SJV DAC Pilot Projects
Process Evaluation

Final Research Plan

Submitted by Evergreen Economics

October 12, 2020

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1 Introduction

This is the preliminary research plan for the Process Evaluation of the San Joaquin Valley Disadvantaged Communities (SJV DAC) pilot projects.

1.1 Regulatory Background

The California Public Utilities Commission (CPUC) directed the three investor-owned utilities (IOUs) serving the San Joaquin Valley (Southern California Gas Company [SoCalGas], Southern California Edison [SCE], and Pacific Gas and Electric [PG&E]) in D.18-12-015 to implement pilot projects in SJV DACs in line with Assembly Bill (AB) 2672. The overall goal is to offer cleaner, more affordable energy options to residents of DACs[1] in the SJV, where many households lack access to natural gas and rely on propane and wood for cooking and heating. The first phase of the San Joaquin Valley Affordable Energy Proceeding identified 170 DACs that met specific income, population size, and distance from a natural gas pipeline criteria.[2]

During the second phase of the proceeding, the CPUC approved the implementation of pilot projects in December 2018 (D.18-12-015). Eleven SJV communities (see map shown in Figure 1 on the next page) have been selected for pilot projects that will:

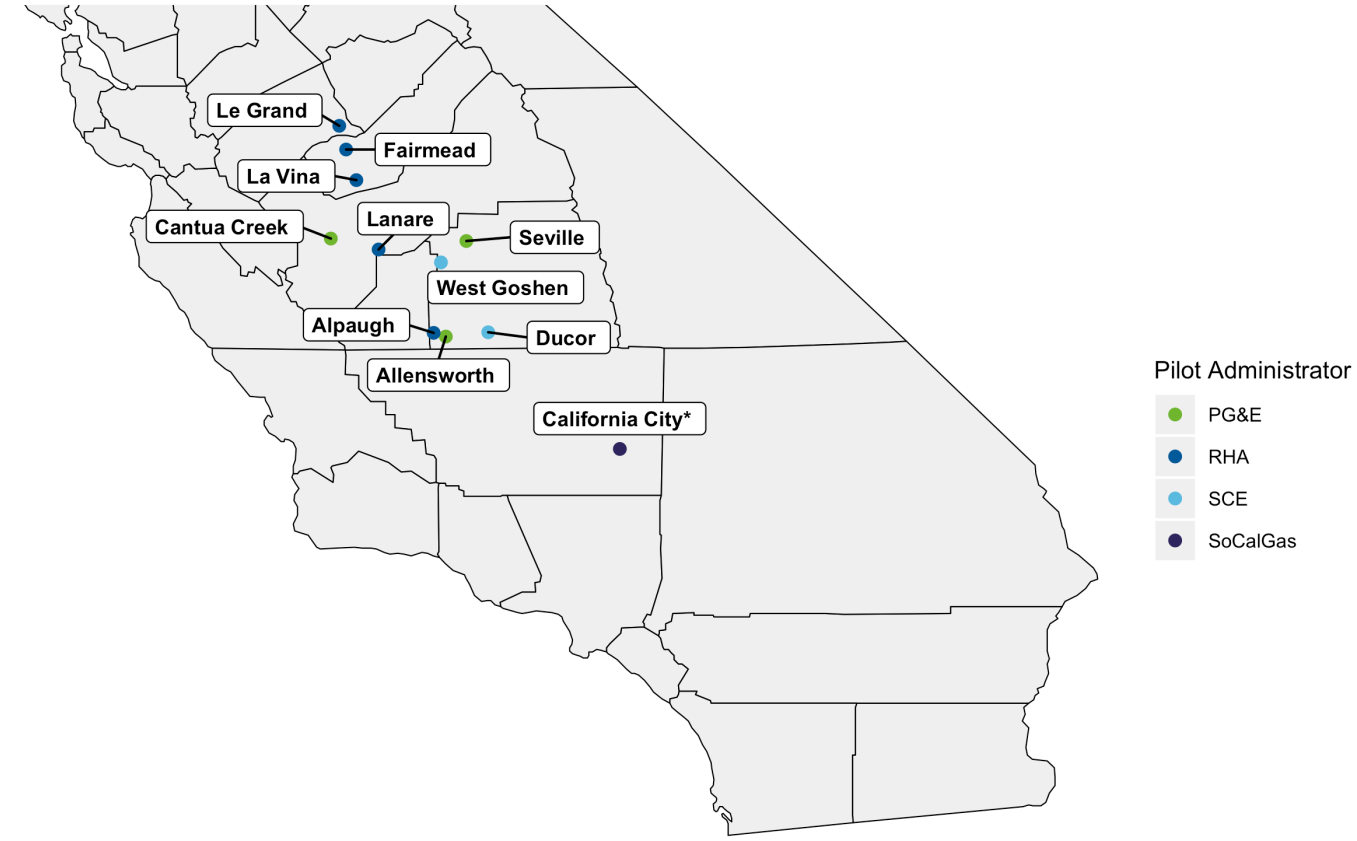
- Replace propane and wood burning appliances with all electric appliances or natural gas appliances (including line extensions) for nearly 2,000 homes.
- Test community based organization (CBO) and local resident outreach and engagement strategies to educate and enroll participants in the pilot.

The CPUC also approved a data gathering plan in August of 2018 (D.18-08-019). Together, the pilots and data gathering plan are intended to:

- Provide the CPUC with the data needed to assess the feasibility of extending affordable energy options to the rest of the SJV DACs, and
- Support a third phase of the proceeding that will evaluate the findings of the pilot projects and the data gathering effort to support the economic feasibility study required by AB 2672.

[1] Assembly Bill 2672 (Perea) added 783.5 to the Public Utilities Code that defines DACs in the SJV.
[2] In Decision 17-05-014 on May 2017, the CPUC adopted a methodology and identified eligible SJV communities.

Figure 1: SJV DAC Pilot Communities

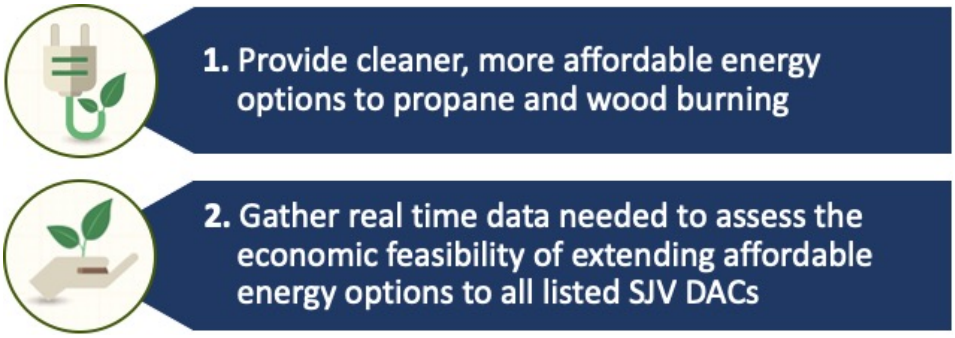


*Both SoCalGas and SCE are enrolling pilot participants in California City.

1.2 Pilot Projects

The CPUC has directed the three IOUs and a 3rd Party Pilot Administrator/Pilot Implementer (PA/PI) to convert households within SJV pilot communities that rely on propane or wood burning appliances to either efficient natural gas appliances (including line extensions) or all electric appliances. The CPUC allocated over $50 million for pilots to provide nearly 2,000 homes with appliance retrofits. This budget also includes funds for a Community Energy Navigator Program Manager (CPM), which will be responsible for outreach and enrollment activities.

The goals of the pilot are to:



Additional pilot elements include:

- Bill protection measures to ensure affordability for participants; and
- A split incentives agreement to ensure that tenant occupied households are able to participate and do not suffer negative consequences.

1.3 Study Objectives

In addition to directing the IOUs to implement pilots in SJV DACs, CPUC D.18-12-015 also directed SoCalGas to manage an RFP for an independent pilot project process evaluation contractor to be selected by the CPUC Energy Division (ED). The process evaluation is intended to determine the overall effectiveness of pilot design and processes and provide actionable recommendations for improved pilot design and delivery. The process evaluation will also document barriers and determine the success of the pilot administrators in meeting their stated goals. It will also help the Commission compare the performance of the PAs. Specific research objectives the process evaluation will address are listed below.

- Evaluate the pilot design and implementation processes of the SJV DAC PA's Pilots, which includes:
    - The design of pilot implementation plans and compliance with relevant CPUC decisions and legislation;
    - Marketing, education and outreach efforts;
    - Efforts to leverage existing programs (full list provided in Appendix B) to meet pilot goals;
    - Bulk purchasing efforts;
    - Contractor delivery / implementation approaches, including remediation work and safety measures (between and across pilot administrators (PAs));

- Workflow processes between PAs, pilot implementers (PI), the Community Energy Navigator Program Manager (CPM), the Community Energy Navigators (CEN), and community-based organizations (CBOs);
- Pilot tracking and data management;
- Effects of bill protection and split incentive approaches;
- Workforce education and training efforts;
- Barriers and obstacles to meeting pilot goals; and
- Processes to collect, review, and report on pilot impact data.

- Evaluate customer interest in and satisfaction with the SJV DAC Pilots:
  - Barriers to pilot participation, including non-participant feedback;
  - Customer interest and willingness to participate in the pilot;
  - Unique programmatic issues related to reaching specialty populations (e.g., high usage customers, disabled customers, renters, etc.);
  - Customer satisfaction/dissatisfaction; and
  - Customer attitudes and behaviors towards energy savings.

1.4 Theory-Based Evaluation Approach

This evaluation uses a theory-based evaluation framework that is guided by a logic model. The framework facilitates identification of causal mechanisms and testing of hypotheses that the successful implementation of program activities (often involving multiple actors) will lead to expected outputs, and that these in turn will eventually yield expected benefits. This theory-driven approach relies on data collection that covers program inputs, activities, outputs, and outcomes. The process evaluation research plan includes the development of a logic model and metrics that may be used to measure whether expected activities and outcomes are occurring.

The pilot administrators (PAs) developed an initial set of metrics to be used to measure pilot success towards its goals, which Evergreen refined as part of the initial study planning and information review efforts (Appendix A provides a logic model and associated metrics). The subset[3] of pilot outcomes that the process evaluation will measure progress towards are:

1. Households provided access to affordable energy options (via pilot offerings)
2. Households provided access to affordable energy options (via existing programs)
3. Development of local workforce
4. Data collection efforts to facilitate the process evaluation and EM&V/economic feasibility studies

[3] A separate pilot impact evaluation will address the additional pilot outcomes.

1.5 Phased Evaluation Approach

This study consists of two phases, with Phase I providing early feedback and a snapshot of pilot progress. Phase II is intended as a comprehensive process evaluation including a final written report on pilot outcomes.

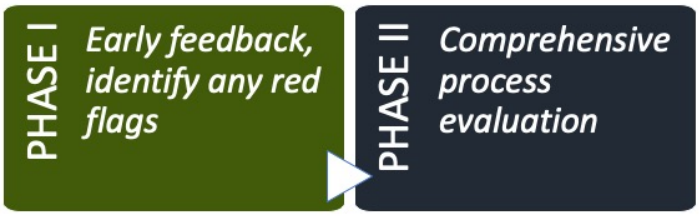


Table 1 lists the process evaluation research objectives and indicates which study phase will address them, including which pilot entities are involved in each component that will be evaluated. As shown, Phase II will address all study objectives, while Phase I will focus on a subset that pertains to early pilot activities including pilot planning, outreach and data tracking.

Table 1: Process Evaluation Research Objectives by Study Phase

Research Objective		Phase I	Phase II	Pilot Organizations Evaluated
Evaluate pilot design and implement-ation processes	PAs' pilot implementation plan design and compliance with CPUC guidance	●	●	PA
	Marketing, education and outreach efforts	●	●	PA, CPM, PI
	Leveraging existing programs (full list provided in Appendix B)		●	PA, CPM, PI
	Bulk purchasing efforts		●	PA, PI
	PA and contractor delivery / implementation approaches, including remediation work and safety measures (between and across PAs)	●	●	PA, PI
	Workflow processes between PAs, PIs, the CPM, the CENs, and CBOs	●	●	PA, CPM, PI
	Pilot tracking and data management	●	●	PA, CPM, PI
	Effects of bill protection	●	●	IOU

Research Objective		Phase I	Phase II	Pilot Organizations Evaluated
	Implementation and effects of split incentive approach [4]	●	●	CPM
	Workforce education and training efforts		●	PA, CPM, PI
	Processes to collect, review, and report on pilot impact data	●	●	PA
Evaluate customer interest in and satisfaction with the pilot	Barriers to pilot participation, including non-participant feedback	●	●	N/A
	Customer interest and willingness to participate in the pilot	●	●	N/A
	Unique programmatic issues related to reaching specialty populations (e.g., high usage customers, disabled customers, renters, etc.)	●	●	N/A
	Customer satisfaction/dissatisfaction	●	●	N/A
	Customer attitudes and behaviors towards energy savings		●	N/A

[4] The CPM did not design the split incentives approach but is tasked with assisting residents in understanding and adhering to the property owner-tenant agreement.

2 Scope of Work

This section presents the study scope of work, which is split into two phases. Phase I is intended to provide early feedback and a snapshot of pilot progress. Phase II is intended as a comprehensive process evaluation including a final written report on pilot outcomes.

2.1 Overview of Phase I Research

Phase I is intended to provide early feedback so that the pilots may take corrective mid-course action. The main focus of Phase I research is on pilot planning, outreach and data tracking activities. Phase I will also include research on early assessments and installations that have been completed at the time of the research.

Phase I research activities (summarized in Table 2 below) will consist of a combination of interviews and web surveys. Evergreen will update the sample plan based on actual participation levels.

Table 2: Summary of Phase I Primary Research Activities

	Research Mode	Sample Size			Target Audience	Incentives
		Mailing / Web Survey Invites	Target Completes: Total	Target Completes: Per Community		
	In-depth telephone interviews	NA	10	NA	PAs, CPM, CENs, pilot implementors	None
			15		Participating customers	$10 incentive per complete
			8		Non-participating customers (e.g., early refusals)	
	Web survey	360 total / up to 30 per community	60-120	5-10	Participating customers	$10 incentive per complete
		360 total / up to 30 per community	60-120	5-10	Non-participating customers (e.g., early refusals)	$10 incentive per complete

2.2 Overview of Phase II Research

Phase II research activities will be more comprehensive than Phase I, encompassing pilot implementation (i.e., measure assessment and installations.).

Phase II research activities (summarized in Table 3) will build on Phase I, adding a larger customer research effort and in-person qualitative research in the SJV DACs. Evergreen will update the sample plan based on actual participation levels.

Table 3: Summary of Phase II Primary Research Activities

	Research Mode	Sample Size			Target	Incentives
		Mailing / Web Survey Invites	Target Completes: Total	Target Completes: Per Community		
	In-depth interviews	NA	15	NA	PAs, CPM, CENs, pilot implementors	None
	Mail survey with web/ phone follow-up	Up to 600 customers (max 50 per community)	300	Max of 25 or 50% of participants	Participating customers	$5 incentive per mailing and $25 per completed survey
		Up to 360 customers (max 30 per community)	180	10-15	Non-participating customers	
	In-person qualitative research – ride alongs, in-person meetings / observations	NA	4 days embedded in SJV DAC communities	TBD	Community organizations, pilot staff, implementers, target customers	None

2.3 Phase I Tasks

Task 1: Conduct Project Kick-Off Meeting

Evergreen conducted a project kick-off meeting with the ED and PAs on May 5, 2020. The meeting included a presentation of the project scope of work and discussion about study approaches,

available data, schedule, and status of the data gathering plan. Evergreen prepared a summary memo documenting the meeting discussion and decisions and distributed that to the ED and PAs.

