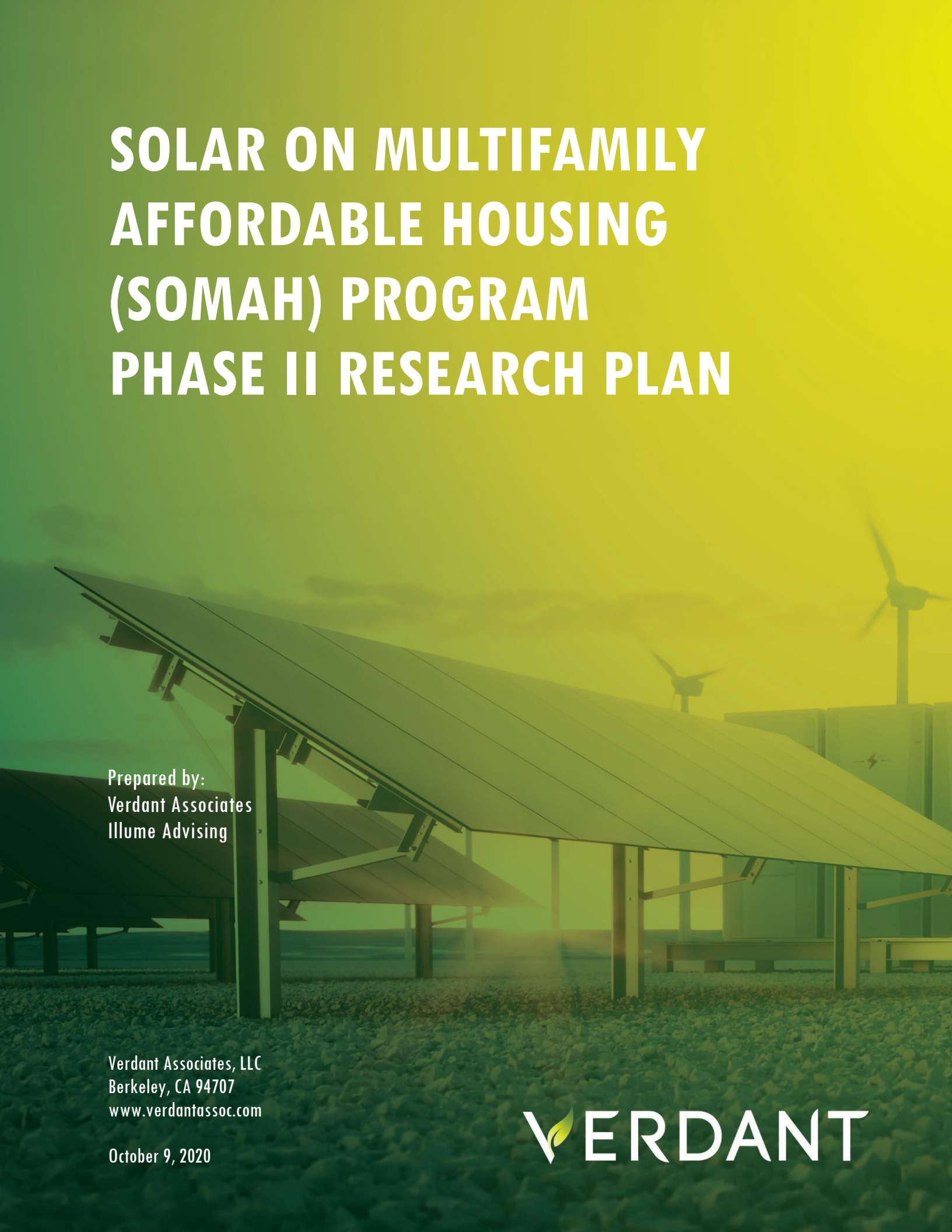
SOLAR ON MULTIFAMILY AFFORDABLE HOUSING (SOMAH) PROGRAM PHASE II RESEARCH PLAN



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SOMAH PHASE II DRAFT RESEARCH PLAN

Verdant Associates (Verdant) and Illume Advising (Illume) have been contracted by San Diego Gas and Electric (SDG&E) on behalf of the California Public Utilities Commission (CPUC) to evaluate the process and load impacts of the Solar on Multifamily Affordable Housing (SOMAH) program, as directed by CPUC Decision (D.) 17-12-022.[1] This document summarizes the evaluation questions to be answered during the evaluation and the Verdant team's proposed approach to answering these questions.

1.1 BACKGROUND

California State Assembly Bill (AB) 693 directed the CPUC to institute a new program intended to make qualifying solar energy systems more accessible to low-income and disadvantaged communities (DACs).[2] The goal of this program is to install solar energy systems that have a generating capacity equivalent to at least 300 MW (CEC-AC) on qualified multifamily affordable housing properties through December 31, 2030.[3] In accordance with AB 693, the CPUC issued D.17-12-022 on December 14, 2017, creating the SOMAH program and establishing program goals and eligibility requirements. On April 23, 2020 the CPUC issued D.20-04-012 that determined revenues are available and that there is adequate participation and interest in SOMAH program. That decision continued authorization of allocation of funds to the SOMAH program through June 30, 2026.

