

GRANT REQUEST FORM (GRF)CEC-270 (Revised 10/2015)
COMMISSION

CALIFORNIA ENERGY

New Agreement EPC-17-041 (To be completed by CGL Office)

ERDD	David Hungerford	51	916-327-2341
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Sonoma Clean Power Authority	46-3504717
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Lead Locally

5/1/2018	3/31/2022	\$ 9,814,596
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<input type="checkbox"/> ARFVTP agreements under \$75K delegated to Executive Director.

Proposed Business Meeting Date	4/11/2018	<input type="checkbox"/> Consent	<input checked="" type="checkbox"/> Discussion
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Business Meeting Presenter	David Hungerford	Time Needed:	5 minutes
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Please select one list serve. EPIC (Electric Program Investment Charge)

Agenda Item Subject and Description

SONOMA CLEAN POWER AUTHORITY . Proposed resolution approving agreement EPC-17-041 with Sonoma Clean Power Authority for a \$9,814,596.00 grant to develop and implement a project that tests and evaluates energy savings, cost effectiveness, and training requirements for innovative retrofit technologies in existing residential and commercial buildings, promotes the most promising technologies through multiple channels, and provides training to building professionals, real estate professionals, and building departments. The project will include a range of innovative technologies, program features, and market strategies to accelerate adoption of energy efficiency upgrades. This existing building initiative will also serve to complement current fire recovery efforts in Sonoma and Mendocino Counties.

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**California Environmental Quality Act (CEQA) Compliance**

1. Is Agreement considered a "Project" under CEQA?
☒ Yes (skip to question 2) ☐ No (complete the following (PRC 21065 and 14 CCR 15378)):
 Explain why Agreement is not considered a "Project":

2. If Agreement is considered a "Project" under CEQA:
☒ a) Agreement **IS** exempt. (Attach draft NOE)
☐ Statutory Exemption. List PRC and/or CCR section number: _____
☒ Categorical Exemption. List CCR section number: Cal. Code Regs., tit 14, § 15301 -- Cal. Code Regs., tit 14, § 15302 -- Cal. Code Regs., tit 14, § 15306
☐ Common Sense Exemption. 14 CCR 15061 (b) (3)
 Explain reason why Agreement is exempt under the above section:
 The project consists of an applied research phase and a technology demonstration and deployment phase. During both phases, data will be collected from buildings that are recruited to be part of the research project (§ 15306: Information Collection).
 The alterations of existing buildings will consist of installation of promising emerging technologies (including heat pump water heaters, advanced air-source "mini-split" heat pumps and phase change ceiling panels). All alterations of the buildings will be categorically exempt under § 15301 as they will 1) Consist of operation, repair, maintenance, permitting, leasing, licensing, or minor alteration 2) of existing structure, facilities, mechanical equipment, or topographical features, 3) which involves negligible or no expansion of the existing use. The retrofits will consist of interior and exterior alteration to the existing buildings.
 There is also a possibility that the project resources will be leveraged to assist in the reconstruction of Sonoma and Mendocino County residential and small commercial buildings destroyed by wildfire in 2017. In that case, Categorical Exemption §15302 will apply because the projects will 1) Consist of replacement or reconstruction of existing structures and facilities where 2) the new structure will be located on the same site as the structure replaced and 3) the new structure will have the same purpose and capacity as the structure replaced.
 The alteration and replacement sites will be at different locations throughout the two counties so that there are no foreseeable cumulative impacts. Additionally, there is not a reasonable possibility energy efficiency retrofits on existing or replacement buildings will have a significant effect on the environment due to unusual circumstances because the retrofits will consist of equipment replacements and interior/exterior alterations similar those which are currently performed on existing buildings in the normal course of maintenance and minor improvement.
☐ b) Agreement **IS NOT** exempt. (Consult with the legal office to determine next steps.)
 Check all that apply
☐ Initial Study ☐ Environmental Impact Report
☐ Negative Declaration ☐ Statement of Overriding Considerations
☐ Mitigated Negative Declaration

Legal Company Name:	Budget
DNV GL USA, Inc.	\$ 1,388,676
Frontier Energy, Inc.	\$ 6,466,344
Sonoma County Regional Climate Protection Authority	\$ 75,000
County of Sonoma, General Services Department	\$ 75,000
Design AVEnues LLC	\$ 50,000
TBD - General Contractor	\$ 99,000
TBD - Training Contractor	\$ 15,000
Planet Ecosystems	\$ 90,000
	\$

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Legal Company Name:

Funding Source	Funding Year of Appropriation	Budget List No.	Amount
EPIC	16-17	301.001D	\$9,814,596
			\$
			\$
			\$
			\$
			\$
R&D Program Area:	EERO: Buildings		\$9,814,596
Explanation for "Other" selection			
Reimbursement Contract #:		Federal Agreement #:	