Task 1 Deliverables

Task	Deliverables
1.1	Meeting agenda
1.2	Meeting summary memo

Task 2: Conduct SJV DAC Pilot Material Review

Task 2 involved the collection and review of pilot program data, information, and materials to develop an understanding of pilot plans, implementation, and expected outcomes. Evergreen submitted a data request to the PAs on May 7, 2020, for contact information and organization structure for the key entities involved in administering the pilots, as well as information on how the pilots are implemented (including the Pilot Implementation Plans and Policies and Procedures manuals or other documentation). Evergreen submitted a separate data request to the CPM on July 23, 2020 for planning documents related to pilot outreach and enrollment and an extract of customer tracking data. We plan to submit a data request to the PIs as part of Phase I research for planning documents related to assessments, remediation and installations and an extract of customer tracking data.

During the kick-off meeting, the PAs indicated that they had not developed logic model(s) for the pilots, and it was agreed that Evergreen would develop them to support the process evaluation. These logic models and program theory can be found in Appendix A. This initial logic model may be updated during Task 6, the Early Feedback Study. Evergreen also reviewed initial pilot metrics proposed by the pilot team and linked them to pilot goals. In some cases, Evergreen proposed new metrics to measure pilot success. This metrics review is included along with the program theory and logic model in Appendix A. The logic model and metrics are linked to the data collection plan that is described in Tasks 5 and 7 in this plan.

Task 2 Deliverables

Task	Deliverables
2.1	Draft material review memo

Task 3: Refine Preliminary Research Plan

Evergreen developed a preliminary research plan with input from the ED and PAs to present at the public workshop.

Appendix A provides the revised pilot logic model, metrics, and process evaluation data collection plan. Research activities in this plan are consistent with the California EM&V framework[5] and EM&V protocols.[6]

Task 3 Deliverables

Task	Deliverables
3.1	Draft preliminary research plan (including 6.1 early feedback / Phase I study plan, and 2.2 final material review memo)
3.2	Final preliminary research plan

Task 4: Conduct Public Workshop on Preliminary Research Plan

Evergreen conducted a public workshop on September 16, 2020, to present the preliminary research plan for comment and discussion. Appendix C presents the written comments, and the study team's response and a description of any changes made to the research plan.

Evergreen completed the following tasks for this task:

[5] The California Evaluation Framework, 2004. Available at http://www.calmac.org/events/California_Evaluation_Framework_June_2004.pdf

[6] The California Energy Efficiency Evaluation Protocols: Technical, Methodological, and Reporting Requirements for Evaluation Professionals. 2006. Available at http://www.calmac.org/events/EvaluatorsProtocols_Final_AdoptedviaRuling_06-19-2006.pdf

- Prepare notice of PowerPoint summary slides of preliminary research plan;
- Post preliminary research plan and PowerPoint summary on the Public Document Area (PDA) for stakeholder input;
- Conduct workshop;
- Review comments posted on PDA and make recommendations as to which should be included in the final research plan;
- Incorporate changes and finalize research plan; and
- Prepare disposition brief on our response to public comments.

Task 4 Deliverables

Task	Deliverables
4.1	Public workshop
4.2	Workshop memo
4.3	Final research plan

Task 5: Develop Sampling Design and Methodology

Task 5 involves the development of samples for primary data collection. For Phase I, we plan to conduct:

- **In-depth telephone interviews** (10) with PAs, the CPM, CENs/CBOs and pilot implementors – to build on our understanding of the pilots and inform the early feedback study. These interviews will be conducted before the customer research. The CPM, CENs, and PIs will be able to provide insights into pilot successes and challenges and on customer research topics. These insights will inform and guide our customer research instruments.
- **Web surveys** with participating and non-participating customers (target 5-10 completes per community) – We will conduct a web survey that would be distributed to a convenience sample of up to 30 participating and 30 non-participating customers per community to try to increase the sample size for the Phase I assessment. These surveys will build on our understanding of the pilots and inform the early feedback study, touching on customer satisfaction, effectiveness of community outreach, drivers and barriers to participation, and initial lessons learned for improving pilot efforts. Web surveys will be offered in both English and Spanish.

- **In-depth telephone interviews** (20–25) with participating and non-participating customers. These interviews would cover similar topics as the prior bullet item (web surveys) but in a more open-ended fashion.

Table 4 presents our initial allocation of the Phase I web survey by pilot community and PA, supporting analysis of customer results by key characteristics including pilot community and PA. Evergreen will update the data in Table 4 once the pilots are implemented; the initial target numbers of pilot participants are estimates based on the PA's estimates of the total number of eligible households.

Table 4: Phase I Web Survey Allocation by DAC

				Participants		Non-participants	
Community	Pilot Administra-tor	Type	Target # of Participa-ting HHs	Web Survey Invites*	Max Expected Response	Web Survey Invites	Max Expected Response
Allensworth	PG&E	Electrification	106	30	10	30	10
Alpaugh	RHA	Electrification	46	30	10	30	10
California City	SCE	Electrification	100	30	10	30	10
California City	SoCalGas	Natural Gas	224	30	10	30	10
Cantua Creek	PG&E	Electrification	106	30	10	30	10
Ducor	SCE	Electrification	222	30	10	30	10
Fairmead	RHA	Electrification	253	30	10	30	10
Lanare	RHA	Electrification	17	17	6	30	10
La Vina	RHA	Electrification	84	30	10	30	10
Le Grand	RHA	Electrification	502	30	10	30	10
Seville	PG&E	Electrification	104	30	10	30	10
West Goshen	SCE	Electrification	127	30	10	30	10
		Total	**1,891**	**347**	**116**	**360**	**120**

*Web survey invites will be sent to participants and non-participants until the max expected response is met or the sample is exhausted.

Evergreen will develop draft sample design memos for each discrete primary research activity (in-depth interviews with pilot staff, in-depth interviews with participants and non-participants, and web surveys with participants and non-participants) and seek review and comment from the ED and PAs, and will provide a final memo that addresses comments.

Task 5 Deliverables

Task	Deliverables
5.1	Draft sample design memo
5.2	Final sample design memo

Task 6: Conduct Early Feedback Study

Task 6 involves gathering, analyzing, and reporting on data collected during Phase I. This task also includes the development of Phase I draft and final research instruments, data collection and analysis, and a draft and final feedback memo describing the methods and results of the early feedback study.

The primary research that will inform this task is described next, including interview and survey topics that will be covered by each mode. Evergreen developed the list of topics based on the list of pilot outcomes and associated metrics that are in scope for the process evaluation that are shown in Appendix A.

- **In-depth telephone interviews** (10) with PAs, the CPM, CENs/CBOs and pilot implementors – to build on our understanding of the pilots and inform the early feedback study. Interview questions will address the following topics:
    - Design of pilot implementation plans
    - Workflow processes between PAs, the CPM (and CENs/CBOs) and PIs;
    - Effectiveness of pilot tracking and data management;
    - Experience and effectiveness of customer outreach and engagement strategies, identifying improvements;
    - Effectiveness of CEN and PIs efforts to increase awareness of and participation in existing IOU programs;
    - Effectiveness of efforts to get renters and/or landlords to participate and overcome split incentive barriers;
    - Barriers to pilot participation;
    - Experience and effectiveness of pilot implementers and installation contractors, suggestions for improvement;
    - Barriers and obstacles to meeting pilot goals; and
    - Data collection efforts to support pilot evaluation.

- **In-depth telephone interviews** (20–25) and **a web survey** (target 5-10 completes per community) with participating and non-participating customers and landlords – to build on our understanding of the pilots and inform the early feedback study, touching on effectiveness of community outreach, customer satisfaction, drivers and barriers to participation, customer attitudes towards energy savings and initial lessons learned for improving pilot efforts. Survey batteries will address the following topics:
    - Experience and effectiveness of customer outreach and engagement strategies, identifying improvements;
    - Barriers to pilot participation;
    - Effectiveness of efforts to get renters and property owners to participate and overcoming split incentive barriers for owners; and
    - Experience and effectiveness with pilot application, assessment and installation
    - Effectiveness of the bill protection mechanism in encouraging pilot participation.

Evergreen will develop draft research instruments with review and input by our survey research expert. We will submit draft instruments for the study team to review, and will provide revised versions addressing comments.

- **Secondary data** will be reviewed and utilized in components of the process evaluation. In particular, Evergreen will request the following data from pilot entities:
    - Pilot tracking data (from CPM and PIs) recording contacts with all customers and landlords from outreach through post-inspection – to be used as the source for customer sample frames for primary research; to assess effectiveness of pilot outreach (e.g., reviewing the number of customers that continue to each pilot participation step, and reasons for not continuing).
    - Pilot implementor and administrator (from PA, CPM, and PIs) processes for collecting, reviewing, and reporting on pilot impact and outcomes. Evergreen will assess whether the data needed to support pilot impact evaluation are being adequately collected. We will also report on how the PAs and other pilot staff (if applicable) are reviewing and reporting on pilot outcomes and impacts (e.g., such as in quarterly and annual reports filed with the CPUC and made available to the public).
    - Pilot implementer and administrator (from PA, CPM, and PIs) data on pilot training to support assessment of local training and hiring efforts.
- **Review of pilot planning materials and documentation.**

- PA pilot implementation plans will be reviewed and compared to the Decision for consistency and compliance. This will also allow for comparison of pilot design across PAs.
- Review of CPM and PI planning documentation will be used to inform research strategies and to update the logic model so that it is consistent with how the pilot is being implemented.

Evergreen staff will conduct the telephone interviews, and will administer the web survey using Qualtrics. Evergreen will send email invitations to the web survey to a sample of customers indicated to have internet access and postcards (with a phone number to dial) to a sample of customers that do not. We have developed quality control procedures that we will deploy during the interviews and survey, including debriefing regularly to identify any issues with the data collection processes. Evergreen will offer respondents to the web survey a $10 incentive.

Evergreen will review pilot plans and clean and analyze all primary and secondary data and prepare a draft feedback memo that:

- Documents early implementation activities, successes, and challenges, including an updated logic model (if needed);
- Identifies any red flag issues with pilot design, implementation, and data tracking along with recommended remediations; and
- Any concerns raised regarding future issues that might arise as the pilot moves forward.

Evergreen will distribute the findings memo to the study team for review and address issues in a final memo.

Task 6 Deliverables

Task	Deliverables
6.2a	Draft research instruments
6.2b	Final research instruments
6.3a	Draft early feedback memo
6.3b	Final early feedback memo

2.4 Phase II Tasks

Task 7: Develop Survey Instrument/Collect Data

Task 7 involves the development of a data collection strategy memo that documents the Phase II plan, refining the data collection strategy that is described in this plan. Evergreen will request and review any new or updated program materials and data that were not gathered in Phase I or that need to be refreshed, such as updated customer tracking data. Next, if needed we will update the pilot logic model and metrics developed as part of the Phase I study, incorporating any new information.

Our preliminary plan for Phase II primary research activities is to conduct:

- **In-depth telephone interviews** (15) with PAs, the CPM, CENs/CBOs and pilot implementors – to build on our understanding of the pilots and inform more substantive assessments of pilot objectives including workforce development, customer satisfaction, tenant/landlord participation, community outreach, drivers and barriers to participation, below code homes, and lessons learned for scaling up pilot efforts. Interview questions will build upon those detailed in Task 6, but will also include:
    - Effectiveness of leveraging existing programs in the outreach process;
    - Best practices for home remediation and treating below code homes;
    - Effectiveness of bulk purchasing agreements;
    - Successes and challenges of efforts to hire and train locally; and
    - Learnings for scaling to all SJV DACs.

Similar to Phase I, these interviews will be conducted before the customer research. The CPM, CENs, and PIs will be able to provide updated insights into pilot successes and challenges and on customer research topics. These insights will inform and guide our customer research instruments.

- **Mail survey** with participating and non-participating customers and landlords (target 35-40 completes per community) – The mail survey will expand upon Phase I customer research efforts (including non-participants) to inform assessments of drivers of and barriers to pilot participation, customer satisfaction, tenant versus landlord issues, community outreach strategies, and lessons learned for scaling up the pilots. We will provide a $5 bill along with the mailing and offer an additional $25 check incentive for returned and completed surveys, based on prior experience, to maximize the response rate. The mailed survey will be offered in both English and Spanish. Interview questions will build upon those detailed in Task 6, but will also include:
    - Community awareness of the pilot and its offerings;
    - Customer satisfaction with pilot measures offered;

    - Whether they learned of new energy programs or discounted rates / how many followed up and enrolled or attempted to enroll / experience with enrollment and participation;
    - Issues with reaching specialty populations; and
    - Customer attitudes and behaviors towards energy savings.
- **Web/phone follow-up survey** with participating and non-participating customers and landlords (to help reach the mail survey targets shown in the prior bullet) – We plan to conduct a follow-up effort to the mail survey if needed to meet targets of 25 participant and 10 non-participant surveys per community, offering the same $25 incentive for a completed survey. Web surveys will be offered in both English and Spanish.
- **In-person SJV DAC-based qualitative research** (four days – assuming up to two trips from the Bay Area) – We plan to conduct a variety of embedded research activities that will engage community groups and communities to gather direct observations. This research will capture SJV DAC household-specific issues as well as drivers and barriers to participation, and to inform the development of recommendations for how to scale up efforts to meet broader CPUC and state goals for SJV DACs. We anticipate gathering direct feedback from target customers during this research, and also indirect input from the community groups and pilot staff with which they interact. Research could include the following bulleted items. We will attempt to batch the research based on pilot activities that are taking place in the communities.
    - Ride alongs with CENs to observe outreach efforts
    - In-person meetings with pilot staff, the CPM, CENs, and/or community members
    - Visits to community meetings and community group and/or implementer offices

Interview and survey topics will be similar to those described in Task 6, with updates based on any changes to the pilot and to reflect what we learned during Phase I. The qualitative research task that is unique to Phase II will touch on similar topics but using a more informal and observational approach. Evergreen will provide more specifics on this task in the Phase II data collection strategy memo, at which time we will have a better understanding of the opportunities for embedded research and can provide more details.

Table 5 presents our initial allocation of the Phase II mail surveys by pilot community and PA, supporting analysis of customer results by key characteristics including pilot community and PA. Web/phone follow-up surveys will be conducted to try to meet these targets if we do not received the expected response to the mail survey. Evergreen will update the sample frame with actual participation counts and adjust the allocation if needed; the initial target numbers of pilot participants are estimates based on the PA's estimates of the total number of eligible households.

Table 5: Phase II Mail Survey Allocation by DAC

Community	Pilot Administrator	Type	Target # of Participating HHs	Participants		Non-participants	
				Mailing *	Max Expected Response	Mailing	Max Expected Response
Allensworth	PG&E	Electrification	106	50	25	30	15
Alpaugh	RHA	Electrification	46	46	23	30	15
California City	SCE	Electrification	100	50	25	30	15
California City	SoCalGas	Natural Gas	224	50	25	30	15
Cantua Creek	PG&E	Electrification	106	50	25	30	15
Ducor	SCE	Electrification	222	50	25	30	15
Fairmead	RHA	Electrification	253	50	25	30	15
Lanare	RHA	Electrification	17	17	9	30	15
La Vina	RHA	Electrification	84	50	25	30	15
Le Grand	RHA	Electrification	502	50	25	30	15
Seville	PG&E	Electrification	104	50	25	30	15
West Goshen	SCE	Electrification	127	50	25	30	15
		Total	**1,891**	**563**	**282**	**360**	**180**

*Surveys will be sent to participants and non-participants until the max expected response is met or the sample is exhausted.