The SOMAH program is jointly administered statewide by a single program administrator (PA) team made up of the Association for Energy Affordability (AEA), Center for Sustainable Energy (CSE), GRID Alternatives, and the California Housing Partnership Corporation (CHPC). The program has distinct rules and eligibility requirements, including a focus on serving properties in DACs. In compliance with the terms of AB 693, the SOMAH program provides significant subsidies for the installation of solar photovoltaic (PV) systems on qualifying multifamily affordable housing properties (i.e., multifamily housing financed with low-income housing tax credits, tax-exempt mortgage revenue bonds, general obligation bonds, or local, state, or federal loans or grants). The SOMAH program serves utility and community choice aggregator customers in the territories of PG&E, SCE, SDG&E, Liberty Utilities Company, and PacifiCorp. To qualify for SOMAH incentives, properties must also be occupied by residents with incomes at or below 60% of the

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1 CPUC (D.) 17-12-022 Adopting Implementation Framework for Assembly Bill 693 and Creating the Solar on Multifamily Affordable Housing Program. December 14, 2017. http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M201/K940/201940057.pdf

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

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

area median income or be in a DAC, as identified by the Office of Environmental Health Hazard Assessment (OEHHA) on behalf of the California Environmental Protection Agency (CalEPA).

As of August 25, 2020, the program has received nearly 400 applications (excluding those that have been canceled), representing nearly 89 MW of solar generating capacity and $201 million in reserved funding.

1.1.1 Program Evaluation Background

This study, which is divided into two phases (Phase I and Phase II), represents the SOMAH program's first impact and process evaluation study—critical for setting up the program for successful evaluations immediately and in the future. Phase I of this evaluation, completed on August 4, 2020,[4] focused on foundational process evaluation activities, which allowed the evaluation team to quickly gain a better understanding of how the program is currently working and identify areas in need of improvement.[5] The Phase I evaluation report addressed the following researchable questions:

1. What is the underlying program theory? Is the program operating in a manner to support this model?
2. What metrics are needed to determine the program's impact?
3. Is the program collecting the appropriate data in the correct formats to support the measurement of performance during the program's implementation?
4. Is the program evaluable based on best practice methods for solar program evaluations? If not, what program design and data collection activities need to be put in place to ensure that it is?
5. Are the program actors aligned for success?

In order to address the five researchable questions listed above, Phase I of the evaluation included the following activities:

- Detailed review of the PA tracking database and summary of key program metrics.
- Development of a Program Theory and Logic Model (PTLM).
- Establishing program metrics that will be used to assess the performance of the SOMAH program going forward.
- Establishing and documenting data collection protocols that will enable Phase II and future measurement and verification (M&V) activities.

[4] Phase I was designed to be completed in time to inform the CPUC's July 30, 2020 report to the California Legislature regarding the CPUC's assessment of the SOMAH program.

[5] Final Phase I 2020 SOMAH Process and Impact Assessment Report. Itron, Verdant, and Illume, August 2020. https://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442465840

1.1.2 Relevant Findings from Phase I

Through in-depth interviews with the SOMAH PA, IOUs, and the CPUC, along with a detailed review of the SOMAH PA tracking database, we found that the SOMAH PA and stakeholders are broadly aligned and operationally set up to achieve SOMAH Program goals. Through iterative stakeholder interviews and document review, we found that the SOMAH PA, the IOUs, and the CPUC Energy Division are aligned regarding the SOMAH Program's role in delivering solar and solar benefits to low-income and disadvantaged communities through incentivizing affordable solar energy. A subset of key findings which emerged from the Phase I evaluation and are relevant for proposed Phase II research are presented below. The order in which these findings are presented does not reflect any prioritization or level of importance of the findings.

1. The program would benefit from additional consensus with respect to which communities are the focus of economic and workforce development activities, and where it is presumably the intention of the legislation not to foster economic growth solely in disadvantaged communities as defined by CalEPA, but rather more broadly among underserved communities.
2. The SOMAH Program aims to drive economic development and job training opportunities in underserved communities, yet ambiguity exists around the extent to which the SOMAH Program seeks to identify and engage trainees that reside in the communities the program aims to serve.
3. The SOMAH Program was designed to encourage diverse contractor participation and create opportunities for small contractors and host customers to participate in the program; however, existing efforts may need to be augmented to bring about broader, more diverse program participation.
4. We found that roughly one-quarter of applications qualified as serving both a DAC (a disadvantaged community defined by a CalEnviroScreen score in the top quartile) and income-qualified tenants. The remaining three-quarters of applications were qualified based on the income threshold alone.
5. There are several data elements in the SOMAH Program application portal that are either stored within forms or program correspondence documents within the portal and cannot be easily queried. This makes evaluating the current state of some program aspects difficult and onerous to track.
6. We found opportunities for improvement in the content and formatting of the IOU data. For example, some consumption datasets lacked timestamps that would allow the SOMAH PA to associate the values with specific billing periods.