Name: Rachel Kuykendall Address: 50 Santa Rosa Ave Ste 500 City, State, Zip: Santa Rosa, CA 95404-4952 Phone: 707-978-3472 / Fax: - - E-Mail: rkuykendall@sonomacleanpower.org	Name: Rachel Kuykendall Address: 50 Santa Rosa Ave Ste 500 City, State, Zip: Santa Rosa, CA 95404-4952 Phone: 707-978-3472 / Fax: - - E-Mail: rkuykendall@sonomacleanpower.org
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<input checked="" type="checkbox"/> Competitive Solicitation <input type="checkbox"/> First Come First Served Solicitation	Solicitation #: GFO-17-304
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1. Exhibit A, Scope of Work 2. Exhibit B, Budget Detail 3. CEC 105, Questionnaire for Identifying Conflicts 4. Recipient Resolution 5. CEQA Documentation	<input checked="" type="checkbox"/> Attached <input checked="" type="checkbox"/> Attached <input checked="" type="checkbox"/> Attached <input checked="" type="checkbox"/> N/A <input type="checkbox"/> Attached <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Attached
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Agreement Manager	Date	Office Manager	Date	Deputy Director	Date
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[illegible]

Exhibit A

Scope of Work

Sonoma Clean Power

I. TASK ACRONYM/TERM LISTS

A. Task List

Task #	CPR¹	Task Name
1		General Project Tasks
2	X	Pre-monitoring of Select Applied Research and Technology Demonstration Projects
3	X	Research, Instrumentation, Monitoring Plans and EM&V Framework
4	X	Applied Research Projects
5		Identification of Project Drivers
6	X	Technology Demonstration and Deployment
7		Evaluation of Project Benefits
8		Technology/Knowledge Transfer Activities

B. Acronym/Term List

Acronym/Term	Meaning
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer
COP	Coefficient of Performance
CPR	Critical Project Review
DR	Demand Response
EM&V	Evaluation, Measurement, and Verification
HERS	Home Energy Rating System
Energy Commission	California Energy Commission
PCM	Phase Change Material
RFQ	Marketplace Request for Quotes
SCP	Sonoma Clean Power
TAC	Technical Advisory Committee
TOU	Time of Use

II. PURPOSE OF AGREEMENT, PROBLEM/SOLUTION STATEMENT, AND GOALS AND OBJECTIVES

A. Purpose of Agreement

The purpose of this Agreement is to conduct a series of applied research projects and technology deployments, and create an Energy Marketplace to increase and expedite energy savings and retrofits of residential and commercial buildings in Sonoma and Mendocino counties.

¹ Please see subtask 1.3 in Part III of the Scope of Work (General Project Tasks) for a description of Critical Project Review (CPR) Meetings.

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B. Problem/ Solution Statement

Problem

Existing energy efficiency retrofit programs have had tepid results in securing cost-effective energy savings and widespread customer adoption. In order to meet California's aggressive energy and greenhouse gas reduction goals, existing programs must be deepened and accelerated to increase retrofits in existing buildings.

Solution

The Recipient will develop a series of technology-based applied research projects and speed deployment of market-ready advanced energy efficiency technologies through an "Energy Marketplace." The Marketplace will also help to increase customer awareness and participation through the training of contractors and building inspectors, connecting with existing program offerings, and featuring real-time Evaluation, Measurement, and Verification (EM&V) for products in the Marketplace.

C. Goals and Objectives of the Agreement

Agreement Goals

The goals of this Agreement are to:

- Evaluate energy and cost savings of emerging technologies;
- Accelerate the rate of adoption of market-ready and advanced technologies;
- Design a viable, replicable, and scalable deployment strategy that overcomes barriers to retrofits;
- Streamline access to financing and incentives for energy efficiency projects;
- Maximize energy efficiency retrofit participation;
- Transfer program concepts and lessons learned to a robust set of program partners
- Achieve a minimum 10% average (residential) and 20% average (commercial) reduction in on-site electricity consumption

Ratepayer Benefits:² This Agreement will result in ratepayer benefits of greater electricity reliability, lower costs, and increased safety by a number of innovative mechanisms. Greater electricity reliability will be established through electricity savings, tailoring program measures to those that will best reduce peak kilowatt demand in Sonoma Clean Power (SCP) service territory. Additionally, many of the strategies investigated in the applied research phase have the ability to integrate into the existing Demand Response (DR) platform for additional grid reliability gains. Lower costs will be achieved through a dual approach of directly reducing customer utility bills through advanced energy efficiency measures and decreasing contractor installation prices by providing training and direct customer access. Lastly, increased safety will be provided through contractor and inspector trainings to ensure proper measure installation and verification, limiting

² California Public Resources Code, Section 25711.5(a) requires projects funded by the Electric Program Investment Charge (EPIC) to result in ratepayer benefits. The California Public Utilities Commission, which established the EPIC in 2011, defines ratepayer benefits as greater reliability, lower costs, and increased safety (See CPUC "Phase 2" Decision 12-05-037 at page 19, May 24, 2012, http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/167664.PDF).

