement upgrade' or 'Other']** Other equipment or services
99. Don't Know

[ASK IF C10 = 'Solar PV System' or 'Other equipment or services', ELSE SKIP TO D1]

C11. How much did you have to pay upfront for these other services or equipment (including Solar PV, if applicable)? *(Reminder: Your individual response will be kept completely confidential. It will only be reported in aggregate with all study participants)*

1. Enter Approximate Amount: **[Record \$]**
99. Don't Know

Influence

D1. Did you first learn about the availability of the SGIP incentive BEFORE or AFTER you DECIDED to install the energy storage system at your home?

1. Before I decided to install the storage system
2. After I decided to install the storage system
99. Don't know

D2. On a scale of 0 to 10, where 0 is not at all likely and 10 is extremely likely, how likely would you have been to install an energy storage system at your home if the SGIP Incentive had not been available?

0. 0 – Not at All Likely
1. 1
2. 2
3. 3
4. 4
5. 5
6. 6
7. 7
8. 8
9. 9
10. 10 – Extremely Likely
99. Don't Know

[ASK IF (Pilot_Flag = 1) AND (A2 = 'Yes' or A3 = 'Yes'), ELSE SKIP TO E1]



D3. Were you aware that you would not be required to make an upfront payment BEFORE you DECIDED to install the energy storage system at your home?

1. Yes, I was aware before I decided to install the storage system
2. No, I was not aware before I decided to install the storage system
99. Don't Know

D4. On a scale of 0 to 10, where 0 is not at all likely and 10 is extremely likely, how likely would you have been to install energy storage at your home if you had to pay a portion of the cost prior to installation?

0. 0 – Not at All Likely
1. 1
2. 2
3. 3
4. 4
5. 5
6. 6
7. 7
8. 8
9. 9
10. 10 – Extremely Likely
99. Don't Know

[ASK IF D4 <=4, ELSE SKIP TO E1]

D4a. Why did you say you would have been unlikely to install energy storage at your home, if you had to pay a portion of the cost prior to installation? **[OPEN]**

Demographics

E1. Which of the following best describes your home?

1. Single family house
2. Townhouse, duplex or row house
3. Apartment or Condominium
4. Mobile home
5. Other, specify: **[Record]**
99. Don't Know

E2. What age is the head of household?

1. Less than 18 years old
2. 18-24 years old

3. 25-34 years old
4. 35-44 years old
5. 45-54 years old
6. 55-64 years old
7. 65+ years old
99. Don't Know

E3. Which of the following best represents your annual household income from all sources before taxes?

1. Less than \$50,000
2. \$50,000 or more but less than \$100,000
3. \$100,000 or more but less than \$200,000
4. \$200,000 or more
99. Don't Know

E4. What is the highest level of education attained by the head of household?

1. High school
2. College
3. Graduate School
4. Other, specify: **[RECORD]**
99. Don't Know

E5. How would you classify the location of your home where the energy storage was installed?

1. Urban
2. Suburban
3. Rural
99. Don't know

E6. Compared to others, which description best describes you or your household?

1. Usually the last to try a new product
2. Usually among the last to try a new product
3. Usually in the middle when it comes to trying a new product
4. Usually among the first to try a new product
5. Usually the first to try a new product
99. Don't Know



Closing

[IF Incentive_flag = 1 SHOW TEXT:

'Those are all the questions we have for you. As a thank you for your time, you will receive a \$20 Amazon Gift Card.' **AND ASK F1]**

F1. Please enter the email address you would like us to send the gift card to: **[OPEN]**

[IF Incentive_flag = 0 SHOW TEXT:

'Those are all the questions we have for you. Thank you for your time.']

[ONLY SHOW IF A1 = 'No' or 'Don't Know']

Terminate: We are looking to survey participants familiar with the SGIP incentive. Thank you for your time.