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Having completed Phase I, Verdant and Illume have reassessed the Phase II research activities based on the Phase I learnings. The following subsections provide details on the planned Phase II research methodologies that are rooted in available data identified during Phase I.

1.2 PHASE II RESEARCH QUESTIONS

The following research questions have been identified for Phase II of this evaluation. The order in which they are presented below does not denote any prioritization of the research questions.

- Which metrics developed in Phase I are best suited to measure the program's success across various dimensions in successive evaluations?
- Are there barriers in the implementation and administration of the program that may impact its success? If so, how might they be addressed?
  - Is the program reaching the properties and customers that it originally intended to reach?
  - Is there a reason why certain cohorts or potential participant types are not submitting applications? Why are prospective building owners cancelling or withdrawing applications?
  - What is the typical project timeframe from application submittal to approved interconnection and delivery of tenant bill benefit? Is the time elapsed from application submittal to project interconnection reasonable and expected? Are there opportunities for the program to expedite this process?
- How many SOMAH projects have been installed since program inception and what are the characteristics of these projects? How have applicants changed from the first to the second year of the program?
- What are the total program and project costs to date for the SOMAH Program? How do project costs and benefits differ between host customer and third-party owned systems? What role do Federal tax credits play in the project costs?
- What are the SOMAH Program's total energy (MW and MWh), greenhouse gas (GHG), and economic (bill savings) impacts to date?

1.3 PHASE II APPROACH

Phase II of the evaluation builds on the lessons learned during Phase I, expands upon on the process evaluation framework previously developed, and provides a baseline estimate of the program's gross impacts. Phase II will include the following activities:

- Evaluability consulting to review the SOMAH PA's methods of assessing metrics relating to contractor, host customers, customer and tenant needs and satisfaction.

- A continuation of the Phase I program assessment, defined by metrics such as the number and characteristics of SOMAH first-year projects, first-year program and project costs/spending, and a comparison of first-year program goals and accomplishments.
- Interviews with program contractors and host customers.
- Development of a process flow chart (PFC).
- Measurement and verification of SOMAH's first-year gross impacts, including:
  - Electrical load impacts (MW and MWh).
  - Economic impacts, including bill savings for program participants and reductions to utility CARE budgets resulting from SOMAH projects.
  - Program GHG reduction impacts.
- Final reporting, including a draft report released to the public, a draft report webinar, and a subsequent final report submitted to the CPUC Energy Division.

It remains uncertain how quickly these first-year projects will become interconnected and operational. The Phase II approach described below may vary depending on data availability and the number of projects that have been installed and interconnected.

The following subsections describe the proposed approach for Phase II, along with the relevant researchable questions.

Establishing Program Metrics

Identifying the best metrics for measuring a program's success requires finding the right intersection between available data, program goals, and program operations. Beginning with the expansive range of metrics developed in Phase I, we will refine these to a subset of the most appropriate metrics on which to evaluate the SOMAH Program in the future. We will consult with the SOMAH PA and CPUC as needed to finalize this list.

Interim Deliverables: Memo providing recommended metrics.

Contractor and Host Customer Interviews and Web Surveys

In Phase II both participating and non-participating contractor and host customers will be targeted for data collection. We will coordinate with the PA to ensure these data collection efforts will not overlap with their planned data collection activities. These interviews and web surveys will serve to increase our understanding of current program participants experience with the program and recommendations for program improvement, barriers to program participation faced by program non-participants or those who have withdrawn or cancelled their program applications, and gather the necessary data to finalize the process flow charts (PFC). The goal of the PFCs are to document the "cradle-to-grave" operations and

administration of the SOMAH Program, including administrative costs and work assignments for major deliverables of the program. Collecting input from participants who have gone through the application process through the contractor and host customer interviews and web surveys will allow them to be practical, rather than just theoretical, and therefore more likely to be able to accomplish their goals of showing the practical working of the program and identifying ways to improve processes.

The evaluation team will conduct a mixture of in-depths interviews and web surveys with participating contractors in order to better understand their experiences participating in the program to date, with a focus on the participation timeline, and identify any areas where the program needs to improve in the near term to increase program participation and PV interconnection. As there are currently only ten contractors who have submitted applications the evaluation team will attempt to conduct a census with these key program actors.

The SOMAH PA is currently fielding a survey among non-participating contractors who have gone through the SOMAH training but have not yet submitted an application to the program (the SOMAH PA's "Barriers to Entry" web survey). This survey is currently in the field and the evaluation team will request the results of this surveying effort for analysis and integration in the Phase II report.

The Phase II data collection effort will also include interviews and web surveys with SOMAH participating and non-participating host customers (including umbrella parent companies). The SOMAH PA intends to conduct surveys with participating host customers, however that survey is not scheduled to be fielded until a substantial number of projects have been completed. The evaluation team proposes to collect this data sooner to identify any areas which could benefit for adjustments in the short term. The SOMAH PA also has some non-participating host customer web surveys scheduled to understand why they have not submitted an application to date and the evaluation team will work closely with the PA to ensure these efforts are appropriately integrated.