Exhibit A Scope of Work Sonoma Clean Power

issues such as refrigerant leaks, improper installation, and combustion safety issues. Safety benefits will be in turn promoted to real estate professionals to further enhance the valuation of efficient properties.

Technological Advancement and Breakthroughs:³ This Agreement will lead to technological advancement and breakthroughs to overcome barriers with achieving California's statutory energy goals by tackling both program design and technology barriers. For program barriers, the team seeks to streamline program models and expand the pool of eligible participating customers. The research and deployment strategies outlined will have the potential to bring additional advanced cost-effective measures into existing energy efficiency markets.

Agreement Objectives

The objectives of this Agreement are to:

- Perform applied research experiments and quantify the cost-benefits of emerging or advanced technologies, including: grid integrated heat pump water heaters; radiant ceiling heating and cooling; air to water heat pumps; commercial daylighting retrofits; and residential attic Phase Change Material(s) (PCM);
- Identify the most promising technologies;
- Create an Energy Marketplace to promote the most promising technologies from the applied research phase and other existing technologies as solicited through the RFQ process, and provide training for building professionals;
- Provide rich data sets from applied research, technology demonstrations, and analysis of customer electricity use and customer green button data.

³ California Public Resources Code, Section 25711.5(a) also requires EPIC-funded projects to lead to technological advancement and breakthroughs to overcome barriers that prevent the achievement of the state's statutory and energy goals.

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III. TASK 1 GENERAL PROJECT TASKS

PRODUCTS

Subtask 1.1 Products

The goal of this subtask is to establish the requirements for submitting project products (e.g., reports, summaries, plans, and presentation materials). Unless otherwise specified by the Commission Agreement Manager (CAM), the Recipient must deliver products as required below by the dates listed in the **Project Schedule (Part V)**. Products that require a draft version are indicated by marking “**(draft and final)**” after the product name in the “Products” section of the task/subtask. If “(draft and final)” does not appear after the product name, only a final version of the product is required. With respect to due dates within this Scope of Work, “**days**” means working days.

The Recipient shall:

For products that require a draft version, including the Final Report Outline and Final Report

- Submit all draft products to the CAM for review and comment in accordance with the Project Schedule (Part V). The CAM will provide written comments to the Recipient on the draft product within 15 days of receipt, unless otherwise specified in the task/subtask for which the product is required.
- Consider incorporating all CAM comments into the final product. If the Recipient disagrees with any comment, provide a written response explaining why the comment was not incorporated into the final product.
- Submit the revised product and responses to comments within 10 days of notice by the CAM, unless the CAM specifies a longer time period, or approves a request for additional time.

For products that require a final version only

- Submit the product to the CAM for acceptance. The CAM may request minor revisions or explanations prior to acceptance.

For all products

- Submit all data and documents required as products in accordance with the following:

Instructions for Submitting Electronic Files and Developing Software:

- **Electronic File Format**

- Submit all data and documents required as products under this Agreement in an electronic file format that is fully editable and compatible with the California Energy Commission’s software and Microsoft (MS)-operating computing platforms, or with any other format approved by the CAM. Deliver an electronic copy of the full text of any Agreement data and documents in a format specified by the CAM, such as memory stick or CD-ROM.

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The following describes the accepted formats for electronic data and documents provided to the Energy Commission as products under this Agreement, and establishes the software versions that will be required to review and approve all software products:

- Data sets will be in MS Access or MS Excel file format (version 2007 or later), or any other format approved by the CAM.
- Text documents will be in MS Word file format, version 2007 or later.
- Documents intended for public distribution will be in PDF file format.
- The Recipient must also provide the native Microsoft file format.
- Project management documents will be in Microsoft Project file format, version 2007 or later.

○ **Software Application Development**

Use the following standard Application Architecture components in compatible versions for any software application development required by this Agreement (e.g., databases, models, modeling tools), unless the CAM approves other software applications such as open source programs:

- Microsoft ASP.NET framework (version 3.5 and up). Recommend 4.0.
- Microsoft Internet Information Services (IIS), (version 6 and up)
- Recommend 7.5.
- Visual Studio.NET (version 2008 and up). Recommend 2010.
- C# Programming Language with Presentation (UI), Business Object and Data Layers.
- SQL (Structured Query Language).
- Microsoft SQL Server 2008, Stored Procedures. Recommend 2008
- R2.
- Microsoft SQL Reporting Services. Recommend 2008 R2.
- XML (external interfaces).

Any exceptions to the Electronic File Format requirements above must be approved in writing by the CAM. The CAM will consult with the Energy Commission's Information Technology Services Branch to determine whether the exceptions are allowable.

MEETINGS

Subtask 1.2 Kick-off Meeting

The goal of this subtask is to establish the lines of communication and procedures for implementing this Agreement.