Task 7 also includes the development of primary data collection instruments with review by the ED and PAs, and final instruments. Evergreen will adapt instruments used for Phase I to reflect any changes to the pilot and learnings from Phase I. We will engage our survey research expert for any new or substantially revised batteries.

Similar to Phase I, Evergreen staff will conduct the telephone interviews, and will administer the web survey using Qualtrics, including quality control procedures. Evergreen will administer the mail survey, including a $5 bill with each mailer and offering a $25 incentive for completed surveys.

Evergreen staff will conduct the in-person qualitative research, developing research protocols and topics that will be covered in advance, with review by the study team.

Task 7 Deliverables

Task	Deliverables
7.1	Data collection strategy memo
7.2a	Draft research instruments
7.2b	Final research instruments

Task 8: Data Analysis

Tasks 8 involves analysis of data gathered and collected in Task 7, including both primary (qualitative and quantitative) and secondary data. Evergreen will clean and analyze all quantitative data by utility service area and community, as well as any other important subgroups (such as participants versus non-participants, type of alternative fuels used, and tenants versus homeowners). Qualitative data will be reviewed and summarized.

Throughout this task, Evergreen will provide the ED and PAs weekly status reports on all primary research activities. We will develop a preliminary results memo for the study team that identifies any issues and early results that may inform timely feedback and corrective guidance to the PAs and pilot implementers. Evergreen will also prepare and deliver a presentation of preliminary results via webinar to the study team.

Task 8 Deliverables

Task	Deliverables
8.1	Conducting and documenting data being collected
8.2	Weekly data collection status reports
8.3a	Preliminary results memo
8.3b	Preliminary results presentation

Task 9: Prepare and Deliver Draft Report

Task 9 includes the development of a draft report (with ED and PA review) that incorporates feedback provided by the study team on the preliminary results memo and presentation from Task 8. The report will rely on summary statistics and data charts, and less on narrative

interpretation of the findings and will adhere to CPUC-ED EM&V report guidelines.[7] The draft report will include the following sections:

- **Executive Summary:** A non-technical summary intended for a wide audience;
- **Background or Introduction:** Providing the necessary study context and background;
- **Research Methods:** A summary of the study's research tasks, with detail provided in an appendix;
- **Results and Findings by Utility:** Summary of the key results with supporting data, using exhibits where possible, with more detail provided in an appendix;
- **Recommendations:** Supported by the data and study findings; and
- **Appendices:** Containing the more detailed methods and results, so that the main body of the report adheres to report guidelines (e.g., not exceeding suggested page limits).

Evergreen will submit the draft report to the study team for review and comment.

Task 9 Deliverables

Task	Deliverables
9.1	Draft report

Task 10: Conduct Public Workshop to Report Process Evaluation Findings

Evergreen will plan and conduct a public workshop to present the draft report findings for stakeholder comment and discussion. We will document public comments and workshop discussion in a memo, along with any appropriate action items (such as changes to the report).

[7] Guidelines for CPUC-ED & California IOU Evaluation Measurement & Verification Reports, available at http://www.calmac.org/events/2013-2014_CPUC-IOU_EM&V_Consulting_Report_Guidelines.pdf

Task 10 Deliverables

Task	Deliverables
10.1	Public workshop
10.2	Workshop memo

Task 11: Prepare and Deliver Final Report

After discussing public workshop comments with the ED and PAs, Evergreen will make any agreed upon changes to the report and submit a final report that contains the following sections:

- **Executive Summary:** The Executive Summary will be written in a non-technical style that serves as a mini-report with brief sections on background, study methodology, limitations, data quality, and analysis, and which emphasizes the major findings;
- **Introduction:** This section will include a statement of the study objectives, a brief history and background section, and a description of the SJV DAC pilot as well as how the study intends to inform the overall goals of the pilot;
- **Methodology:** This section will describe the chosen research methods and data used in this study, reflecting the research plan developed in Task 3 and the final study methods determined in Tasks 4, 5, and 6;
- **Results:** This section will present the findings and results by utility, including a discussion of the major conclusions or issues arising from the study;
- **Recommendations:** This section will include data-driven recommendations on pilot design and pilot implementation, as well as statewide program recommendations regarding full-scale pilot deployments, clearly specifying the benefits and improvements that will result from adopting these recommendations; and
- **Appendices:** These will include copies of any data collection instruments used, complete documentation of all data sets as detailed below, and copies of the final workshop report. Evergreen will include the early feedback memo as an appendix to the final report.

Evergreen will provide all final, cleaned data collection and analysis data files and documentation to the IOUs and CPUC, including:

- All analysis data sets, by utility;
- A database containing all data and the associated documentation for each utility; and
- A data dictionary that lists and describes all variables contained in each database.

Task 11 Deliverables

Task	Deliverables
11.1	Final report
11.2	Datasets and documentation

Task 12: Management and Reporting

The day-to-day project coordination consists of communications with the ED liaison for this contract as well as with SoCalGas. As mentioned in previous tasks, Evergreen will develop interim results memoranda throughout the study, including the Early Feedback Study results memo, to ensure that process evaluation findings are used on a near real-time basis to improve pilot program delivery. Communications will include:

- Weekly project status update teleconferences;
- Regular monthly written project and task status updates submitted to the ED and SoCalGas;
- Regular email status updates;
- Ad hoc phone calls and emails to ask and answer questions, gather feedback, and provide more frequent updates such as during intensive data collection periods; and
- Presentations to the ED, SoCalGas, and other entities.

Task 12 Deliverables

Task	Deliverables
12.1 and 12.4	Monthly project status reports and invoices
12.2	Biweekly conference calls with ED and SoCalGas
12.3	Interim results memo (TBD in addition to 6.3 and 8.3)

3 Project Schedule

This section provides the study schedule by research task, listing all deliverables. The first two tasks are completed. The schedule for data collection may need to be adjusted due to additional delays resulting from COVID-19 and associated constraints to conducting in-person visits. This is a provisional schedule and may be subject to change as Evergreen works through research tasks.

	Week of	April		May				June				
Tasks	**Deliverables**	**20**	**27**	**4**	**11**	**18**	**25**	**1**	**8**	**15**	**22**	**29**
TASK 1 – Conduct Project Kick-Off Meeting – *Completed*												
Draft slides	1.1 Meeting Agenda		4/29									
Meeting				5/5								
Summary memo	1.2 Meeting summary memo			5/8								

Consultant	Primary data collection
Study team	Public workshops

	Week of	2020				
Tasks	**Deliverables**	**May**	**June**	**July**	**Aug**	**Sep**
TASK 2 – Conduct SJV Pilot Material Review						
Submit data request – part 1 (no customer / part data)		5/8				
PAs / pilot implementers respond to data request						
Material / logic model gathering and review - based on info we already have						
Material / logic model gathering and review - based on data request						
Draft material review memo	2.1 Draft Material Review (PTLM and Metrics Review) Memo				8/19	
Study team review					8/26	

Consultant	Primary data collection
Study team	Public workshops

Week of		June	July				August				
Tasks	**Deliverables**	**29**	**6**	**13**	**20**	**27**	**3**	**10**	**17**	**24**	**31**
TASK 3 – Refine Preliminary Research Plan											
Develop preliminary research plan – *this document*	3.1 Draft Preliminary Research Plan (including 6.1 early feedback / Phase I study plan, and 2.2 Final Material Review (PTLM) Memo)		7/6								
Study team review				7/13							
Additional research plan revisions											
Additional study team review										8/26	
Finalize research plan	3.2 Final Preliminary Research Plan										9/3

Consultant	Primary data collection
Study team	Public workshops

	Week of	August			September				October	
Tasks	**Deliverables**	**17**	**24**	**31**	**7**	**14**	**21**	**28**	**5**	**12**
TASK 4 – Conduct Public Workshop on Preliminary Research Plan										
Schedule and plan workshop										
Draft PPT – sent to pilot team				9/2						
Pilot team review PPT and provide feedback				9/4						
Workshop announcement with webinar information				9/2						
Final PPT and research plan – sent to study team / CPUC					9/7					
Final PPT, research plan and comment document posted for public					9/9					
Hold workshop	4.1 Public workshop					9/16				
Public comments on research plan due								9/30		
Workshop summary memo	4.2 Workshop memo								10/7	
Finalize research plan	4.3 Final Research Plan									10/12

Consultant	Primary data collection
Study team	Public workshops

Week of		October				November				
Tasks	**Deliverables**	**5**	**12**	**19**	**26**	**2**	**9**	**16**	**23**	**30**
TASK 5 – Develop Sampling Design and Methodology										
Submit data request – part 2 customer / part data)										
PAs / PIs respond to data request										
Develop sample designs	5.1 Draft sample design memo					X				
Study team review										
Finalize sample design	5.2 Final sample design memo							X		

Consultant	Primary data collection
Study team	Public workshops

Week of		November					December				January				February	
Tasks	**Deliverables**	**2**	**9**	**16**	**23**	**30**	**7**	**14**	**21**	**28**	**4**	**11**	**18**	**25**	**1**	**8**
TASK 6 – Conduct Early Feedback Study																
Develop Phase I / early feedback study research instruments	6.2a Draft research instruments															
Study team review																
Finalize research instruments	6.2b Final research instruments					X										
Conduct Phase I research							TBD – based on schedule of installations									
Analyze Phase I data																
Draft early feedback memo	6.3a Draft early feedback memo											X				
Study team review																
Finalize early feedback memo	6.3b Final early feedback memo															

(6.1 Early feedback study plan covered by deliverable 3.1)

Consultant	Primary data collection
Study team	Public workshops

Week of		2021						
Tasks	**Deliverables**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**
TASK 7 – Develop Survey Instrument/Collect Data								
Develop Phase II data collection strategy memo	7.1 Data collection strategy memo							
Study team review								
Develop Phase II data collection strategy and research instruments	7.2a Data research instruments							
Study team review								
Finalize data collection instruments	7.2b Final research instruments							
Conduct Phase II research								

Consultant	Primary data collection
Study team	Public workshops

		2021												2022
Tasks	**Deliverables**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**
TASK 8 – Data Analysis														
Quality control and data analysis, weekly disposition reports	8.1 Conducting and documenting data being collected													
Weekly disposition reports	8.2 Weekly data collection status reports													
Preliminary results memo	8.3a Preliminary results memo													
Preliminary results presentation	8.3b Preliminary results presentation													

Consultant	Primary data collection
Study team	Public workshops

		2021												2022
Tasks	**Deliverables**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**
TASK 9 – Prepare and Deliver Draft Report														
Prepare draft report	9.1 Draft report													
Study team review														

Consultant	Primary data collection
Study team	Public workshops

		2021												2022
Tasks	**Deliverables**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**
TASK 10 – Conduct Public Workshop to Report Process Evaluation Findings														
Schedule and plan workshop														
Hold public workshop	10.1 Public workshop													
Prepare workshop summary memo	10.2 Workshop memo													

Consultant	Primary data collection
Study team	Public workshops

		2021												2022
Tasks	**Deliverables**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**
TASK 11 – Prepare and Deliver Final Report														
Address comments and finalize report	11.1 Final report													
Deliver data and documentation	11.2 Datasets and documentation													

Consultant	Primary data collection
Study team	Public workshops

	2020									2021												2022
Tasks	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**
TASK 12 – Management and Reporting - Ongoing																						
Monthly invoicing and status reports																						
Weekly conference calls																						
Additional ad hoc reporting / calls etc.																						

Consultant	Primary data collection
Study team	Public workshops

Appendix A: Logic Model and Metrics Review

Program Theory and Logic Models

One of the first project tasks was to review program documents and develop the program logic models. Logic models are a visual method of presenting an idea. They offer a way to describe and share an understanding of relationships among elements necessary to operate a program or change effort. Logic models describe a bounded project or initiative: both what is planned and what results are expected. The development of models provides an opportunity to review the strength of connections between activities and outcomes. Through the experience of critical review and development, models can display participants' learning about what works under what conditions.

The key elements of any logic model are the inputs, activities, outputs, and outcomes. Inputs are essential for the activities to occur. They can include human, financial, organizational, community, or systems resources in any combination. They are used to accomplish named activities. Activities are specific actions that make up the program. They reflect the processes, and events that are intentional in the program. Activities are synonymous with interventions deployed to secure the desired changes or results. Outputs are what specific activities will produce or create. Outputs are often quantified and qualified in some way. Outcomes are about changes, often in program participants or organizations, as a result of the program. They often include specific changes in awareness, knowledge, skill, and behavior. Outcomes are dependent on preceding resources, activities, and outputs.

At a high level, these logic models describe the inputs and activities and how they combine to produce the expected outputs which, in turn, are expected to produce the expected short-term, mid-term and long-term outcomes. Each pathway or linkage in the logic model describes a hypothesized cause and effect relationship. The evaluation team also used the logic model as a guide to identify and operationalize specific metrics to be measured along the various paths from inputs to activities and then outputs and outcomes.

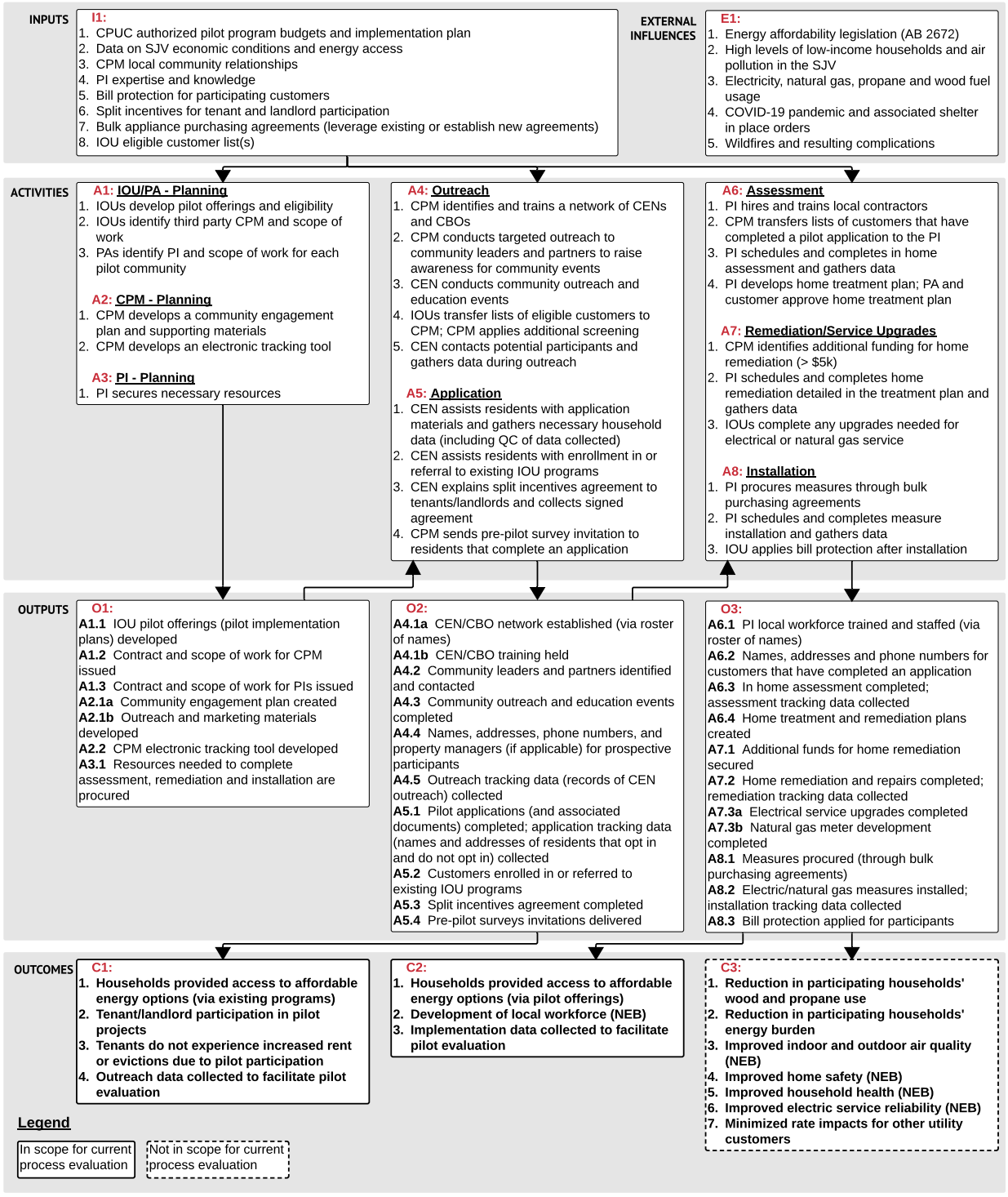
Evergreen reviewed a variety of documents to inform the development of this logic model and data collection plan:

- Relevant CPUC Decisions, proceedings and related Assembly Bills (D.18-12-015, Assembly Bill 2672, D.18-08-019, D.17-05-014);
- The process evaluation RFP;
- SJV DAC pilot implementation plans for each pilot administrator and supporting documentation;
- Pilot application;
- CPM outreach and engagement plans and supporting materials;

- Initial metrics proposed by the pilot administrators; and
- Data gathering quantitative survey being leveraged in pilot communities as a pre-pilot survey.