Table 1 on the following page outlines the planned Phase II data collection activities. Further details on survey research questions are provided in the section below.

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TABLE 1: PHASE II CONTRACTOR AND HOST CUSTOMER DATA COLLECTION ACTIVITIES

Program Actor	Group	Type	Sample	Target Completes	Research Objectives
Contractor	Participant	In-depth Interviews	9	4	Process flow chart, program participation experience, satisfaction, areas for program improvement, barriers to reaching program goals, impact of COVID-19 on program participation
	Non-Participant	"Barriers to Entry" survey (PA)	234	Census	Experience with the program, participation in other solar programs, plans for future participation, barriers to participation, areas for additional support and program improvement
Host Customer	Active SOMAH Project	In-depth Interviews and web surveys	69 Total 56 Active 31 Cancel	Interviews: 6* Web surveys: Census	Process flow chart, program participation experience, satisfaction, areas for program improvement, drivers/barriers to participation, likelihood of future participation, impact of COVID-19 on program participation
	Cancelled SOMAH Project			Interviews: 3** Web surveys: Census	Reasons for cancellation, likelihood of future participation, recommendations for program improvement
	Non-Applicants	Web survey	3,427 ***	Census	Reasons for not applying to the program, likelihood and timing of future program participation, help overcoming barriers to solar adoption, recommendation for program improvement

* Including at least 1 Track A host customer.

** Some of these will overlap with the Active SOMAH host customer interviews and web surveys.

*** There are 3,427 eligible properties in the database. Analysis will be completed during Phase II to determine the number of unique host customers these eligible properties represent.

The number of currently active and cancelled applications, grouped by the number of applications submitted, as of 9/2/2020 is shown in Table 2. As this table shows, only five percent of program applications correspond to a host customer who has only submitted a single application to the SOMAH Program (24 unique host customers). Conversely, nearly two-thirds of program applications were submitted by a host customer who has submitted 10 or more applications to the program (these host customers are likely an LLC or 503b affordable housing organization). It is interesting to note that the greater the number of applications that a host customer has submitted, the lower the rate of application cancellation (shown in the table below). Reasons for this will be explored further during Phase II. The sample of host customer interviews (both active and cancelled) will be stratified by the number of applications the host customer has submitted to the program in order to ensure the spectrum of host customer participation level is included in the data collection effort. All host customers who are not included in the in-depth interviewing sample will be included in the web surveying sample.

TABLE 2: HOST CUSTOMER APPLICATION DISTRIBUTION (AS OF 9/2/2020)

Number of Applications Submitted by Host Customers	Unique Host Customers		Total Applications Submitted		Cancelled Applications	% Cancelled
1	24	35%	24	5%	9	38%
2 – 9	32	46%	138	30%	27	20%
10 or more	13	19%	302	65%	22	7%
Total	69	100%	464	100%	58	13%

Broadly, the interview topics shown in Table 3 will cover program participation experience, including what did and did not work well; questions, concerns, and difficulties navigating and/or completing the process; adequacy of program-related materials and assistance; and suggestions for improvements.

TABLE 3: PHASE II CONTRACTOR AND HOST CUSTOMER RESEARCH AREAS

High-Level Research Categories	Contractors	Host Customers	Process Flow Chart
Current SOMAH participation experience	x	x	x
Dispersion of program benefits amongst intended benefactors	x	x	
Timeliness of application process	x	x	x
Adequacy of program education and assistance	x	x	
Program marketing activities and messages	x	x	
Barriers to SOMAH participation	x	x	x
Feasibility of attaining program goals	x		
Suggestions for program improvement	x	x	x

Examples of specific interview questions include:

- To what degree is program financing and access to capital a barrier to participation for smaller contractors and host customers? How are applicants being informed and educated on additional funding available to offset the cost of SOMAH projects (such as the Federal ITC and LIHTC)?
- To what degree are large contractors employing smaller contractors as subcontractors for SOMAH project installation? What barriers to program participation are faced by small contractors? Would caps on large solar contractor applications help ensure participation among host customers and a more diverse set of contractor applications?
- What has prevented the majority of contractors (upwards of 90%) who have gone through SOMAH contractor training from submitting a program application? What program changes can be made to support their participation in the program?
- What demographic or other differences exist between properties who qualify as serving DACs and those that meet the income thresholds? Is there a need to expand the CalEPA DAC criteria eligible

for the program? How does the percentage of unregulated or market rate units compare in DACs versus income threshold qualified properties?

- Why do applicants choose Track A vs. Track B for participation? How are Track A projects different from Track B projects? Is there a need to make changes to the program to ensure equitable inclusion of "Track A" applicants in the program? Is Track A support sufficient to foster program participation? Why have the majority of Track A applicants dropped out?
- What role do contractors play in targeting and marketing the program to prospective properties? Is more support needed by the program to expand program participation?
- What has been the primary cause of extended application timelines and how can the program application process be expediated? What are the primary causes of application suspensions and how can these be reduced? Are application deadlines realistic? Is current program training sufficient for successful program participation? Is the PA responsive to requests for assistance?
- What barriers to participation are in place that may prevent the program reaching its goals?
- Application processing represents a large portion of the SOMAH PA's workload and budget. How do long application timelines, and the drivers for those timelines, impact the SOMAH PA program budgets dedicated to these activities?