The Recipient shall:

- Attend a "Kick-off" meeting with the CAM, the Commission Agreement Officer (CAO), and any other Energy Commission staff relevant to the Agreement. The Recipient will bring its Project Manager and any other individuals designated by the CAM to this meeting. The administrative and technical aspects of the Agreement will be discussed at the meeting. Prior to the meeting, the CAM will provide an agenda to all potential meeting participants. The meeting may take place in person or by electronic conferencing (e.g., WebEx), with approval of the CAM.

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The administrative portion of the meeting will include discussion of the following:

- Terms and conditions of the Agreement;
- Administrative products (subtask 1.1);
- Critical Project Review meetings (subtask 1.3);
- Match fund documentation (subtask 1.7);
- Permit documentation (subtask 1.8);
- Subcontracts (subtask 1.9); and
- Any other relevant topics.

The technical portion of the meeting will include discussion of the following:

- The CAM's expectations for accomplishing tasks described in the Scope of Work;
 - An updated Project Schedule;
 - Technical products (subtask 1.1);
 - Progress reports and invoices (subtask 1.5);
 - Final Report (subtask 1.6);
 - Technical Advisory Committee meetings (subtasks 1.10 and 1.11); and
 - Any other relevant topics.
- Provide an *Updated Project Schedule*, *List of Match Funds*, and *List of Permits*, as needed to reflect any changes in the documents.

The CAM shall:

- Designate the date and location of the meeting.
- Send the Recipient a *Kick-off Meeting Agenda*.

Recipient Products:

- Updated Project Schedule *(if applicable)*
- Updated List of Match Funds *(if applicable)*
- Updated List of Permits *(if applicable)*

CAM Product:

- Kick-off Meeting Agenda

Subtask 1.3 Critical Project Review Meetings

The goal of this subtask is to determine if the project should continue to receive Energy Commission funding, and if so whether any modifications must be made to the tasks, products, schedule, or budget. Critical Project Review (CPR) meetings provide the opportunity for frank discussions between the Energy Commission and the Recipient. As determined by the CAM, discussions may include project status, challenges, successes, advisory group findings and recommendations, final report preparation, and progress on technical transfer and production readiness activities (if applicable). Participants will include the CAM and the Recipient, and may include the CAO and any other individuals selected by the CAM to provide support to the Energy Commission.

CPR meetings generally take place at key, predetermined points in the Agreement, as determined by the CAM and as shown in the Task List on page 1 of this Exhibit. However, the CAM may schedule additional CPR meetings as necessary. The budget will be reallocated to cover the additional costs borne by the Recipient, but the overall Agreement amount will not increase. CPR

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meetings generally take place at the Energy Commission, but they may take place at another location, or may be conducted via electronic conferencing (e.g., WebEx) as determined by the CAM.

The Recipient shall:

- Prepare a *CPR Report* for each CPR meeting that: (1) discusses the progress of the Agreement toward achieving its goals and objectives; and (2) includes recommendations and conclusions regarding continued work on the project.
- Submit the CPR Report along with any other *Task Products* that correspond to the technical task for which the CPR meeting is required (i.e., if a CPR meeting is required for Task 2, submit the Task 2 products along with the CPR Report).
- Attend the CPR meeting.
- Present the CPR Report and any other required information at each CPR meeting.

The CAM shall:

- Determine the location, date, and time of each CPR meeting with the Recipient's input.
- Send the Recipient a *CPR Agenda* and a *List of Expected CPR Participants* in advance of the CPR meeting. If applicable, the agenda will include a discussion of match funding and permits.
- Conduct and make a record of each CPR meeting. Provide the Recipient with a *Schedule for Providing a Progress Determination* on continuation of the project.
- Determine whether to continue the project, and if so whether modifications are needed to the tasks, schedule, products, or budget for the remainder of the Agreement. If the CAM concludes that satisfactory progress is not being made, this conclusion will be referred to the Deputy Director of the Energy Research and Development Division.
- Provide the Recipient with a *Progress Determination* on continuation of the project, in accordance with the schedule. The Progress Determination may include a requirement that the Recipient revise one or more products.

Recipient Products:

- CPR Report(s)
- Task Products (draft and/or final as specified in the task)

CAM Products:

- CPR Agenda
- List of Expected CPR Participants
- Schedule for Providing a Progress Determination
- Progress Determination

Subtask 1.4 Final Meeting

The goal of this subtask is to complete the closeout of this Agreement.

The Recipient shall:

- Meet with Energy Commission staff to present project findings, conclusions, and recommendations. The final meeting must be completed during the closeout of this Agreement. This meeting will be attended by the Recipient and CAM, at a minimum. The meeting may occur in person or by electronic conferencing (e.g., WebEx), with approval of the CAM.

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The technical and administrative aspects of Agreement closeout will be discussed at the meeting, which may be divided into two separate meetings at the CAM's discretion.