We prepared an overarching logic model that provides a summary of the pilot, encompassing the activities of the pilot administrators (PA), Community Energy Navigator program manager (CPM), Community Energy Navigators (CEN), and pilot implementers. The overarching logic model provides a broad overview of the pilot including the planning, outreach, application, assessment, remediation and installation.

Figure 2: Overarching Logic Model



The inputs (**I1**) that inform pilot design and implementation shown at the top of the logic model include:

1. CPUC authorized pilot program budgets and guidance in implementation plans;
2. Data on SJV populations and environmental conditions that are used to define DACs and select pilot communities;
3. CPM local community relationships that will be leveraged to conduct outreach and increase awareness and participation among the target communities;
4. Pilot implementer expertise and knowledge that will be utilized to more efficiently assess homes and install measures;
5. Bill protection measures that are required by the CPUC specifically for this pilot to ensure that participants experience reduced energy costs after measures are installed;
6. Split incentives agreement (newly developed for the pilot) to ensure tenant occupied households are able to participate in the pilot. This agreement seeks assurances from property managers that they will not significantly increase rents or evict tenants as a result of pilot participation;
7. Bulk appliance purchasing agreement in order to reduce pilot costs. Existing agreements may be leveraged, or new ones will be established with distributors and manufacturers;
8. Lists of customers (or residents) that are eligible for pilot participation.

The external influences (**E1**) that impact all stages of the pilot shown at the top of the logic model include:

1. Energy affordability legislative directives;
2. High levels of low-income households and air pollution in the SJV, which are the impetus behind the CPUC Decisions and state legislation that introduced the pilots;
3. Electricity, natural gas, propane and wood fuel rates that are the backdrop to pilot efforts to ensure a reduction in household energy burden;
4. COVID-19 and the associated shelter in place, mandated in California on March 19, 2020. This Executive Order impacted planned in person activities (i.e. outreach, assessment, etc.); and
5. The wildfires in California and resulting complications, such as evacuation orders and poor air quality that may prohibit activities.

Next, we describe the activities that are taken by the PAs, CPM, CENs and PIs during all phases of the pilot, along with the expected outputs from the activities and the outcomes that are theorized to occur in the short, medium and long-term as a result of pilot activities. Each box in the logic model is labeled and referenced below in the program theory description.

Activities

IOU/PA Planning (A1)

1. In response to CPUC Decisions and input provided during a series of workshops, the IOUs will develop pilot program offerings including what measures will be offered and household eligibility requirements.
2. SCE was directed by the CPUC to issue an RFP process to select a single CEN Program Manager (CPM) and manage their contract. The CPM will manage the outreach and engagement, act as a liaison between participants and PIs, and collect data on pilot outreach.
3. Each pilot administrator will select third party contractors to serve as pilot implementers and conduct home assessments and installations.

CPM Planning (A2)

1. The CPM will develop a community outreach and engagement plan, and associated marketing materials. The plan will support community outreach and education at each stage of the pilot.
2. The CPM will develop an electronic tracking tool that will be used to track all contacts with eligible residents and the status of their engagement with the pilot.

PI Planning (A3)

1. Each PI will secure the necessary resources in order to complete home assessments, remediation and installation.

Outreach (A4)

The CPM will conduct outreach activities consistent with the procedures and materials they developed (Output O1).

1. The CPM will identify a network of Community Energy Navigators (CEN) and Community Based Organizations (CBO). The CPM will provide training in order to ensure effective pilot outreach that adheres to pilot policies and procedures.
2. The CPM will conduct targeted outreach to leaders and partners identified in each pilot community. The purpose of this outreach is to generate awareness of the pilot and upcoming community events.
3. The CPM will conduct community outreach and education events in order to introduce the pilot. These efforts may leverage existing community meetings and events and/or establish new ones.
4. The IOUs will provide lists of residents that are eligible for the pilot to the CPM. The CPM will apply additional screening, such as identifying tenants and associated landlords/property managers.
5. The CEN will contact eligible residents (door to door or phone outreach) to provide information and education on the upcoming pilot. During this outreach, the CPM will

track the status of all outreach and engagement including contact information on all residents contacted.

Application (A5)
The CPM will conduct application activities consistent with the procedures and materials developed by the PAs and CPM (Output O1).

1. The CEN will assist residents during the application process and collect the required household data for pilot participation.
2. During the application process, the CEN will educate and provide access (referral or enrollment) to existing low income or cost saving IOU programs. The CEN will be able to directly enroll customers in discounted rate programs, such as CARE and FERA. They will refer customers to other programs, such as direct install and solar programs.
3. The CEN will explain and distribute the split incentives agreement to tenants and landlords or property managers and collect the appropriate signatures. During this outreach, the CEN will identify, address and document any barriers to tenant/landlord participation.
4. After a resident completes an application, the CPM will mail an invitation (direct mail letter) to complete the pre-pilot survey developed by the Data Gathering Consultant. Invitations will include a unique code to track that the survey is being completed within a pilot community.

Assessment (A6)
Pilot implementers will conduct in home assessments for residents that have completed an application and are eligible to advance to the next phase of the pilot (Output O2).

1. The PI will hire and train local contractors to conduct assessments.
2. The CPM will transfer lists of eligible residents that have completed a pilot application to the PI.
3. The PI (and their associated contractors) will conduct an in-home assessment to determine if the household meets pilot eligibility criteria. They will document what measure(s) are applicable and any home repairs or remediation that may need to occur, along with estimates of the approximate cost of repairs needed to bring the home up to code. If a household does not qualify for pilot participation, the CPM will inform the resident. During this process, the PI will collect data on the assessment progress and outcomes.
4. After the in-home assessment, the PI will develop a home treatment plan for eligible homes. This plan will be reviewed and approved by the PAs and participating households.

Remediation and Service Upgrades (A7)
The PIs will conduct home remediations consistent with the procedures and materials developed by the PAs (Output O1).

1. If home remediation costs are estimated to be greater than $5,000, the CPM will attempt to secure external funding for repairs beyond this threshold. This funding may come from a range of sources that the CPM has identified.
2. The PI will schedule and complete any home remediation outlined in the home treatment plan. During this process, the PI will collect data on the status and outcomes of remediation work.
3. The PIs will complete any upgrades necessary for electrical or natural gas service. This includes updating the electric panel and meter construction for natural gas service.

Installation (A4)
The PIs will conduct measure installation consistent with the procedures and materials developed by the PAs (Output O1). Installations will only occur for households that pass the assessment process.

1. The PIs will purchase pilot measures detailed in the home treatment plan through bulk purchasing agreement (pilot input I1.7).
2. The PI will schedule and complete measure installation. During installation, the pilot implementer will educate participating resident on the new measures installed and provide extended appliance warranties. The PI will recycle old appliances removed from the home. The PI will collect data on all the status and outcomes of installation related activities.
3. After measure installation, the IOUs will apply bill protection procedures (pilot input I1.5) to participating customer bills.

Outputs

Table 6: Outputs Resulting from Planning (O1)

Output	Output Deliverable	Source
A1.1	IOU pilot offerings	PAs
A1.2	CPM contract and scope of work	SCE, CPM
A1.3	PIs contract and scope of work	PA, PI
A2.1a	Community outreach and engagement plan	CPM
A2.1b	Outreach marketing and educational materials	CPM
A2.2	Electronic tracking tool and associated data extracts	CPM
A3.1	Electronic tracking tool(s) and associated data extracts	PI

Table 7: Outputs Resulting from Outreach and Application (O2)

Output	Output Deliverable	Source
A4.1a	Roster of associated CEN organizations and staff	CPM
A4.1b	Records of CEN training and materials used	CPM
A4.2	Records of community leaders (organization and roles)	CPM
A4.3	Records of community outreach events and materials used	CPM
A4.4	Lists of eligible participants (names and contact information)	IOU, CPM
A4.5	Outreach tracking data (extract of electronic tracking tool)	CPM
A5.1	Pilot applications and tracking data (extract of electronic tracking tool)	CPM
A5.2	Records of enrollment and referral to existing IOU programs	IOU, CPM
A5.3	Records of signed split incentives agreement (captured in tracking data)	CPM
A5.4	Pre-pilot surveys delivered and completed	CPM, Data Gathering Consultant

Table 8: Outputs Resulting from Assessment, Remediation and Service Upgrades and Installation (O3)

Output	Output Deliverable	Source
A6.1	Roster of local PI contractors and records of trainings held	PI
A6.2	Lists of participants that complete a pilot application	CPM, PI
A6.3	In home assessment and associated data; tracking records of assessment	PI
A6.4	Home treatment and remediation plans	PI
A7.1	Records of additional funds for remediation (CPM reporting)	CPM
A7.2	Records of home remediation efforts	PI
A7.3a	Records of electrical service upgrades	IOU
A7.3b	Records of natural gas meter development	IOU
A8.1	Records of measurement procurement	PI
A8.2	Records of measure installation efforts	PI
A8.3	Bill protection applied to participating customer's bill	IOU

Outcomes

Outcomes Resulting from Outreach and Application (within scope of current process evaluation) (C1)

1. Households will gain access to affordable energy options via existing low income or cost saving IOU programs.
2. Addressing split incentives will encourage tenant and landlord participation in the pilot.
3. The split incentives agreement will ensure that tenants do not experience increased rent or evictions due to pilot participation for at least five years following the completion of pilot measure installation.
4. The CPM (and CENs) will collect the necessary resident outreach and engagement data to facilitate testing of pilot outreach concepts and pilot evaluation.

Outcomes Resulting from Assessment, Remediation and Service Upgrades and Installation (within scope of current process evaluation) (C2)

1. Eligible households will gain access to affordable energy options via the pilot offerings.
2. The hiring and training of local contractors will support local energy workforce development in pilot communities. The establishment of CENs will also support these development goals.
3. The PIs and CPM will collect the necessary household assessment and installation data to facilitate testing of pilot implementation approaches and pilot evaluation.

Outcomes Resulting from Installation (not within scope of current process evaluation) (C3)

1. The installation of electric and natural gas measures will lead to a reduction in participating households' wood and propane use.
2. Electric and natural gas measures will provide a less expensive fuel source for heating, water heating and cooking, which will in turn lead to a reduction in household energy burden.
3. There will be a reduction in GHGs and criteria pollutants, leading to increased indoor and outdoor air quality.
4. Remediation of sub-standard housing will lead to improved home safety.
5. Improved indoor air quality will improve the health of participating household occupants.
6. Installation of electric measures will improve grid reliability and help mitigate capacity concerns. They will provide a more reliable energy source for participating households.
7. The cost savings associated with bulk purchasing agreements will reduce the cost per household and reduce rate impacts for other utility customers.

Pilot Metrics Review

This section summarizes the data collection plan that is derived from the logic model and expected outcomes discussed in the previous section. The data collection plan is structured in accordance

with the logic model. Each activity area has a unique set of expected outcomes, as depicted in the logic models.

The format for each of the data collection tables is the same. For each program activity, each related pilot outcome is included in a table. For each outcome, specific metrics are provided that—when measured—can provide an indication of whether the underlying program logic is succeeding in practice. Each metric is then linked to specific data collection and analysis activities. In this way, all metrics are covered by data collection activities, and all data collection and analysis activities are explicitly linked to underlying elements of the pilot logic models. An initial set of metrics proposed by PAs was reviewed and mapped to pilot outcomes. There are some cases where additional metrics are proposed to support evaluation. These added metrics are displayed in green in the tables below. All outcomes associated metrics were reviewed, regardless if they are in scope for the current process evaluation.

All of the data collection activities will rely on the following methods:

- ***Pilot-level data (D)*** includes all project-related data that is tracked during pilot implementation. This includes items such as pilot design, and customer/project status and tracking.
- ***In-depth Interviews w/ staff (IDI-S)*** will collect information from pilot staff, including PAs, CPM, CENs and PIs to obtain additional information on the projects that is not included in the project data (e.g., what worked, what did not, resident perceptions, etc.).
- ***In-depth Interviews w/ participants and non-participants (IDI-PNP)*** will collect information from eligible residents that decide to participate or not. Non-participants can be defined at multiple stages of pilot outreach (i.e. opt out after outreach, application or assessment).
- ***Surveys (S)*** will collect additional household information and perception of the pilot from residents (both participants and non-participants). These surveys will be administered by both the Process Evaluator and Data Gathering Consultant.
- ***IOU usage and billing data (B)*** will be collected to assess the pre and post impacts due to pilot participation.
- ***External data (E)*** includes additional secondary data or analysis outputs needed to evaluate pilot outcomes.

In all the tables that follow, these data sources and the party collecting the data are assigned to each logic model metric.