Interim Deliverables: Draft and final interview guides, frequency tables of survey responses.

Review of Data Collection Instruments

Research Questions:

- Are survey and interview data collection instruments designed to collect the data needed to feed into the program metrics?
- Are the sampling frames and sizes designed to support statistically significant and measurable effects?

The evaluation team will work with the SOMAH PA to prioritize which instruments are relevant to review in order to ensure the program is evaluable. The team will review the instruments and sampling plans (if relevant) to assess whether they are designed to collect the data and support the analysis are needed to assess the program.

Interim Deliverables: Review of up to five data collection instruments (surveys, guides, etc.), depending on complexity of the instrument and/or sampling approach.

Program Impact Evaluation

As of August 31, 2020, no SOMAH projects have reached the incentive payment stage. We will rely on program application data to develop ex-ante estimates of electrical generation (MWh), noncoincident peak demand generation (MW), customer bill impacts, and GHG emission impacts.

First, we will develop estimates of typical year SOMAH project solar PV production based on the PV system characteristics as submitted in the application documents. Relevant parameters include system size (DC or CEC-AC), tilt, azimuth, tracking type (if applicable), and module type. We will simulate solar PV generation using PV Watts or similar tools such as the PV-Lib library built into the Verdant NEM 2.0 Lookback Study Model. The PV simulations will be performed at the hourly level which allow us to estimate noncoincident peak demand impacts at the utility and CAISO system level. Hourly typical meteorological year (TMY3) data available from the National Solar Radiation Database (NSRDB) will be used as inputs into the simulation.

IOU and CAISO load data will be obtained for the CAISO OASIS website. We will use 2020 as the reference year to estimate peak demand impacts, GHG emission impacts, and avoided costs. Avoided costs will be calculated using the CPUC 2020 Avoided Cost Calculator v1c.

Once total PV generation is known, we will use the tenant share allocations tracked by the SOMAH PA to allocate expected solar PV generation to tenants or the common area. Historical billing data, including usage and tariff information prior to the SOMAH system interconnection will be requested from the IOUs for a sample of tenants, common areas, and properties. We will use the bill calculator module in the NEM 2.0 Lookback Study model to estimate customer bills accounting for all VNEM tariff provisions. We will then estimate the difference between customer bills with and without PV benefits during the first year.

We propose two methods to quantify program GHG benefits. As a primary method, we propose to use the marginal heat rate information embedded in the CPUC Avoided Cost Calculator to estimate greenhouse gas emission impacts. As a secondary estimate, we propose to use the marginal emissions data developed by WattTime as part of the Self-Generation Incentive Program (SGIP) GHG signal.[6] The WattTime data are considered a better approximation of actual conditions during a particular year.

6 http://sgipsignal.com/

1.4 PHASE II PROJECT TIMELINE

Phase II of the SOMAH evaluation study will be completed and delivered to the CPUC Energy Division by the end of March 2021. The interim milestones leading up to the conclusion of Phase II are provided below.

- Phase II draft research plan released to public on September 11, 2020
- Public webinar on Phase II research plan, September 21, 2020
- Comments due on Phase II research plan, September 28, 2020
- Final research plan release to public, October 9, 2020
- Process flow charts finalized, December 2020
- Draft Phase II Report and public webinar, end of January 2021
- Final Phase II Report and public webinar, end of March 2021

APPENDIX A DRAFT RESEARCH PLAN COMMENT MATRIX

Comment #	Commenter	Page # or "Overarching"	Comment/feedback/change requested	Evaluator's Response
1	SDG&E	Pages 5 & 6	In the draft research plan, "the Phase II data collection effort will also include interviews and web surveys with SOMAH participating and non-participating host customers (including umbrella parent companies)". This would include the SOMAH PA conducting surveys with participating host customers. Based on data from DG Stat, which requires the PA to provide statuses on a monthly basis, there are not a lot of projects that are completed, with SDG&E having zero in its territory. Given that the impact evaluation would be completed March 2021, how would this part of the data collection effort be impacted as it may not be feasible for completed projects in SDG&E territory?	The surveys will be collected with participants whose projects are still in the application process not just those whose projects are completed. There is still a lot of information about the application process and the barriers and drivers to program participation/PV installation we can collect from customers whose projects are yet to be completed.
2	SDG&E	Page 10	There are two proposed methods to quantify program GHG benefits. How will the evaluation team incorporate other entities' GHG calculators/methods, such as CARB when calculating the benefits?	We do not intend to leverage other calculators like the CARB GHG calculator in this study. The methodologies that we proposed are considered best practice for California energy program impact evaluations and have been used in evaluation of the California Solar Initiative, the NEM 2.0 Lookback Study, and the Self-Generation Incentive Program.
3	SOMAH PA	Overarching, and pp. 9-10	The complex modeling planned around estimating avoided costs, GHG reductions, and peak demand impacts seems premature at this point of the program, and evaluation resources would be best allocated and invested to address other near-term program needs. Because few projects are expected to be interconnected by the end of the data collection term in 2020, the research will use estimates of projects' planned capacity outputs and presumably estimates of tenant rate classes to estimate tenants' bill impacts. While this may yield interesting results and insights, the PA believes it would be more impactful to the program to focus on these efforts in a future evaluation, when there is expected to be a larger pool of actual project data available, and instead focus the year-one evaluation on the primary questions identified around barriers to participation, which will better support longer-term program viability, as well as other	The evaluation is required by statute to have an impact evaluation component and we believe the benefits of such an analysis, even if based on estimates, outweigh the costs of conducting this analysis. The Phase II evaluation will also focus on items including barriers to participation and will not omit these important research questions.