- The technical portion of the meeting will involve the presentation of findings, conclusions, and recommended next steps (if any) for the Agreement. The CAM will determine the appropriate meeting participants.
- The administrative portion of the meeting will involve a discussion with the CAM and the CAO of the following Agreement closeout items:
 - Disposition of any state-owned equipment.
 - Need to file a Uniform Commercial Code Financing Statement (Form UCC-1) regarding the Energy Commission's interest in patented technology.
 - The Energy Commission's request for specific "generated" data (not already provided in Agreement products).
 - Need to document the Recipient's disclosure of "subject inventions" developed under the Agreement.
 - "Surviving" Agreement provisions such as repayment provisions and confidential products.
 - Final invoicing and release of retention.
- Prepare a *Final Meeting Agreement Summary* that documents any agreement made between the Recipient and Energy Commission staff during the meeting.
- Prepare a *Schedule for Completing Agreement Closeout Activities*.
- Provide *All Draft and Final Written Products* on a CD-ROM or USB memory stick, organized by the tasks in the Agreement.

Products:

- Final Meeting Agreement Summary (*if applicable*)
- Schedule for Completing Agreement Closeout Activities
- All Draft and Final Written Products

REPORTS AND INVOICES

Subtask 1.5 Progress Reports and Invoices

The goals of this subtask are to: (1) periodically verify that satisfactory and continued progress is made towards achieving the project objectives of this Agreement; and (2) ensure that invoices contain all required information and are submitted in the appropriate format.

The Recipient shall:

- Submit a monthly *Progress Report* to the CAM. Each progress report must:
 - Summarize progress made on all Agreement activities as specified in the Scope of Work for the preceding month, including accomplishments, problems, milestones, products, schedule, fiscal status, and an assessment of the ability to complete the Agreement within the current budget and any anticipated cost overruns. See the Progress Report Format Attachment for the recommended specifications.
 - Include, if new project sites have been identified during the month, an updated *Attachment 8: California Environmental Quality Act (CEQA) Compliance Form*
- Submit a monthly or quarterly *Invoice* that follows the instructions in the "Payment of Funds" section of the terms and conditions, including a financial report on Match Fund and in-state expenditures.

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Products:

- Progress Reports
- Invoices

Subtask 1.6 Final Report

The goal of this subtask is to prepare a comprehensive Final Report that describes the original purpose, approach, results, and conclusions of the work performed under this Agreement. The CAM will review the Final Report, which will be due at least **two months** before the Agreement end date. When creating the Final Report Outline and the Final Report, the Recipient must use the Style Manual provided by the CAM.

Subtask 1.6.1 Final Report Outline

The Recipient shall:

- Prepare a *Final Report Outline* in accordance with the *Style Manual* provided by the CAM. (See Task 1.1 for requirements for draft and final products.)

Recipient Products:

- Final Report Outline (draft and final)

CAM Product:

- Style Manual
- Comments on Draft Final Report Outline
- Acceptance of Final Report Outline

Subtask 1.6.2 Final Report

The Recipient shall:

- Prepare a *Final Report* for this Agreement in accordance with the approved Final Report Outline, Style Manual, and Final Report Template provided by the CAM with the following considerations:
 - Ensure that the report includes the following items, in the following order:
 - Cover page (**required**)
 - Credits page on the reverse side of cover with legal disclaimer (**required**)
 - Acknowledgements page (optional)
 - Preface (**required**)
 - Abstract, keywords, and citation page (**required**)
 - Table of Contents (**required**, followed by List of Figures and List of Tables, if needed)
 - Executive summary (**required**)
 - Body of the report (**required**)
 - References (if applicable)
 - Glossary/Acronyms (If more than 10 acronyms or abbreviations are used, it is required.)
 - Bibliography (if applicable)
 - Appendices (if applicable) (Create a separate volume if very large.)
 - Attachments (if applicable)
 - Ensure that the document is written in the third person.

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- Ensure that the Executive Summary is understandable to the lay public.
 - Briefly summarize the completed work. Succinctly describe the project results and whether or not the project goals were accomplished.
 - Identify which specific ratepayers can benefit from the project results and how they can achieve the benefits.
 - If it's necessary to use a technical term in the Executive Summary, provide a brief definition or explanation when the technical term is first used.
- Follow the Style Guide format requirements for headings, figures/tables, citations, and acronyms/abbreviations.
- Ensure that the document omits subjective comments and opinions. However, recommendations in the conclusion of the report are allowed.
- Include a brief description of the project results in the Abstract.
- Submit a draft of the report to the CAM for review and comment. The CAM will provide written comments to the Recipient on the draft product within 15 days of receipt
- Consider incorporating all CAM comments into the Final Report. If the Recipient disagrees with any comment, provide a written response explaining why the comment was not incorporated into the final product
- Submit the revised Final Report and responses to comments within 10 days of notice by the CAM, unless the CAM specifies a longer time period or approves a request for additional time.
- Submit one bound copy of the *Final Report* to the CAM along with *Written Responses to Comments on the Draft Final Report*.