Table 9: Outcome C1.1 – Households provided access to affordable energy options (via existing programs)

	Data Source				
Metric	PA/IOU	CEN/CPM/PI	Process Evaluator	Pilot Evaluator (EM&V)	Data Gathering (within pilot community)
# of program options provided	D				
Current program enrollment	D	D			S
Awareness and interest in other programs		D	S, IDI-PNP		S
New enrollment or referral to other programs	D	D			
Satisfaction with programs and willingness to participate again		D	S, IDI-PNP		S

Table 10: Outcome C1.2 – Tenant/landlord participation in pilot projects

	Data Source				
Metric	PA/IOU	CEN/CPM/PI	Process Evaluator	Pilot Evaluator (EM&V)	Data Gathering (within pilot community)
#/% indicating interest (tenant)		D			
#/% indicating interest (landlord/property manager)		D			
#/% opted in after initial outreach (tenant occupied)		D			
#/% opted out after initial outreach (tenant occupied)		D			
#/% opted in after assessment (tenant occupied)		D			
#/% opted out after assessment (tenant occupied)		D			
Tenant barriers to participation		D	S, IDI-PNP		
Landlord/property managers barriers to participation		D	S, IDI-PNP		

Table 11: Outcome C1.3 – Tenants do not experience increased rent or evictions due pilot participation

	Data Source				
Metric	PA/IOU	CEN/CPM/PI	Process Evaluator	Pilot Evaluator (EM&V)	Data Gathering (within pilot community)
#/% of cases of increased rent due to pilot participation		D	S, IDI-PNP		
#/% of cases of eviction due to pilot participation		D	S, IDI-PNP		

Table 12: Outcome C1.4 – Outreach data collected to facilitate pilot evaluation

	Data Source				
Metric	PA/IOU	CEN/CPM/PI	Process Evaluator	Pilot Evaluator (EM&V)	Data Gathering (within pilot community)
Existence of outreach and engagement tracking data (records of outreach)		D			
Completeness of outreach and engagement tracking data		D			
Usability of outreach and engagement tracking data		D			

Table 13: Outcome C2.1 – Households provided access to affordable energy options (via pilot offerings)

	Data Source				
Metric	PA/IOU	CEN/CPM/PI	Process Evaluator	Pilot Evaluator (EM&V)	Data Gathering (within pilot community)
# pilot options provided	D				
#/% residents informed of options		D			
#/% residents choosing each option		D			
#/% residents declining each option		D			
#/% indicating interest (tenant)		D			
#/% indicating interest (landlord/property manager)		D			
#/% indicating interest (owner occupied)		D			
#/% opted in after initial outreach		D			
#/% opted out after initial outreach		D			
#/% opted in after assessment		D			
#/% opted out after assessment		D			
Resident barriers to participation		D	S, IDI-PNP, IDI-S		
Landlord/property managers barriers to participation		D	S, IDI-PNP, IDI-S		
#/% properties requiring wiring and panel upgrades		D	IDI-S		
#/% properties requiring smart meters		D	IDI-S		
#/% properties feasible		D	IDI-S		
#/% properties not feasible		D	IDI-S		
#/% properties with code violations (with potential to impact install)		D	IDI-S		
#/% of properties requiring remediation > $5,000		D	IDI-S		
Community/political barriers		D	IDI-S		

Table 14: Outcome C2.2 – Development of local workforce (NEB)

	Data Source				
Metric	PA/IOU	CEN/CPM/PI	Process Evaluator	Pilot Evaluator (EM&V)	Data Gathering (within pilot community)
#/% of local residents hired to support pilot		D			
#/% of non-local individuals hired to support pilot		D			
#/% of new jobs in participating communities		D			
Success/limits of local hire		D	IDI-S		
Success/limits of training development		D	IDI-S		
Benefits of local hire			IDI-S		
Barriers to local hire			IDI-S		

Table 15: Outcome C2.3 – Implementation data collected to facilitate pilot evaluation

	Data Source				
Metric	PA/IOU	CEN/CPM/PI	Process Evaluator	Pilot Evaluator (EM&V)	Data Gathering (within pilot community)
Existence of implementation tracking data (records of assessment and installation)		D			
Completeness of implementation tracking data		D			
Usability of implementation tracking data		D			

Table 16: Outcome C3.1 – Reduction in participating households' wood and propane use

	Data Source				
Metric	PA/IOU	CEN/CPM/PI	Process Evaluator	Pilot Evaluator (EM&V)	Data Gathering (within pilot community)
Electric usage (pre/post)	B			B	S
Natural gas usage (pre/post)	B			B	S

	Data Source				
Metric	PA/IOU	CEN/CPM/PI	Process Evaluator	Pilot Evaluator (EM&V)	Data Gathering (within pilot community)
Propane/wood/oil usage (pre/post)		D		S	S

Table 17: Outcome C3.2 – Reduction in participating households' energy burden

	Data Source				
Metric	PA/IOU	CEN/CPM/PI	Process Evaluator	Pilot Evaluator (EM&V)	Data Gathering (within pilot community)
Total household income		D			S
Participant energy costs - gas (pre/post)	B			B	S
Participant energy costs - electric (pre/post)	B			B	S
Participant energy costs - propane/wood/oil (pre/post)				S	S
Bill impacts (decrease) due to bill protection (post)	B			E	

Table 18: Outcome C3.3 – Improved indoor and outdoor air quality (NEB)

	Data Source				
Metric	PA/IOU	CEN/CPM/PI	Process Evaluator	Pilot Evaluator (EM&V)	Data Gathering (within pilot community)
Household indoor air quality (particulate matter)				E	S
Quantified reduction in GHG				E	
Projected/scaled reduction of GHG				E	

Table 19: Outcome C3.4 – Improved home safety (NEB)

	Data Source				
Metric	PA/IOU	CEN/CPM/PI	Process Evaluator	Pilot Evaluator (EM&V)	Data Gathering (within pilot community)
#/% properties requiring wiring and panel upgrades		D			
#/% properties with code violations (with potential to impact install)		D			
#/% properties requiring remediation		D			
#/% accidents in household				S	S
# fires in household				S	S
# burns in household				S	S
#/length of home outages				S	S

Table 20: Outcome C3.5 – Improved household health (NEB)

	Data Source				
Metric	PA/IOU	CEN/CPM/PI	Process Evaluator	Pilot Evaluator (EM&V)	Data Gathering (within pilot community)
Health conditions of household				S	S
#/% ill in household				S	S
Air temperature comfort in household				S	S

Table 21: Outcome C3.6 – Improved electric service reliability (NEB)

	Data Source				
Metric	PA/IOU	CEN/CPM/PI	Process Evaluator	Pilot Evaluator (EM&V)	Data Gathering (within pilot community)
#/length of home outages				E	
Community outages				E	

Table 22: Outcome C3.7 – Minimized rate impacts for other utility customers

	Data Source				
Metric	PA/IOU	CEN/CPM/PI	Process Evaluator	Pilot Evaluator (EM&V)	Data Gathering (within pilot community)
Total cost to implement pilots	D				
Pilot costs per property	D				
Costs per measure installed	D				
Remediation costs per participating property	D	D			
Availability of alternative funding sources for excess remediation	D	D			
Bulk purchasing cost reductions achieved		D		E	
Existing programs cost reductions achieved		D		E	

Appendix B: List of IOU Programs Pilot Should Leverage

The Decision specified that pilot administrators should leverage existing IOU direct install programs and rate programs. A table of leveraged programs by PA is included below. Note that some of these existing programs were retired over the course of this pilot.

Pilot Administrator	Leveraged Existing Programs
PG&E & RHA	Energy Savings Assistance Program (ESA), Comprehensive Manufactured/Mobile Home Program (CMHP), Self-Generation Incentive Program (SGIP), Disadvantaged Communities Green Tariff (DAC-GT), Solar Green Tariff (CS-GT), Single-family Affordable Solar Homes (SASH and DAC-SASH), California Alternate Rates for Energy Program (CARE), Family Electric Rate Assistance (FERA), All Electric Baseline, Medical Baseline, WatterSaver! Program[8]
RHA	ESA, CSI-Thermal, DAC-GT, CS-GT, DAC-SASH, Self-Generation Incentive Program (SGIP)
SCE	ESA, SASH, DAC-SASH, DAC Community Solar (CS), CSI-Thermal, All Electric Baseline, CARE, FERA, DAC-GT, CS-GT
SoCalGas	ESA, CSI-Thermal, SCE low income or cost-saving programs (CARE, Medical Baseline, etc.)

[8] As of October 9, 2020, WatterSaver! has not begun implementation.

Appendix C: Public Comment and Response

MEMORANDUM

Date: October 9, 2020

To: SJV DAC Pilot Projects Process Evaluation Study Team

From: Evergreen Economics

RE: Response to Research Plan Public Workshop

This memo documents comments received on the preliminary research plan for the San Joaquin Valley (SJV) Disadvantaged Communities (DAC) Pilot Projects Process Evaluation and proposed responses, including changes to the research plan.

Background

Evergreen Economics, along with the study team, hosted a public workshop via webinar on September 16, 2020, to present and solicit public feedback on the preliminary research plan for the SJV DAC Pilot Projects Process Evaluation. The preliminary research plan outlined discrete research tasks for the Phase I (early feedback) and Phase II components of the study.

The workshop attendees were invited to provide comments verbally during the webinar Q&A period and/or in writing via the CPUC Public Documents Area (PDA). The comment period was extended one week, to September 30, 2020, in response to a request for an extension.

Workshop Attendees

A list of workshop attendees is provided on the next page.

Workshop Attendees			
Abigail Solis (Self-Help Enterprise)	Grant Wooden (SoCalGas)	Naomi Wheeler (CRPE)	Stan (Greschner) (DACAG)
Arlene Guerra	Jimmie Cho (SoCalGas)	Nathan Miller (SoCalGas)	Stanley Kuan (CPUC)
Armando Ortiz	Julia Whitehead (CRPE)	Nia Jones	Stephanie Yang (PG&E)
Carol Yin (Yinsight)	Leslie Martinez (Leadership Council)	Rafaela Diaz (SoCalGas)	Tami Rasmussen (Evergreen Economics)
Charles Ward (CPUC)	Lisa Hernandez (RHA)	Refugio Valencia	Tania Santiago (Greathouse)
Christine Otis (SoCalGas)	Maria Reveles	Roger Lin (CRPE)	
Dalton Hammond (CRPE)	Mad Stano (Greenlining)	Ross Donaldson (Evergreen Economics)	
Davi Ibarra (SCE)	Moses Gastelum (PG&E)	Shuba Raghavan (UC Berkeley - Energy & Resources Group)	

Written Comments

Two sets of written comments were submitted on September 30, 2020. The first set of comments was submitted by the Disadvantaged Communities Advisory Group (DACAG). The second set was submitted by the Center on Race, Poverty and the Environment (CRPE) (via the UC Berkeley Environmental Law Clinic), Leadership Counsel for Justice and Accountability (Leadership Counsel), Self-Help Enterprises (SHE), and the Greenlining Institute (Greenlining). Both documents are attached with this memo.

The written comments were consistent with the verbal comments and discussion, so we summarize the written comments in this memo. The exception is one workshop comment submitted via the chat that was not included in the written comments, that we include in this memo.

Summary of Comments and Proposed Responses

The table on the next page summarizes the written comments and the workshop chat comment and Evergreen's proposed responses, including any edits or additions to the research plan.

Table 23: Responses to Public Comments

Organization	Mode	Comment	Response	Revision to Research Plan
CRPE, Leadership Council, SHE, Greenlining	Written	I. The CPUC Should Require Evergreen Economics to Coordinate with the CPM to Revise the Proposed Plan.	Study teams are regularly comprised of the evaluation staff from PAs who provide data and study oversight on behalf of and in conjunction with the CPUC. The PAs do not shape the research or the results. Evergreen will gather input from the CPM during our in-depth interviews with pilot staff during both Phase I and Phase II of the study (these occur before community interaction). The CPM will be asked for input into how the pilot is going, what is working and what is not, and why. Evergreen will also solicit suggestions from the CPM regarding subsequent research – e.g., topics to cover with customer and PI research, and topics and approach for embedded SJV qualitative research (Phase II) (for example, which events or meetings are happening that would be good opportunities for research). The PAs and PIs will be given a similar opportunity to provide input, and Evergreen will equally weigh the input provided from each entity (i.e., no extra weight on PA input).	See Section 2, tasks 5, 6 and 7 of research plan (in-depth interviews).

Organization	Mode	Comment	Response	Revision to Research Plan
CRPE, Leadership Council, SHE, Greenlining	Written	II. Revision of the Proposed Plan Must Include Evaluation of the Project Administrators, Project Implementers and the CPUC.	The Decision calls for the process evaluation to inform the CPUC on the relative performance of the PAs. The process evaluation will assess each PA's pilot policies, compliance/consistency with the CPUC Decision, and how any differences in policies and plans impact participation and pilot success. The process evaluation is not an evaluation of the regulatory framework or of the CPUC. As conveyed in the research plan, there is equal emphasis placed on outreach (including enrollment) and pilot implementation (assessment and measure installation). The process evaluation will also place equal emphasis on all pilot entities, including the CPM, PIs and the PAs, according to their roles in the pilot. We will use the logic model (Appendix A of the research plan) as a guide to where each pilot organization is involved and evaluate the performance at that stage.	See Sections 1.3, 1.5 and 2 (task 6)
CRPE, Leadership Council, SHE, Greenlining	Written	III. The Proposed Plan Must Coordinate with the CPM and CEN to Produce a Culturally Competent Process Evaluation.	One of the first steps of the process evaluation is to conduct in-depth interviews with the pilot staff, including the CPM and CENs. The CPM and CENs engage with the communities and will be able to provide insights into pilots successes and challenges. These insights will inform our customer research approaches.	See Section 2 (tasks 5 and 7)
DACAG	Written	"Finally, any evaluation process that involves		

Organization	Mode	Comment	Response	Revision to Research Plan
		interviewing or engaging DAC resident participants must be conducted in a culturally competent manner to attain the most accurate evaluation results."	Evergreen will also conduct embedded research in the SJV to engage community groups and communities to gather direct observations. Web and mail surveys will be offered in both English and Spanish. Evergreen will conduct phone surveys with customers who do not have internet access.	
CRPE, Leadership Council, SHE, Greenlining	Written	IV. The Proposed Plan Must be Revised to Assess Leveraged Programs.	The process evaluation will be evaluating referrals to all utility programs that pilot staff made to customers. This research will provide recommendations on improving the referral process to existing programs. The process evaluation will examine what existing programs the Decision required and ensure that PAs/PIs correctly utilized these programs.	See Section 1.3 and Appendix B
DACAG	Written	"…the value of non-energy benefits and the overall cost-effectiveness of the pilot projects are correlated with the success of efforts to leverage other existing programs…"		
CRPE, Leadership Council, SHE, Greenlining	Written	V. The Proposed Plan Must be Revised to Include Evaluation of the Process to Determine Non-Energy Benefits (NEBs).	Each IOU will be conducting a separate Evaluation, Measurement and Verification (EM&V) study to determine the energy impact and non-energy benefits resulting from the pilot. The CPUC will also be conducting an Economic Feasibility Study to determine the potential for scaling to other SJV DACs. It is out of scope for the process evaluation to determine methods or estimate cost effectiveness of the pilots. As noted in the Decision, the process evaluation focuses on the program delivery. The process evaluation will review the PAs' proposed metrics and data collection methods to ensure that robust data will be available for analysis of pilot	See Sections 1.3 and 2 (task 6)
DACAG	Written	Evergreen Economics' Preliminary Research Plan includes little information regarding the evaluation of the process by which pilot project administrators and implementers will coordinate to determine the non-energy		

Organization	Mode	Comment	Response	Revision to Research Plan
		benefits associated with the pilot projects.	impacts. We will identify the processes the PAs are using to collect and analyze data to assess impacts and cost effectiveness and the frequency at which they are reviewing and reporting on the data. The budget of the process evaluation precludes any additional assessments.	
Mad Stano (Greenlining)	Virtual Chat	How are you all accounting for shelter-in-place, COVID-19, and wildfires in evaluating outreach and engagement?	We will take these factors (and any other factors that we identify during the process evaluation research as impacting pilot success) into account when evaluating outreach and implementation.	See Appendix A, Logic Model and Metrics Review – where Evergreen added wildfires and COVID-19, and resulting complications, to the external influences in the pilot logic model.