			timely and relevant research questions that the PA has identified and provided.	
4	SOMAH PA	Page 5	The PA requests that Verdant coordinate closely with the PA on surveys to ensure both that survey questions are not repetitive (i.e., between the evaluation and the PA's own efforts) and that survey questions include some specific inquiries to provide the PA with key information. Of note, the PA requests that participant contractor surveys focused on obtaining information about the barriers to participation include specific questions about the job training requirement and its impact on participating contractors. Additionally, the PA requests that participant contractor and Host Customer surveys include specific questions about the impacts of other program requirements, including the Energy Efficiency Compliance Milestone (EECM) requirements and the tenant education requirements.	The Verdant team will coordinate closely with the PA on all surveying efforts to ensure contractors and host customers are not overly burdened by the data collection efforts and to ensure the surveys are collecting data to support program improvements. Your suggestions for data to collect are appreciated and we agree with them.
5	SOMAH PA	Page 5	The PA requests that Verdant survey at least one affordable housing association or state housing agency stakeholder.	We agree these groups should be in our sample. We will work with the PA to review our sample designs before the surveys are fielded.
6	SOMAH PA	Page 5	The PA requests clarification as to the entities to be targeted for surveys and confirmation that tenants will *not* be surveyed directly in this evaluation. Given the stage of most projects, and that most tenants will not have received bill credits during this evaluation cycle, the PA recommends that tenants be targeted for future impact evaluations. If tenants are to be contacted, the PA requests Verdant coordinate with the PA on this effort, per Comment #2.	We confirm that tenants will not be surveyed during Phase II of the evaluation.
7	SOMAH PA	Page 4	The evaluation seeks to examine, "How do project costs differ between host customer and third-party owned systems?" The PA agrees this is an important and timely research question for this evaluation cycle. However, the PA believes it is critically important that Verdant expand its scope to ensure that both costs *and benefits* are examined between the two ownership types. Benefits would include, for example, a comparison of operations and maintenance services, performance guarantees, cash flow, risk, and lines of credit required by property owners for different ownership types. It will be important to understand both costs and expected benefits, which in some cases	The evaluation team agrees with the PA that both costs and benefits should be assessed as part of the evaluation. The research plan has been updated to reflect this.

			may not be easily quantifiable (e.g., a property owner may receive the benefit of peace of mind in not having to orchestrate repairs themselves if they are in a TPO arrangement that covers longer-term operations and maintenance, etc.)	
8	SOMAH PA	Overarching, and Page 5	The PA observes that Verdant does not plan to consider the impact of the COVID-19 pandemic in its phase II assessment. The PA knows that COVID has had a far-reaching impact on multiple facets of program operations and believes a third-party perspective would be helpful in better understanding these impacts. Specifically, the PA recommends Verdant include questions about COVID-19 impacts in its interviews with stakeholders and in its general analysis of program outcomes within the evaluation period.	The evaluation team agrees with the PA that the contract and host customer surveys should include questions to help better understand the impact COVID-19 has had on program participation. The research plan has been updated to reflect this.
9	SOMAH PA	Overarching, and page 4	The currently planned research questions related to project costs do not take into account the incentive level, structure, and incentive step-down. While incentive research would be an add-on from the currently planned scope, it may be of specific help to the ED/Commission as the assessment of incentives and step-down structure is to be examined after this first program evaluation is completed. (D.17-12-022, p. 42.) Specifically, the PA recommends that Verdant examine project and market costs and drivers and assess the appropriateness of the incentive level and the step-down methodology outlined in the SOMAH Decision. The evaluation could seek to answer whether the current incentive rate is sufficient to incentivize property owners to participate in the program, in consideration of the ITC step-down and the annual SOMAH incentive step-down. Further, the evaluation could consider the planned ITC step-down and the ability of projects to leverage a higher ITC rate using safe harbor equipment.	We plan to ask contractors about total project costs and market costs, as well as asking them and host customers about the influence of the SOMAH incentive in their decision to participate in the program. Similarly, we will investigate the role of the ITC and the SOMAH incentive on project feasibility.
10	SOMAH PA	Overarching	The SOMAH PA recommends Verdant work with the IOUs to determine the processing costs of VNEM projects, including the average cost to set up the project and the average ongoing processing and billing costs for the IOUs to maintain VNEM projects.	It is our understanding that the SOMAH participating utilities should be able to track the VNEM processing costs. The evaluation team will request this data and include analysis of it in the final report.