Products:

- Final Report (draft and final)
- Written Responses to Comments on the Draft Final Report

CAM Product:

- Written Comments on the Draft Final Report

MATCH FUNDS, PERMITS, AND SUBCONTRACTS

Subtask 1.7 Match Funds

The goal of this subtask is to ensure that the Recipient obtains any match funds planned for this Agreement and applies them to the Agreement during the Agreement term.

While the costs to obtain and document match funds are not reimbursable under this Agreement, the Recipient may spend match funds for this task. The Recipient may only spend match funds during the Agreement term, either concurrently or prior to the use of Energy Commission funds. Match funds must be identified in writing, and the Recipient must obtain any associated commitments before incurring any costs for which the Recipient will request reimbursement.

The Recipient shall:

- Prepare a *Match Funds Status Letter* that documents the match funds committed to this Agreement. If no match funds were part of the proposal that led to the Energy Commission awarding this Agreement and none have been identified at the time this Agreement starts, then state this in the letter.
If match funds were a part of the proposal that led to the Energy Commission awarding

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this Agreement, then provide in the letter:

- A list of the match funds that identifies:
 - The amount of cash match funds, their source(s) (including a contact name, address, and telephone number), and the task(s) to which the match funds will be applied.
 - The amount of each in-kind contribution, a description of the contribution type (e.g., property, services), the documented market or book value, the source (including a contact name, address, and telephone number), and the task(s) to which the match funds will be applied. If the in-kind contribution is equipment or other tangible or real property, the Recipient must identify its owner and provide a contact name, address, telephone number, and the address where the property is located.
 - If different from the solicitation application, provide a letter of commitment from an authorized representative of each source of match funding that the funds or contributions have been secured.
- At the Kick-off meeting, discuss match funds and the impact on the project if they are significantly reduced or not obtained as committed. If applicable, match funds will be included as a line item in the progress reports and will be a topic at CPR meetings.
- Provide a *Supplemental Match Funds Notification Letter* to the CAM of receipt of additional match funds.
- Provide a *Match Funds Reduction Notification Letter* to the CAM if existing match funds are reduced during the course of the Agreement. Reduction of match funds may trigger a CPR meeting.

Products:

- Match Funds Status Letter
- Supplemental Match Funds Notification Letter (*if applicable*)
- Match Funds Reduction Notification Letter (*if applicable*)

Subtask 1.8 Permits

The goal of this subtask is to obtain all permits required for work completed under this Agreement in advance of the date they are needed to keep the Agreement schedule on track. Permit costs and the expenses associated with obtaining permits are not reimbursable under this Agreement, with the exception of costs incurred by University of California recipients. Permits must be identified and obtained before the Recipient may incur any costs related to the use of the permit(s) for which the Recipient will request reimbursement.

The Recipient shall:

- Prepare a *Permit Status Letter* that documents the permits required to conduct this Agreement. If no permits are required at the start of this Agreement, then state this in the letter. If permits will be required during the course of the Agreement, provide in the letter:
 - A list of the permits that identifies: (1) the type of permit; and (2) the name, address, and telephone number of the permitting jurisdictions or lead agencies.
 - The schedule the Recipient will follow in applying for and obtaining the permits.

The list of permits and the schedule for obtaining them will be discussed at the Kick-off meeting (subtask 1.2), and a timetable for submitting the updated list, schedule, and copies of the permits will be developed. The impact on the project if the permits are not

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obtained in a timely fashion or are denied will also be discussed. If applicable, permits will be included as a line item in progress reports and will be a topic at CPR meetings.

- If during the course of the Agreement additional permits become necessary, then provide the CAM with an *Updated List of Permits* (including the appropriate information on each permit) and an *Updated Schedule for Acquiring Permits*.
- Send the CAM a *Copy of Each Approved Permit*.
- If during the course of the Agreement permits are not obtained on time or are denied, notify the CAM within 5 days. Either of these events may trigger a CPR meeting.

Products:

- Permit Status Letter
- Updated List of Permits (*if applicable*)
- Updated Schedule for Acquiring Permits (*if applicable*)
- Copy of Each Approved Permit (*if applicable*)

Subtask 1.9 Subcontracts

The goals of this subtask are to: (1) procure subcontracts required to carry out the tasks under this Agreement; and (2) ensure that the subcontracts are consistent with the terms and conditions of this Agreement.

The Recipient shall:

- Manage and coordinate subcontractor activities in accordance with the requirements of this Agreement.
- Incorporate this Agreement by reference into each subcontract.
- Include any required Energy Commission flow-down provisions in each subcontract, in addition to a statement that the terms of this Agreement will prevail if they conflict with the subcontract terms.
- If required by the CAM, submit a draft of each *Subcontract* required to conduct the work under this Agreement.
- Submit a final copy of the executed subcontract.
- Notify and receive written approval from the CAM prior to adding any new subcontractors (see the discussion of subcontractor additions in the terms and conditions).