September 30, 2020

RE: R.15-03-010 Process Evaluation Comment

To the CPUC Energy Division,

The Disadvantaged Communities Advisory Group (DACAG) submits these comments regarding Evergreen Economics' September 3, 2020 Preliminary Research Plan. The DACAG thanks Evergreen Economics for their work completing the Preliminary Research Plan, but emphasizes the need for significant revisions in order to assist the State in meeting climate and building electrification targets.

On August 21, 2020, the DACAG submitted a public comment to the CPUC, CEC and Air Resources Board (Joint Agencies) regarding the implementation of SB 100. That public comment requested that the Joint Agencies address non-energy benefits and social costs of energy resources in their implementation of SB 100. The Joint Agencies held an all-day workshop on September 2, 2020 presenting the results of their draft modeling results for the SB 100 Joint Agency Report, due to the Governor in January 1, 2021, and detailing progress to date on implementation of SB 100. Joint Agency staff acknowledged the need to consider non-energy benefits and social costs of energy resources and welcomed stakeholder input regarding how to consider and incorporate these important costs and benefits.

The DACAG believes that it is critical for the Joint Agencies to leverage their own programs and proceedings to determine this question and not rely solely on public comment. Particularly relevant, the next phase of R.15-03-010 will consider the economic feasibility of the pilot projects authorized by D.18-12-015. Specifically, that next phase will address: the sufficiency of existing cost-effectiveness tests to capture non-energy benefits; whether a new cost-effectiveness test should be developed; and overall, how to consider non-energy benefits of energy resources. This presents a unique opportunity for the Joint Agencies to leverage lessons learned from DAC residents themselves that participate in the R.15-03-010 San Joaquin Valley DAC pilot program.

However, Evergreen Economics' Preliminary Research Plan includes little information regarding the evaluation of the process by which pilot project administrators and implementers will coordinate to determine the non-energy benefits associated with the pilot projects. Evergreen Economics should correct this deficiency. In addition, the value of non-energy benefits and the overall cost-effectiveness of the pilot projects are correlated with the success of efforts to leverage other existing programs, such as the Self Generation Incentive Program, Energy Savings Assistance Program, the California Solar Initiative Solar Thermal Program, and the Disadvantaged Communities Green Tariff and Community Solar Green Tariff Program, DAC Single Family Solar Homes Program, and the SB 1477 BUILD and TECH Programs. The DACAG recommends the Preliminary Research Plan should be revised to include an adequate evaluation of how pilot project administrators and implementers are leveraging these and other relevant programs.

Finally, any evaluation process that involves interviewing or engaging DAC resident participants must be conducted in a culturally competent manner to attain the most accurate evaluation results. To address this and other deficiencies, the DACAG requests that Evergreen Economics revise the Preliminary Research Plan in consultation with the community-based organizations assisting in pilot project implementation and provide the DACAG an update in future monthly meetings to receive further feedback to improve these efforts for project implementation.

Sincerely,

The Disadvantaged Communities Advisory Group
Stan Greschner, Chair
Angela Islas, Vice Chair
Phoebe Seaton, Secretary
Jana Ganion
Adriano Martinez
Andres Ramirez
Fred L. Beihn
Stephanie Chen
Roger Lin
Tyrone Roderick Williams
Román Partida-López

September 30, 2020

CPUC Energy Division
505 Van Ness Avenue, 4th Floor
San Francisco, CA 94102

RE: Comments on Evergreen Economics Preliminary Research Plan

To the CPUC Energy Division,

The Center on Race, Poverty and the Environment ("CRPE"), Leadership Counsel for Justice and Accountability ("Leadership Counsel"), and Self-Help Enterprises ("SHE"), (collectively, the "Pilot Team") and the Greenlining Institute ("Greenlining") submit these comments to the California Public Utilities Commission ("the Commission" or CPUC) regarding Evergreen Economics' September 3, 2020 Preliminary Research Plan ("Proposed Plan"). The Proposed Plan fails to include critical factors, in particular an evaluation of all parties as required by Decision ("D.") 18-12-015, to allow for an adequate and full evaluation of the cost-effectiveness of the San Joaquin Valley ("SJV") disadvantaged community ("DAC") pilot projects pursuant to Assembly Bill ("AB") 2672.

I. The CPUC Should Require Evergreen Economics to Coordinate with the CPM to Revise the Proposed Plan.

As an initial procedural matter, in order to produce an effective, efficient, meaningful and culturally competent evaluation, it is imperative for Evergreen Economics to consult with the Community Energy Navigator ("CEN") Program Manager ("CPM") to redraft the plan. On July 23, 2020, Evergreen Economics submitted an extensive Data Request to the CPM. On July 30, 2020, the CPM responded to this data request, and those responses form a large part of Evergreen Economics' understanding of this proceeding and the contents of the Proposed Plan. Evergreen Economics has relied on the CPM to produce the Proposed Plan, and also proposes to rely on the CEN to execute portions of the plan.

The pilot projects authorized in this proceeding are, so far, unique to the Commission's work, and different from other projects previously assessed by Evergreen Economics. The pilot program authorized by D.18-12-015 is guided by community input.[1] Consequently, an evaluation that can capture the full benefits of the program must also be guided by community input. The Proposed Plan falls short for the reasons discussed below. For the simple sake of

[1] *See eg.* D.18-12-015 at 11.

efficiency, it makes sense to consult with the CPM to revise the Proposed Plan. Moreover, on July 29, 2020, the CPM conveyed several of the points of disagreement that arose at the September 16 Workshop presenting the Proposed Plan. Discussions at the Workshop also highlighted the need for greater coordination with the CPM in the design of the Proposed Plan.

Overall, the Proposed Plan has incorrectly interpreted "program delivery" to place too great of a focus on CEN activities. Whilst this is important, the Proposed Plan must also evaluate the process by which the Project Administrators ("PA"), Project Implementers ("PI"), CEN, CPM and the Commission itself will develop the inputs for all aspects of the economic feasibility framework at Phase III and Pilot offerings.[2] As the Proposed Plan notes, program delivery includes the goal of replicating pilot projects,[3] but the Proposed Plan lacks sufficient information to evaluate the processes by which PAs, PIs, and the Commission will achieve that goal.[4] We emphasize that D.18-12-015 requires a more comprehensive evaluation:

> [T]he pilot process evaluation authorized in Section 15 will allow the Commission to compare the performance of the various PAs, which would provide useful insights for Phase III.[5]
>
> To ensure that the lessons learned from the SJV DAC pilots have the broadest reach and value to ratepayers, the SJV DAC process evaluation research plan scope *shall include activities funded by the budgets authorized in this decision*.[6]
>
> We also direct the PAs to collaborate with each other and with the . . . pilot process evaluation contractor . . . to ensure that final pilot evaluation metrics are as consistent as possible across all PAs and all approved pilots. We direct the PAs and the additional entities to also collaborate to develop pilot evaluation metrics that are unique to specific communities and/or intervention approaches, as needed.[7]
>
> Process evaluations also typically also document barriers and may provide some basis to determine the success of the program or PA in meeting the goals outlined in its Pilot Implementation Plan.[8]
>
> An inadequate process evaluation will hinder the Commission's ability to evaluate the

[2] *See* Proposed Plan at 3: The process evaluation is intended to determine the overall effectiveness of pilot processes and provide actionable recommendations for improved pilot design and delivery. The process evaluation will also document barriers and *determine the success of the pilot administrators in meeting their stated goals.*
[3] *See* Proposed Plan at 1: The overall goal is to offer cleaner, more affordable energy options to residents of DACs in the SJV, where many households lack access to natural gas and rely on propane and wood for cooking and heating.
[4] California Energy Commission, *Low-Income Barriers Study, Part A: Overcoming Barriers to Energy Efficiency and Renewables for Low-Income Customers and Small Business Contracting Opportunities in Disadvantaged Communities*, (Dec. 2016), http://www.energy.ca.gov/sb350/barriers_report/ (pp. 43-50).
[5] D.18-12-015 at 51.
[6] *Id.* at 129-130 (emphasis added).
[7] *Id.* at 128.
[8] *Id.* at 129.

SJV DAC pilots. As currently proposed, the work at Phase III relies upon data modeling alone.[9] If that is the case, the Commission will lose the benefit of assessing the cost-effectiveness of affordable energy solutions through pilot projects, as authorized and required by D.18-12-015.

An examination of the PA's ability to leverage other applicable programs is also critical to efforts at Phase III, and is required by D.18-12-015:

> To ensure that the lessons learned from the SJV DAC pilots have the broadest reach and value to ratepayers, the SJV DAC process evaluation research plan scope *shall include . . . those funded through leveraged programs*.[10]

> PG&E, SCE and SoCalGas . . . will supplement the budgets approved here by leveraging opportunities within existing Commission programs for demand-side management programs such as the Energy Savings Assistance (ESA) Program, the California Solar Initiative Solar Thermal Program (CSI-Thermal), and the Disadvantaged Communities Green Tariff (DAC-GT) and Community Solar Green Tariff (CSGT) Program. These leveraged programs and budgets will fund the delivery of weatherization measures, solar technologies, and discount electric rate products to interested pilot households.[11]

> [W]e intend . . . for all PAs to coordinate with the DAC-SASH and SASH programs to attempt to leverage the program where feasible.[12]

> We have not yet outlined the process we envision for the PA to leverage ESA and similar program budgets while still ensuring a smooth delivery and comfortable pilot experience for participating households. Our vision is that the relevant IOU shall coordinate with the PA to ensure smooth, "behind-the-scenes" accounting of ESA funding pursuant to the ESA Program rule exception approved in Section 45.1 and the timely enrollment of households onto the all-electric rate.[13]

> Section 14.2 provides specific direction on the method by which the IOUs and the third-party PA must leverage ESA, MIDI, CSI Solar Thermal and other program funds to support the pilots.[14]

> The PAs should also explore whether the BUILD Program and/or TECH Initiative can be leveraged to meet pilot goals.[15]

The Commission should require Evergreen Economics to work with the CPM to revise the Proposed Plan to include the evaluation of all the above activities required by D.18-12-015.

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[9] *See eg.* Proposed Plan at 49 (proposing the use of external data to calculate NEBs).
[10] *Id.* at 129-130 (emphasis added)
[11] *Id.* at 3.
[12] *Id.* at 113.
[13] *Id.* at 122.
[14] *Id.* at 133.
[15] *Id*. at 134.

II. Revision of the Proposed Plan Must Include Evaluation of the Project Administrators, Project Implementers and the CPUC.

D.18-12-015 requires a process evaluation that "focuses on program delivery and provides recommendations on how this might be improved."[16] Narrowly interpreting "program delivery" to omit evaluation of the PAs is highly problematic. D.18-12-015 states, "…the pilot process evaluation…will allow the Commission to compare the performance of the various PAs, which would provide useful insights for Phase III."[17] The Proposed Plan includes two categories of activities to evaluate: pilot design and implementation processes; and customer interest in and satisfaction with the SJV DAC Pilots. However, the Proposed Plan lacks sufficient detail to ensure an adequate process evaluation of the PAs, PIs, and the Commission inconsistent with D.18-12-015.[18] These three entities are critical to pilot design and implementation, and customer interest and satisfaction.

Implementation of the SJV DAC Pilots has so far revealed potentially significant shortcomings from program delivery that must be included for a meaningful evaluation. For instance, it is unclear, and unlikely, that the Proposed Plan is designed to capture the difficulties PAs have experienced in navigating the overlap between the Energy Savings Assistance ("ESA") program and the SJV DAC pilot program. SCE incorrectly sent letters to 11 pilot community residents stating disqualification in the ESA program, despite SCE also confirming that all SJV DAC pilot applicants have qualified for ESA. This creates confusion and should be included to assess customer satisfaction with ESA coordination within the SJV DAC Pilot program. The ESA notices themselves, even if accurately sent, are also problematic, rely upon online access for customers to learn reasons for disqualification, and are only provided in English. The Proposed Plan must be revised to account for such instances, and overall, an adequate evaluation of the PAs.

This is important to capture valuable lessons to further efforts at Phase III. For instance, if an adequate evaluation determines that this ESA issue is a recurring problem, the Commission can investigate a more streamlined "one-stop-shop" and overall approach that is less burdensome on participating residents, such as the process currently used in the SOMAH Program. Similarly, PG&E has used an "energy impact statement" methodology to inform residents of financial consequences of pilot enrollment. Absent an adequate evaluation, there is no way to apply this useful tool to other IOUs or PAs.

In addition, the Proposed Plan lacks sufficient detail on the process to evaluate PA and PI approaches to home remediation costs. The Proposed Plan must be revised to include processes to better capture the differences between PA remediation cost allowances (where one PA performs certain remediation work and another PA does not) and the practical difficulties imposed by the $5,000 remediation cap. Furthermore, certain appliances and other treatments

[16] D.18-12-015 at 26.
[17] *Id*. at 51.
[18] *Id.*

are still available to certain homes that require excess of $5,000 for remediation. In this respect, the Proposed Plan does not include a method to evaluate the PA and PI's processes to determine the effectiveness of a cost cap on home remediation.

Certain PIs have also limited integral outreach and education efforts required by the Decision, yet still are reluctant to collaborate with the CEN to provide a more streamlined experience for Pilot participants. So far, implementation efforts have demonstrated that PI's do not regularly provide adequate information and education while in the customer's home leaving customers confused and unaware of the next steps. The Proposed Plan must be revised to capture similar instances to improve program design and delivery.

Similarly, there is no process proposed to evaluate the Commission's implementation of D.18-12-015. An evaluation of Commission efforts can directly lead to modification of Commission practices or rules to further benefit this and other programs related to DACs. For instance, Commission staff have used federal census data to interpret the boundary line of authorized pilot communities. This federal data, however, does not lead to a definition of community "as inclusive as possible" as required by D. 17-05-014 and consistent with D.18-12-015's directive for community-wide pilot implementation. The Commission's faulty interpretation has excluded households in pilot communities from pilot project participation, some of which participated in the two-year long community engagement process of this proceeding and obviously live in the selected pilot community. Another example is the incorrect interpretation of the requirements of this Process Evaluation resulting in the Proposed Plan that incorrectly interprets "program delivery" and lacks sufficient information to evaluate how PAs and PI will achieve Decision goals. The Proposed Plan lacks any methodology to evaluate, let alone address similar deficiencies that directly impact customer satisfaction and overall program design and delivery. The California Energy Commission identified in its *Low-Income Barriers Study* that IOUs and state agencies like the Commission face serious market delivery barriers in their administration of existing clean energy programs. These pilots present a significant opportunity to evaluate potential progress, and diverse approaches across these key administrators of clean energy programs vital to meeting the state's existing decarbonization and equity goals. This was a stated goal for the process evaluation in D.18-12-015 which describes the scope of the process evaluation stemming from the Commission's goal of "ensur[ing] that the lessons learned from the SJV DAC pilots have the broadest reach and value to ratepayers[.]"[19]

III. The Proposed Plan Must Coordinate with the CPM and CEN to Produce a Culturally Competent Process Evaluation.

The Proposed Plan relies on "in-depth telephone interviews" and "web surveys" with pilot community residents.[20] The Proposed Plan, however, lacks any detail on whether interviews can and will be conducted in Spanish. The Proposed Plan also lacks any

[19] Id., pp. 129-130.
[20] Proposed Plan at 7.

consideration of whether pilot community residents have access to WiFi. The Proposed Plan does not even consider providing such surveys in Spanish. This proceeding's record already includes several comments and discussion detailing the inapplicability and inefficiency of financial incentives, such as the proposed $10 incentive for participating residents.[21] The Commission should coordinate with the CPM and CEN to redraft portions of the Proposed Plan to address and improve delivery of outreach in order to produce an adequate evaluation in a culturally sensitive manner.