11	Sunrun	page 3 1.1.2 (3)	Where in the legislation or in the CPUC decision does it state that the SOMAH Program was designed to encourage diverse contractor participation and create opportunities for small contractors to participate in the program?	The SOMAH Program was designed to provide solar benefits where there has historically been very low levels of solar adoption - this includes MF properties, DACs and LI housing. The CPUC also has a strong commitment to supplier diversity (General Order 156) and actively monitors the utilities supplier diversity. This evaluation is not attempting to weigh in on whether the SOMAH Program should implement a diversity requirement. This evaluation is exploring overall program participation which includes research into supplier diversity and whether or not the program is currently accessible to Women, Minority, and Disabled Veteran Business Enterprises.
12	Sunrun	Page 3, 1.1.2 (6)	How does IOU cooperation impact the ability to perfect a SOMAH Application? For example, how quickly should the IOUs be able to provide load information for a prospective SOMAH participant? Could IOU cooperation on load data requests speed up the SOMAH application process? Is it necessary for SOMAH Applicants to provide the IOU with each meter number at a host customer's address in order to provide accurate load data? For host customers and applicants: Are meter numbers always available for all units? Are unit addresses or alternate information always available?	In Phase II of the study we will work with the PAs to determine if existing data can be analyzed to determine how long, on average, it takes the IOUs to provide load data for program participants. We understand that one of the reasons this process can take a longer than anticipated is caused by the data that is provided to the IOUs in order to look up the load data for the applicant properties. The evaluation will verify with the IOUs that they are unable to remotely determine the meter numbers associated with a given address and that they need to have meter numbers to determine historical load for these sites and explore other potential means of expediting this processing.
13	Sunrun	Page 4, 1.2	Ensuring you have the right metrics to measure the major program impacts is very important, but this is a chance to really focus on feedback from the program participants (as distinct from administrators that were the exclusive focus of the Phase 1 interviews) that the Commission can use for any course corrections. Sunrun urges the evaluation team to prioritize the issue raised in the second bullet about program implementation and administration, with a broad focus on barriers and streamlining opportunities.	The evaluation team agrees and opportunities for program improvement and streamlining will be a central focus of the Phase II evaluation.

14	Sunrun	Page 4, 1.2 (fourth bullet)	The key cost question is the amount of program funds spent on unit of result. The program was intentionally designed to leverage outside sources of funds, as evidenced by the basic incentive structure. If, for example, using solar investment tax credits incurs greater legal and other development costs in order to attract private capital, that higher cost per PV Watt is not relevant; what is relevant is that the SOMAH rebates paid out per PV Watt are much lower than in a no-tax-credit scenario, precisely because those extra development costs successfully brought in the outside investment.	The evaluation team agrees and thus a key research question for Phase II of the evaluation is an exploration of project costs and incentives (both SOMAH and other such as ITC).
15	Sunrun	Page 4, 1.2 (fourth bullet)	Should the proper metric for measuring success be the amount of SOMAH rebate money spent per watt versus the total cost of the PV system? For example, a PV system that uses the Federal ITC will use less rebate dollars for a similar sized system that does not use any tax leverage.	Not all projects can take advantage of the ITC, however it is beneficial to program budgets to encourage the use of ITC whenever possible and provide education on the ITC to ensure that all of those who are eligible take advantage of it in order for the program incentives to go further. Host customer and contractor surveys will include questions to determine the level of awareness/familiarity with ITC and the qualification criteria/process by which to request it. It will also explore the reasons customers who are eligible may not apply for it.
16	Sunrun	Page 4.1.2	How does the SOMAH program reach its 300MW goal? Is SOMAH compliance too complicated for small contractors and small housing sponsors who are not equipped to deal with the detailed SOMAH requirements?	The surveys will collect data to assess the participation experience for both contractors and host customers, as well as the barriers to participation faced by program nonparticipants. This research will seek to determine if the program rules and requirements are overly complex or onerous for any subsets of potential program participants.
17	Sunrun	Page 5	What is the typical timeframe from the receipt of a PTO to a SOMAH incentive payment? What issues have come up so far as a result of non-compliance with the SOMAH requirements?	The timeframe from granted PTO to incentive payment is an interesting one if there are enough participants who have received SOMAH incentives during evaluation timeframe. The surveys can explore any non-compliance issues with SOMAH requirements.