Products:

- Subcontracts (*draft if required by the CAM*)

TECHNICAL ADVISORY COMMITTEE

Subtask 1.10 Technical Advisory Committee

The goal of this subtask is to create an advisory committee for this Agreement. The Technical Advisory Committee (TAC) should be composed of diverse professionals. The composition will vary depending on interest, availability, and need. TAC members will serve at the CAM's discretion. The purpose of the TAC is to:

- Provide guidance in project direction. The guidance may include scope and methodologies, timing, and coordination with other projects. The guidance may be based on:
 - Technical area expertise;
 - Knowledge of market applications; or

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- Linkages between the agreement work and other past, present, or future projects (both public and private sectors) that TAC members are aware of in a particular area.
- Review products and provide recommendations for needed product adjustments, refinements, or enhancements.
- Evaluate the tangible benefits of the project to the state of California, and provide recommendations as needed to enhance the benefits.
- Provide recommendations regarding information dissemination, market pathways, or commercialization strategies relevant to the project products.

The TAC may be composed of qualified professionals spanning the following types of disciplines:

- Researchers knowledgeable about the project subject matter;
- Members of trades that will apply the results of the project (e.g., designers, engineers, architects, contractors, and trade representatives);
- Public interest market transformation implementers;
- Product developers relevant to the project;
- U.S. Department of Energy research managers, or experts from other federal or state agencies relevant to the project;
- Public interest environmental groups;
- Utility representatives;
- Air district staff; and
- Members of relevant technical society committees.

The Recipient shall:

- Prepare a *List of Potential TAC Members* that includes the names, companies, physical and electronic addresses, and phone numbers of potential members. The list will be discussed at the Kick-off meeting, and a schedule for recruiting members and holding the first TAC meeting will be developed.
- Recruit TAC members. Ensure that each individual understands member obligations and the TAC meeting schedule developed in subtask 1.11.
- Prepare a *List of TAC Members* once all TAC members have committed to serving on the TAC.
- Submit *Documentation of TAC Member Commitment* (such as Letters of Acceptance) from each TAC member.

Products:

- List of Potential TAC Members
- List of TAC Members
- Documentation of TAC Member Commitment

Subtask 1.11 TAC Meetings

The goal of this subtask is for the TAC to provide strategic guidance for the project by participating in regular meetings, which may be held via teleconference.

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The Recipient shall:

- Discuss the TAC meeting schedule with the CAM at the Kick-off meeting. Determine the number and location of meetings (in-person and via teleconference) in consultation with the CAM.
- Prepare a *TAC Meeting Schedule* that will be presented to the TAC members during recruiting. Revise the schedule after the first TAC meeting to incorporate meeting comments.
- Prepare a *TAC Meeting Agenda* and *TAC Meeting Back-up Materials* for each TAC meeting.
- Organize and lead TAC meetings in accordance with the TAC Meeting Schedule. Changes to the schedule must be pre-approved in writing by the CAM.
- Prepare *TAC Meeting Summaries* that include any recommended resolutions for major issues relating to TAC.

Products:

- TAC Meeting Schedule (draft and final)
- TAC Meeting Agendas (draft and final)
- TAC Meeting Back-up Materials
- TAC Meeting Summaries

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IV. TECHNICAL TASKS

TASK 2 PRE-MONITORING OF SELECT APPLIED RESEARCH AND TECHNOLOGY DEMONSTRATION PROJECTS

The goals of this task are to begin customer engagement and pre-monitoring activities for the applied research and technology demonstration projects in tandem with development of the research, instrumentation, monitoring plan and EM&V framework (Subtask 3.1 and Subtask 3.2). This task will focus on the following applied research projects, with the longest timelines: radiant ceiling heating and cooling/air to water heat pumps, high-efficiency mini-split heat pumps, and commercial daylighting retrofits.

The Recipient shall:

- Perform an analysis of customer data and utilize the results of that analysis to engage customers through direct outreach.
- Prepare a *Report of Pre-monitoring Activities* that includes results of the customer data analysis and direct outreach and describes initial project progress. The report shall be incorporated into the associated Research, Instrumentation, Monitoring plan and EM&V framework (Subtasks 3.1 and 3.2).
- Prepare *CPR Report #1* in accordance with subtask 1.3
- Participate in a CPR meeting

Products:

- Report of Pre-Monitoring Activities
- CPR Report #1

TASK 3 RESEARCH, INSTRUMENTATION, MONITORING PLANS AND EM&V FRAMEWORKS

SUBTASK 3.1 PHASE 1 RESEARCH, INSTRUMENTATION, MONITORING PLANS AND EM&V FRAMEWORK

The goals of this task are to develop the research, instrumentation, monitoring plan and EM&V framework for pre-commercial technologies, such as: radiant ceiling heating and cooling/air to water heat pumps, and commercial daylighting retrofits. The EM&V plans shall determine metrics of success for each technology and include an evaluation of the technology's potential for inclusion in the Energy Marketplace and/or state-wide energy efficiency programs.