IV. The Proposed Plan Must be Revised to Assess Leveraged Programs.

Although we appreciate that the Proposed Plan details an examination of the effectiveness of leveraging existing programs, the proposal seems to only focus on the existing programs relating to the *outreach process*.[22] These programs at the outreach level, such as CARE or medical baseline, are important. However, other programs exist that D.18-12-015 also requires evaluation. Those include: the Self Generation Incentive Program, Energy Savings Assistance (ESA) Program, the California Solar Initiative Solar Thermal Program (CSI-Thermal), and the Disadvantaged Communities Green Tariff (DAC-GT) and Community Solar Green Tariff (CSGT) Program,[23] DAC-SASH, SB 1477 BUILD and TECH Programs.[24] The Proposed Plan must be revised to include an assessment of the process by which PAs, PIs, and the Commission are evaluating the coordination and overlapping of these programs. The PAs are relying on the CPM to introduce these programs to pilot participants, but PAs and PIs have not produced a plan to ensure program delivery of the leveraged programs listed above. This is important to assess the cost-effectiveness of pilots and inform replicability efforts, and critical to inform the Commission's work in other proceedings and statewide. For instance, the Building Decarbonization proceeding is currently investigating methods for "incentive layering" that these pilots could specifically inform.

V. The Proposed Plan Must be Revised to Include Evaluation of the Process to Determine Non-Energy Benefits (NEBs).

The Proposed Plan fails to include an evaluation of the process by which the PAs, PIs, and the Commission determine and assess non-energy benefits (NEBs) to further the cost-effectiveness analysis of the pilot projects. This is a major omission because D.18-12-015 requires the process evaluator to be involved in measuring NEBs and criteria air pollutants.[25] D.18-12-05 Section 15, "Pilot Data Gathering, Evaluation and Reporting," approved a pilot evaluation plan for each approved pilot and a pilot process evaluation by a third party contractor.[26] Both the evaluation plans and the process evaluations are aimed at improved

[21] Proposed plan at 7.
[22] Proposed Plan at 16.
[23] D.18-12-015, p. 3.
[24] D.18-12-015, p. 130.
[25] Cal. Pub. Util. Comm'n, *Decision Approving San Joaquin Valley Disadvantaged Communities Pilot Projects* 127, Rulemaking 15-03-010 (Dec. 13, 2018).
[26] *Id.* at 127–31.

assessment of pilot effectiveness.[27] Meanwhile, Section 17, "Economic Feasibility White Paper and Workshops," requires SCE to seek an "expert technical entity" to serve as a contractor for the Economic Feasibility Framework and work with Commission staff to develop a white paper addressing questions including what cost-effectiveness test should be used, what data gaps exist in the pilots or Data Gathering Plan to develop cost and benefit factors for the test, and what options for qualitative benefits or NEBs should be considered in the proposed test.[28] As a means to enhance the evaluation of pilot effectiveness, the process evaluator would naturally coordinate its efforts with the questions addressed by Section 17 . Appendix A confirms the intent of D.18-12-015 by requiring the process evaluator to determine NEB reporting metrics alongside the PAs, PIs, and Data Plan Contractor.[29]

The Commission is statutorily mandated to evaluate the cost-effectiveness of the pilot projects. Properly evaluating the pilots' cost-effectiveness requires an adequate consideration of NEBs, for three reasons. First, evaluating NEBs is necessary to sufficiently and equitably assess the costs and benefits of energy resources. Second, the Commission must evaluate NEBs to meet the proceeding's focus to replicate pilot projects across all 170-plus identified DACs. Finally, it is imperative for the Commission to consider NEBs in order to further California's climate change and renewable energy goals. The Proposed Plan must be revised to include an evaluation of the process by which the PAs, PIs, and the Commission are coordinating to determine these factors.

A. AB 2672 Requires an Evaluation of the Cost-Effectiveness of Pilots.

In 2014, AB 2672 added Section 783.5 to the Public Utilities Code. Section 783.5 issues three mandates to the CPUC: first, to "identify disadvantaged communities;" second, to "analyze the economic feasibility" of affordable energy options for those communities, and third, to "take appropriate action" on these options in light of the analysis.[30] The CPUC later initiated the instant proceeding to implement Section 783.5.

Since the Commission has identified eligible DACs but has not conducted an economic feasibility study, the CPUC's statutory authority to implement the SJV DAC Pilots derives entirely from its mandate on economic feasibility. While D.18-12-015 describes "dual goals" of providing cleaner, more affordable energy and gathering data on feasibility,[31] the structure of AB 2672 makes clear that supporting the economic feasibility analysis is the central aim of the SJV DAC Pilots. The CPUC has likewise acknowledged that the pilot projects are critical to the feasibility assessment requirement in AB 2672.[32]

Pilots are uniquely capable of producing the data on cost-effectiveness needed to carry out AB 2672. Hence, the feasibility analysis must serve the practical purposes of justifying and informing the deployment of affordable energy programs to at least 170 disadvantaged communities across the San Joaquin Valley. The Commission explains this important role of the

[27] *See id.* at 126, 29.
[28] *Id.* at 139–40.
[29] *Id.* at A-1–2.
[30] A.B. No. 2972, Cal. Leg. 2013–2014 Reg. Sess. § 2 (Pub. Utils. Code § 783.5).
[31] Cal. Pub. Util. Comm'n, *supra* note 25, at 10.
[32] *See, e.g.*, Cal. Pub. Util. Comm'n, *Assigned Commissioner's Scoping Memorandum and Ruling* 7 (Dec. 6, 2017).

pilot projects by noting that the data they provide "will benefit future project implementation and allow for replication on a broader scale in the San Joaquin Valley and throughout the state."[33] The Commission provides further justification for the use of pilot projects in that they will "provide on-the-ground, real-time information" on specific measures to expand access to affordable energy.[34] While the Commission is not explicitly required to use pilot projects to conduct its feasibility study, it authorized a pilot-based strategy because it recognized the need for high-quality data to make future DAC affordable energy projects practicable and economically justifiable. The Commission intended the process evaluation to inform Phase III economic feasibility analysis stating, "the pilot process evaluation authorized in Section 15 will allow the Commission to compare the performance of the various PAs, which would provide useful insights for Phase III."[35]

Moreover, the pilots have the potential to inform related proceedings and broader statewide energy policies. In D.18-12-015, the Commission described its expectation for the electrification pilots to inform the programs established by SB 1477.[36] The pilots also provide a unique opportunity for state agencies to enhance their understanding of equitable parameters, like NEBs that are necessary to ensure an energy transition that follows the requirements of SB 100.[37] Given the substantial investment they represent, the pilots should be leveraged to maximize the informational benefits to the SJV DAC proceeding and related statewide efforts.

In contrast, the Proposed Plan fails to ensure PAs, PIs and the Commission are on track to leverage pilots for their critical role in the economic feasibility study. In the Pilot Metrics Review in Appendix A, the Plan shows that critical pieces of data would be provided by secondary sources and modeling outputs,[38] despite the fact that the pilots were chosen in part because they "provide on-the-ground, real-time" data. In particular, metrics on changes in indoor air quality and greenhouse gas emissions would be provided either by the Pilot Evaluator through external data or by the Data Gathering Team through surveys prior to pilot implementation.[39] Similarly, most NEB categories would not have real-time pilot data because only the Pilot Evaluator (post-pilots) or Data Gathering Team (pre-pilots) would be responsible for collecting the data.[40] Thus, the Proposed Plan reveals no plans to measure household indoor air quality, health, comfort, and safety outcomes or electric reliability throughout the pilot process and no plans whatsoever to measure outdoor air quality or greenhouse gas emissions.

Furthermore, the Plan's vague descriptions of certain factors underscore the need for the Process Evaluator to evaluate the process of data collection in order to ensure that the pilots yield useful and relevant data. For instance, "Health conditions of household" could accommodate a number of interpretations,[41] and "Household indoor air quality (particulate matter)" appears to

[33] Cal. Pub. Util. Comm'n, *supra* note 32, at 6.
[34] *Id.*
[35] D.18-12-015 at 51.
[36] Cal. Pub. Util. Comm'n, *supra* note 25, at 130
[37] *See infra* Subsection V.B(iii).
[38] *See* Evergreen Economics, *SJV DAC Pilot Projects Process Evaluation: Preliminary Research Plan* 49–50 (Sept. 3, 2020).
[39] *Id.* at 49.
[40] *See id.* at 48–50.
[41] *Id.* at 50; *see infra* p. 11.

exclude other criteria pollutants,[42] which do not meet the baseline data gathering requirements of D.18-08-019.[43] The pilot projects were chosen to give the CPUC an opportunity to gain a much deeper understanding of the respective costs and benefits, including NEBs, of various strategies to increase access to affordable energy across the San Joaquin Valley and beyond; however, the Proposed Plan reveals that the Commission and the Process Evaluator do not plan to take full advantage of this unique opportunity.

AB 2672 authorizes the CPUC to implement the SJV DAC Pilot Projects because they support the cost-effectiveness analysis required by the law. The pilots should be well-tailored to serve this purpose. Evergreen Economics should modify its research plan to evaluate the processes by which PAs, PIs, and the Commission mobilize the pilots to support the study of all relevant factors.

B. NEBs are Critical to an Evaluation of the SJV Pilot Projects.

(i) Consideration of NEBs is Critical for an Adequate and Equitable Assessment of the Costs and Benefits of Energy Resources.

AB 2672 and D.18-12-015 require the Commission to consider NEBs associated with the 11 Phase II pilot projects in order to understand the true cost effectiveness of the projects and to expand the program beyond the initial pilots to other SJV DACs. We refer to non-energy benefits as the benefits or impacts on society associated with the generation and consumption of energy and any associated activity. Currently, the CPUC narrowly focuses on the financial costs of energy consumption and modifications made to pilot participant homes, but fails to fully analyze many significant NEBs associated with energy generation and consumption. By focusing on the monetary costs of energy, and failing to fully consider NEBs, the CPUC risks both providing inaccurate cost-effectiveness data and widening the environmental and socioeconomic inequalities that the pilot projects set out to help address.

Failing to properly account for NEBs at this process evaluation stage disregards not only the intent of the CPUC, but also the substantial economic and public health impacts of these pilot projects. In particular, Appendix A of D.18-12-015 explicitly requires the process evaluator to determine NEB reporting metrics alongside the PAs, PIs, and Data Plan Contractor.[44] Ignoring these impacts would fail to consider local effects from the modifications made to pilot project participant's homes that have significant consequences for the pilot communities.[45] These include public health outcomes and reduced localized pollution from home heating. Failure to evaluate the PAs, PIs and CPUC's processes to develop consideration of these factors risks relying on an under-inclusive analysis of the cost effectiveness of the pilot projects. This will in

[42] *Id.* at 49.
[43] *See infra* note 54 and accompanying text.
[44] *Cal. Pub. Util. Comm'n, Decision Approving San Joaquin Valley Disadvantaged Communities Pilot Projects* A-1–2, Rulemaking 15-03-010 (Dec. 13, 2018).
[45] Skumatz, Non-Energy Benefits/Non-Energy Impacts (NEBs/NEIs) and their Role & Values in Cost-Effectiveness Tests: State of Maryland (Mar. 31, 2014) Skumatz Economic Research Associates, Inc. (SERA).

turn underestimate the pilot's effect and fail to identify the true impact in the pilot communities, negating the entire purpose of Phase III.

For instance, there is substantial risk that if the CPUC fails to fully analyze NEBs in this stage of the process evaluation then it will be unable to understand the rebound effect that takes place in the pilot communities. Rebound effects are the reduction in expected efficiency gains from new technologies due to behavioral shifts in customer energy usage based on" improved health, comfort, and safety."[46] Both PGE and SCE concede that pilot participants could "benefit considerably from these factors post electrification."[47] The IOUs claim that they are able to account for the lack of rebound effect monitoring by including "conservative inputs," however this is not an adequate substitute.[48] The CPUC has committed to using these pilot projects to inform future decision making, therefore it is only natural that the data collected through the pilots, not modeling using arbitrary "conservative inputs," should be used to measure any rebound effect. Accordingly, in order to fully understand the implications of "improved health, comfort, and safety" it is critical to include NEBs in this process evaluation phase.

(ii) Consideration of NEBs is Critical to Meet the Proceeding's Goals of Replicating Pilot Projects in Other SJV DACs that Lack Access to Affordable Energy.

It is critical for the CPUC to adequately evaluate NEBs as it considers the cost-effectiveness of the pilots to facilitate replication of the projects in the remainder of the 170 eligible communities. The Proposed Plan, unless modified, precludes this adequate and necessary evaluation.[49] Considering NEBs in the cost-effectiveness analysis of the pilot projects justifies the purely financial cost of the required investment and accordingly supports expansion of the program to all 170-plus eligible communities. Therefore, the failure to include NEBs in the process evaluation proposed by Evergreen Economics is a major omission.

Several CPUC decisions underline the need to consider NEBs in the pilot project cost-effectiveness evaluation. D.18-12-015 states that one of the primary goals of the pilot projects is "to collect data for use in Phase III of this proceeding."[50] D.18-08-019 notes that "the primary purpose of the Plan is to collect the information needed to establish baseline conditions in identified communities and to support an analysis of the economic feasibility of extending affordable energy options to these communities[.]"[51] As the purpose of the Data Gathering Plan is to establish baseline conditions in the identified communities, the Commission should continue to collect data on NEBs throughout the pilot project duration in order to evaluate and compare the cost-effectiveness of the pilot projects with these baseline conditions. Deferring

[46] Cal. Pub. Util. Comm'n, Resolution E-5034 (December 19, 2019).
[47] *Id.*
[48] *Id.* at 16.
[49] Cal. Pub. Util. Comm'n, *Decision Approving San Joaquin Valley Disadvantaged Communities Pilot Projects* 12, Rulemaking 15-03-010 (Dec. 13, 2018).
[50] Cal. Pub. Util. Comm'n, *Decision Approving San Joaquin Valley Disadvantaged Communities Pilot Projects* 3, Rulemaking 15-03-010 (Dec. 13, 2018).
[51] Cal. Pub. Util. Comm'n, *Decision Approving Data Gathering Plan in San Joaquin Valley Disadvantaged Communities, Adopting Process for Updating the List of San Joaquin Valley Disadvantaged Communities, and Adding Nine Communities to This List* 19, Rulemaking 15-03-010 (Aug. 31, 2018).

coordination of the methodology to collect data on NEBs until after the pilot projects are complete will be a tremendous missed opportunity to course correct and allow for an adequate evaluation of the success of the pilot projects to support their expansion.