18	Sunrun	Page 5	Is a housing sponsor/host customer liable for payments for a solar system if a contractor fails to comply with SOMAH requirements?	We are unable to weigh in on the specifics of contractor agreements with host customers. However, as a business agreement, we would assume these contracts have terms to address any breach of contract on the part of either the contractor or host customer.
19	Sunrun	Page 8	What has prevented more contractor participation? Is the SOMAH Program too complicated? Is the SOMAH Program financially risky for a host customer or a contractor?	The PA's 'Barriers to Entry' survey included questions on why contractors have not submitted program applications. Phase II of this evaluation will analyze responses from this non-participating contractor survey.
20	Sunrun	Page 8	Would implementing a contractor cap help to identify more host customers and would it help to deliver 300MW of solar on qualified affordable housing?	At this time, there is no contractor cap being proposed. The evaluation is exploring the impacts (which could be positive or negative) on the program resulting from a small pool of eligible contractors participating.
21	Sunrun	Page 8	Technical assistance. Should technical assistance be more meaningful? Should technical assistance require that a real offering from the current solar market be explained as options rather than hypothetical offerings that are not currently available in the marketplace? Does this approach cause confusion for host customers and/or contractors?	The contractor and host customer surveys will include questions regarding the effectiveness of the current TA provided and recommendations for improvements.
22	Sunrun	Page 9	How much of the current SOMAH participation can be traced to SOMAH PA marketing outreach? How much of the current SOMAH participation can be traced to the outreach efforts of the 10 contractors that have currently participated in the SOMAH program?	We plan to ask host customers about their level of awareness of the SOMAH program and drivers to program participation. Those drivers will include both SOMAH PA and contractor marketing outreach.
23	Sunrun	Overarching	Should the survey responses by contractors and host customers be weighted by their proportional participation?	The current sample of participating contractors is fairly small and the variation in the participation levels across these few contractors is large. As a result, the survey results will be less quantitative and more qualitative and so weighting will not be required, however attention will be paid to the size of each contractor's participation level in the program.
24	Sunrun	Overarching	Is the reason that housing sponsors with larger portfolios seem to implement SOMAH more because they have a renewable energy plan?	We plan to ask host customers about whether they have any policies, formal or informal, regarding the use of renewable energy, EE, etc.

25	Sunrun	Overarching	Is the reason that housing sponsors with larger portfolios seem to implement SOMAH more because they are being offered a product that can realistically be installed and also comply with the SOMAH requirements?	We plan to ask both contractors and host customers about the barriers and drivers faced to the installation of solar. These questions will also focus on why they chose to participate in the SOMAH program.
26	Sunrun	Overarching	Is the reason that housing sponsors with larger portfolios seem to implement SOMAH more linked to program inefficiencies, ancillary requirements, or other hurdles that require efficiency of scale to make it worthwhile?	As stated above, we plan to ask both contractors and host customers about the barriers and drivers they experience to the installation of solar, as well as their experience participating in the SOMAH Program. These questions will attempt to identify program inefficiencies and economy of scale when it comes to the SOMAH Program.
27	Sunrun	Overarching	[To ask host customers:] Do many of your properties have cash available to outright purchase a solar PV system as an investment that will pay back over time? If not, why not?	Thank you for you input. We will consider these questions as we develop our host customer and contractor survey instruments.
28	Sunrun	Overarching	Are many of your properties able to take on the development and financing risk of a solar project? If not, why not?	Thank you for you input. We will consider these questions as we develop our host customer and contractor survey instruments.
29	Sunrun	Overarching	Would you be able to place Federal solar tax credits with an investor for many of your properties?	Thank you for you input. We will consider these questions as we develop our host customer and contractor survey instruments.
30	Sunrun	Overarching	Are many of your properties able to carry the rebate compliance risk of SOMAH, first with respect to getting the incentive paid, and second with respect to remaining in compliance for 20 years so as to avoid the incentives being clawed back? Are you willing to take that risk?	Thank you for you input. We will consider these questions as we develop our host customer and contractor survey instruments.
31	Sunrun	Overarching	Are many of your properties able to take on the construction risk of a solar project? If not, why not?	Thank you for you input. We will consider these questions as we develop our host customer and contractor survey instruments.
32	Sunrun	Overarching	Does your organization feel confident it has the staff capacity to manage a solar construction project, using an experienced solar contractor? How would you know if your solar contractor's experience is relevant for multifamily affordable housing?	Thank you for you input. We will consider these questions as we develop our host customer and contractor survey instruments.
33	Sunrun	Overarching	Would it make a difference to you if your contractor had a lot or little experience in with virtual net metering for affordable housing? Why or why not?	Thank you for you input. We will consider these questions as we develop our host customer and contractor survey instruments.

34	Sunrun	Overarching	Would it make a difference to you if your contractor had a lot or little experience in with the SOMAH program specifically? Why or why not?	Thank you for you input. We will consider these questions as we develop our host customer and contractor survey instruments.
35	Sunrun	Overarching	What would give you confidence that your solar contractor could properly install the solar and interconnect it to the utility, to ensure the property starts receiving the promised benefits? What kind of warranties or guarantees would be the most meaningful to you?	Thank you for you input. We will consider these questions as we develop our host customer and contractor survey instruments.