D.18-08-019 confirmed that the SJV Proceeding will measure NEBs including improved air quality, reduced greenhouse gas emissions, and increased diversity in energy sources.[52] The Decision also stated that the Data Gathering Plan should incorporate the following NEBs as data elements: safety to the community and homes; health, comfort, and quality of life benefits; workforce development and career enhancement; criteria air pollution reduced; greenhouse gas emissions reduced; and public health in the residence and in the communities.[53] Moreover, in a Joint Proposal submitted in July 2018, the parties in the SJV Proceeding requested that the Commission measure NEBs such as greenhouse gas emissions, priority air pollutant emissions, local economic and workforce impacts, the societal cost of carbon, education, local hire/local buy, increased household safety and comfort, positive resident experience, social cohesion, water pollution reduction, waste reduction or diversion, traffic congestion reduction, and reduction in illnesses and lost days from work or school.[54] The parties additionally asked the Commission to consider the impacts of qualitative NEBs including increased energy reliability, community support, grid flexibility and reliability, self-utilization of rooftop or community solar PV, indirect impacts such as trenching for roads or pipelines, and equitable access to multiple clean energy options.[55] Yet, the Proposed Plan only proposes to measure the following NEBs: "development of local workforce," "improved indoor and outdoor air quality," "improved home safety," "improved household health," and "improved electric service reliability."[56] The Proposed Plan fails to adequately consider comfort and quality of life benefits and public health in the communities—as required by D.18-08-019. Furthermore, while the Proposed Plan purports to measure the NEB of "improved indoor and outdoor air quality," the proposed metrics only measure indoor air quality of particulate matter and greenhouse gas reductions,[57] although the Decision did not ignore outdoor air quality. Moreover, many of the proposed metrics are exceedingly vague and open to interpretation, such as "health conditions of household,"[58] rather than specifying incidences of particular health conditions like asthma that air pollution can exacerbate.[59] Following this minimal proposal will paint an incomplete picture. Instead of a passing mention in the Proposed Plan, there should be more detail about the evaluation of the

[52] *Id.*
[53] *Id.* at 18, 20. The Commission found these and other data elements proposed by the parties "reasonable" and "necessary to establish baseline conditions" or engage with residents. *Id.* at 20.
[54] Anna Valdberg & R. Olivia Samad, *Joint Proposal Addressing Economic Feasibility Standards For Pilot Projects And Comments On Proposed Workshop Agenda* 11, A-1, A-3, A-5–9, A12, A14, Cal. Pub. Util. Comm'n, R.15-03-010 (July 19, 2018). The Joint Proposal also notes that "a key objective of the current phase of the proceeding should be
to ensure that necessary information is gathered in connection with the development and implementation of the pilot projects that are ultimately approved in this Phase II in order to support future evaluations of the cost-effectiveness and scalability of the anticipated expansion to the other 160+ communities that are encompassed within the goals of AB 2672." *Id.* at 6.
[55] *Id.* at 10.
[56] Proposed Plan at 48–50.
[57] *Id.* at 49.
[58] *Id.* at 50.
[59] *See* U.S. Envtl. Prot. Agency, *The Links Between Air Pollution and Childhood Asthma* (Oct. 22, 2018), https://www.epa.gov/sciencematters/links-between-air-pollution-and-childhood-asthma; Asthma & Allergy Found. of America, *Air Pollution* (last visited Sept. 28, 2020), https://www.aafa.org/air-pollution-smog-asthma/.

process by which the Commission, PAs, and PIs consider which NEBs to measure and what metrics they use to do so.

The current proposal from Evergreen Economics does not rise to this task. The Proposed Plan acknowledges that the purpose of the pilot projects and Data Gathering Plan is to "[p]rovide the CPUC with the data needed to assess the feasibility of extending affordable energy options to the rest of the SJV DACs" and to support Phase III of the Proceeding.[60] Yet, while D.18-12-015 notes that providing NEBs is one of the primary desired outcomes of the pilot research,[61] the Proposed Plan fails to mention evaluating the process to determine NEBs within its stated study objectives.[62] It is essential for the Proposed Plan to evaluate the process by which NEBs will be calculated, including by clarifying which NEBs will be measured in real time and which will be measured through modeling. While modeling will likely be necessary for certain inputs such as greenhouse gas emissions, the pilot projects provide a unique opportunity to collect real-time data on NEBs including local air quality. There must similarly be a process to determine at the outset the inputs for evaluation of health, safety, and comfort, as required by AB 2672, beyond the Proposed Plan's vague mention of considering "health conditions of household[s]."[63] Simply relying on a survey at the end of the process—or other similarly reactive measures—will not suffice. The Proposed Plan must be amended to explicitly consider NEBs in the cost-effectiveness evaluation of the pilots and to outline the process for how these NEBs will be measured, including which inputs will be used. Doing so is fundamentally necessary to establish a proper baseline and support replication of the pilot projects.

(iii) Consideration of NEBs is Critical to Further the State's Climate and Renewables Goals, and the SJV Proceeding Provides a Unique Opportunity to Pilot the NEBs Analysis.

California's climate policy clearly requires that NEBs be considered in the transition to renewable energy. SB 100 and its predecessors, SB 1078 and SB 350, account for energy policy impacts on DACs and public health.[64] AB 2672 seeks to improve health, safety, and air quality, by assisting low-income households in disadvantaged communities that lack natural gas service and must rely on electricity, propane, or wood burning to fulfill their space heating, water heating, and cooking needs.[65] The State's other climate legislation also emphasizes incorporating NEBs in the Joint Agencies' cost-benefit analyses. The Legislature has affirmed the need to consider equity in California's climate policy, but as this emphasis is relatively recent, the proposed NEB frameworks rely on modeling, not real data, to make a comprehensive NEB analysis of potential energy sources.[66] As the California Energy Commission (CEC) identified in

[60] Proposed Plan at 1.
[61] Cal. Pub. Util. Comm'n, *Decision Approving San Joaquin Valley Disadvantaged Communities Pilot Projects* App. A at 1–2, Rulemaking 15-03-010 (Dec. 13, 2018).
[62] Proposed Plan at 3–4.
[63] *See id.* at 50.
[64] Sen. Bill No. 100 (2017–2018 Reg. Sess.) § 1, subd. (e)(1).
[65] Cal. Pub. Util. Comm'n, *Decision Approving Data Gathering Plan in San Joaquin Valley Disadvantaged Communities, Adopting Process for Updating the List of San Joaquin Valley Disadvantaged Communities, and Adding Nine Communities to This List* 3, Rulemaking 15-03-010 (Aug. 31, 2018).
[66] *See, e.g.,* Liz Gill, *SB 100 Draft Results*, Cal. Energy Comm'n 4 (Sept. 2, 2020); Cal. Pub. Util. Comm'n, *2021 Senate Bill 100 (SB 100) Joint-Agency Report Modeling Framework and Scenarios Overview* 9 (Aug. 31, 2020).

its *Low-Income Barriers Study*, "[u]nrecognized non-energy benefits are often not considered in cost-effectiveness tests, which devalues some of the most important factors that motivate investment in clean energy…such as family health and safety…"[67] The CEC correspondingly recommended, "develop[ing] standards to measure [NEBs], and attempt to determine consistent values for use in all energy programs."[68] Further, the CPUC itself has its Environmental and Social Justice Action Plan as well as the Disadvantaged Communities Advisory Group that reinforce the importance of collecting NEBs for the SJV Pilot Projects.[69] To ensure that the SJV Proceeding is aligned with State goals, it should adequately track NEBs in addition to traditional cost data.

NEBs need to be tracked in the SJV proceeding because of the true social costs to the community that arise from a decision of which energy resource to include. The primary purpose of the Proposed Plan is to support an analysis of the economic feasibility of extending affordable energy options to other SJV DACs that lack access to natural gas.[70] Air quality effects need to be measured, both to understand the risks of methane leaks from extensions to the natural gas pipeline,[71] and internal to homes particularly looking at pollutants emitted from cooking sources and appliances.[72] Water quality can also be very much affected by the type of energy elected. For example, the 45 dairies participating in the biomethane pilot projects have been cited by the state water board for 67 water violations with pollutants like nitrates leaking into the water supply.[73] Water treatment to remove nitrates from the water supply has a high cost for small communities that needs to be factored into the equation.[74] Water supply is important and directly tied to energy resources, particularly with regards to hydroelectric energy[75] and conventional natural

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[67] California Energy Commission*, Low-Income Barriers Study, Part A: Overcoming Barriers to Energy Efficiency and Renewables for Low-Income Customers and Small Business Contracting Opportunities in Disadvantaged Communities*, (Dec. 2016), http://www.energy.ca.gov/sb350/barriers_report/ (p.3).
[68] *Id*., at p. 5.
[69] Cal. Pub. Util. Comm'n, *Environmental and Social Justice Action Plan*, (2020) <https://www.cpuc.ca.gov/CPUCNewsDetail.aspx?id=6442461331>; Cal. Pub. Util. Comm'n, *CPUC Creates Disadvantaged Communities Advisory Group*, (Dec. 14, 2017) <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M201/K358/201358698.PDF>.
[70] Cal. Pub. Util. Comm'n, *Decision Approving Data Gathering Plan in San Joaquin Valley Disadvantaged Communities, Adopting Process for Updating the List of San Joaquin Valley Disadvantaged Communities, and Adding Nine Communities to This List* 9-10, Rulemaking 15-03-010 (Aug. 31, 2018).
[71] *See* Alvarez, R., Zavala-Araiza, D., Lyon, D., Allen, D., Barkley, Z., Brandt, A., Davis, K., Herndon, S., Jacob, D., Karion, A., Kort, E., Lamb, B., Lauvaux, T., Maasakkers, J., Marchese, A., Omara, M., Pacala, S., Peischl, J., Robinson, A., Shepson, P., Sweeney, C., Townsend-Small, A., Wofsy, S. and Hamburg, S., 2018. Assessment of methane emissions from the U.S. oil and gas supply chain. *Science*, p. 7204.
[72] *See* Cal. Air Res. Bd., *Indoor Air Pollution from Cooking* <https://ww2.arb.ca.gov/resources/documents/indoor-air-pollution-cooking#:~:text=People%20use%20a%20variety%20of,toxic%20to%20people%20and%20pets.>.
[73] *See* State Water Res. Control Bd., *California Integrated Water Quality System Project*: *Violation Report (Facilities)*<https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?vioReportType=Violation&reportID=7606649&inCommand=drilldown&reportName=PublicVioFacilityReport>.
[74] *See* Schechinger, A. & Cox, C. *America's Nitrate Habit is Costly and Dangerous*, EWG (Oct. 2, 2018) (https://www.ewg.org/research/nitratecost/); *see also* Jensen, V. et al., Technical Report 6: Drinking Water Treatment for Nitrate, *Center for Watershed Sciences, University of California Davis* (July 2012) <http://groundwaternitrate.ucdavis.edu/files/139107.pdf>.
[75] *See* Bliss, *One Way the California Drought Is Contributing to Climate Change* (Feb. 16, 2016) City Lab, <https://www.citylab.com/equity/2016/02/how-california-drought-is-contributing-to-climate-change/462951/>.

gas.[76] These factors can be combined with the detailed home energy costs and appliance data that will be sought from the pilot participants to create a holistic view of the program and an accurate summary of cost data for the energy transition.[77] It is important for the NEB methodology to be accurate in the SJV Proceeding so as to enable the methodology to be applied consistently statewide.[78] Here, the process evaluation determines the methodology, and therefore the efficacy of the NEB analysis. The Proposed Plan must be amended to include the proposed NEB methodology and to allow public comment and amendment of the NEB framework.

In SB 100, the Joint Agencies indicated that they would analyze NEBs in the future in order to meet the burden imposed by the statute of analyzing air pollution, water quality, and water supply.[79] First, an explicit goal of SB 100 is "[r]educing air pollution, particularly criteria pollutant emissions and toxic air contaminants, in the state."[80] Also, the plain language of SB 100 requires the Joint Agencies to "prevent unreasonable impacts to . . . water customer rates and bills resulting from implementation . . . taking in full consideration the economic and environmental costs and benefits[.]"[81] Thus, any accurate SB 100 analysis must encompass a lifecycle analysis of air pollution, water quality, and water supply impacts.[82] The Joint Agencies have acknowledged this and have committed to analyzing NEBs in future studies.[83]

Importantly, the SJV Pilot Projects provide a unique opportunity for the State to assess and critically evaluate the NEB effects of its climate policy on DACs. Measuring NEBs in the SJV Proceeding would not only accurately reflect the true costs of the program for future replication in eligible communities, it would also provide an essential dataset to the Joint Agencies tasked with implementing SB 100.[84] The SJV Proceeding has clearly indicated that NEBs will be considered as part of Phase III.[85] However, without the collection of accurate, real-time data from the participating homes, that NEB analysis will merely be modeling. Modeling would be inadequate in a scenario like the SJV Proceeding, where the CPUC could easily track and monitor NEB data.[86] Further, there is a need for the Joint Agencies to coordinate with their

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[76] *See* Seel, *Non-Energy Benefits of Distributed Generation*, Sierra Club, <https://content.sierraclub.org/creative-archive/sites/content.sierraclub.org.creative-archive/files/pdfs/1137-Distributed-Generation-White-Paper_03_low.pdfontent.sierraclub.org.creative-archive/files/pdfs/1137-Distributed-Generation-White-Paper_03_low.pdf>.

[77] Cal. Pub. Util. Comm'n, *Decision Approving Data Gathering Plan in San Joaquin Valley Disadvantaged Communities, Adopting Process for Updating the List of San Joaquin Valley Disadvantaged Communities, and Adding Nine Communities to This List* 34, Rulemaking 15-03-010 (Aug. 31, 2018).

[78] See D.18-12-015, *supra*, at 159 ("The pilot projects are consistent with the legislative directives of AB 2672 and California's climate change (SB 32, SB 100, and SB 350); and SB 1383... it is reasonable and consistent with Section 783.5 for the pilots to be used as a tool for data gathering and leveraging efficiencies while maximizing third party implementation").

[79] Sen. Bill No. 100 (2017–2018 Reg. Sess.) § 2, subd. (b)(3); § 5, subd. (b)(2); Gill, *supra* note 51, at 4.

[80] Sen. Bill No. 100 (2017–2018 Reg. Sess.) § 2, subd. (b)(3).

[81] Sen. Bill No. 100 (2017–2018 Reg. Sess.) § 5, subd. (b)(2).

[82] *Id.*

[83] *See* Gill, *supra* note 51, at 4.

[84] *See* Gill, *supra* note 51, at 4.

[85] *See* Cal. Pub. Util. Comm'n, *Decision Approving San Joaquin Valley Disadvantaged Communities Pilot Projects* 140-41, Rulemaking 15-03-010 (Dec. 13, 2018).

[86] *See, e.g.,* Skumatz, L. et al., *Non-Energy Benefits and Non-Energy Impact (NEB/NEI) Study for the California Energy Savings Assistance (ESA) Program* 62, Vol. 1 (Aug. 2019) Skumatz Economic Research Associates, Inc.

own, and active, proceedings. The SJV Pilot Projects present the State with a unique opportunity to directly measure and track NEBs as they relate to ongoing CPUC funding programs. In particular, the methodology of tracking NEBs in the SJV Proceeding could be leveraged in future pilot projects as well as statewide initiatives, like SB 100. The current proposal from Evergreen Economics does not follow the mandate set by D.18-12-015, and therefore risks the statewide policy goals and priorities with regards to NEBs.[87] Instead, Evergreen Economics should provide a thorough evaluation of the process by which the CPUC, the PAs, and the PIs will measure NEBs throughout all phases of the SJV Proceeding.

We thank Evergreen Economics' staff for their work developing the Proposed Plan. For the foregoing reasons, we request that the Commission require revisions to the Proposed Plan and that Evergreen Economics consult the CPM to make these revisions. We also request that the Commission provide the opportunity for additional public comment on the revised plan.

Respectfully submitted,

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(SERA) ("Participant NEBs, in particular, would benefit from more defensible connection to the program and measures – potentially via current surveys & analysis for the ESA program").

[87] Evergreen Economics, *supra*, at 3–4; *see also* D.18-12-015, *supra*, at 158-59 ("the Commission shall include, in addition to other ratepayer protection objectives, a value for any costs and benefits to the environment, including air quality.").