The Recipient shall:

- Prepare a *Research, Instrumentation, and Monitoring Plan* that includes, but is not limited to, the following:
 - Determination of metrics of success for each pre-commercial technology, including both technical and economic criteria and appropriate building type applications;
 - Evaluation of the technology's potential for inclusion in the Energy Marketplace and/or state-wide energy efficiency programs.

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- Research questions, data collection points, project implementation goals, and a detailed timeline for each technology in this phase.
- Prepare an *EM&V Framework* that includes, but is not limited to, the following:
 - a detailed summary on independent project monitoring and verification, using Investor Owned Utility accepted protocols;
 - a detailed timeline of the evaluation period pre- and post-installation;
 - a description of data assumptions and inputs to be used for building simulation models;
 - a description of data extrapolation strategies;
 - and description of on-going monitoring and verification to evaluate persistence and sustainability of savings, post-EPIC funding.

Products:

- Phase 1 Research, Instrumentation, and Monitoring Plan (draft and final)
- Phase 1 EM&V Framework (draft and final)

SUBTASK 3.2 PHASE 2 RESEARCH, INSTRUMENTATION, MONITORING PLAN AND EM&V FRAMEWORK

The goals of this task are to develop the research, instrumentation, monitoring plan and EM&V framework for pre-commercial technologies, such as: efficiency optimizing control strategies for grid-integrated heat pump water heaters and PCMs in residential applications. The EM&V plans shall determine metrics of success for each technology and include an evaluation of the technology's potential for inclusion in the Energy Marketplace and/or state-wide energy efficiency programs.

The Recipient shall:

- Prepare a *Research, Instrumentation, and Monitoring Plan* that includes, but is not limited to:
 - Research questions, data collection points, project implementation goals, and a detailed timeline for each technology in this phase.
 - Determination of metrics of success for each pre-commercial technology, including both technical and economic criteria and appropriate building type applications;
 - Evaluation of the technology's potential for inclusion in the Energy Marketplace and/or state-wide energy efficiency programs.
- Prepare an *EM&V Framework* that includes, but is not limited to, the following: a detailed summary for project independent monitoring and verification using Investor Owned Utility accepted protocols, a detailed timeline of the evaluation period pre- and post-installation, a description of data assumptions and inputs to be used for building simulation models, a description of data extrapolation strategies, and description of on-going monitoring and verification to evaluate persistence and sustainability of savings, post-EPIC funding.

Products:

- Phase 2 Research, Instrumentation, Monitoring Plan (draft and final)
- Phase 2 EM&V Framework (draft and final)

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TASK 4 APPLIED RESEARCH PROJECTS

SUBTASK 4.1 DEVELOP EFFICIENCY OPTIMIZING CONTROL STRATEGIES FOR GRID INTEGRATED HEAT PUMP WATER HEATER

The goal of this task is to develop and demonstrate the energy savings and load shifting potential for grid integrated heat pump water heaters controlled via outdoor air temperature, and to develop a final report detailing the findings. This research will inform how heat pump water heaters dispatched through the Energy Marketplace will be controlled.

The Recipient shall:

- Test the Coefficient of Performance (COP) of grid integrated heat pump water heaters at a variety of outdoor air temperatures.
- Use draw profiles and weather data from Title 24 compliance software to adapt the results of the laboratory tests to a typical single family or multifamily property in Energy Commission Climate Zone 2.
- Prepare an *Efficiency Optimizing Control Strategies for Grid Integrated Heat Pump Water Heater Report*. The report shall identify the outcomes of the research and data collection performed as a part of the project. The report shall contain, at a minimum, descriptions of the tested control strategies, tabulated savings estimates from annual simulations using the different control strategies, laboratory results showing measured savings over selected days and/or weeks, and a discussion of the model validation process. This data shall be extrapolated to Energy Commission Climate Zone 2 (SCP service territory), as well as a representative cold and hot Energy Commission climate zones to be determined by the project team. The report shall also include a comparative finding of the previous load shifting experiment to determine the best means of scheduling the heat pump water heater fleet during the technology deployment phase of this project.

Products:

- Efficiency Optimizing Control Strategies for Grid Integrated Heat Pump Water Heater Report (draft and final)

SUBTASK 4.2 RADIANT CEILING HEATING AND COOLING/AIR TO WATER HEAT PUMP APPLIED RESEARCH

The goals of this task are to determine the effectiveness of radiant ceiling heating and cooling systems compared to more traditional heating and cooling systems used in California and to evaluate the potential of these systems in more traditional rebate programs and/or deployment in the Energy Marketplace.

The Recipient shall:

- Recruit and enlist at least five houses in SCP service territory that meet the criteria defined in the research, instrumentation, and monitoring plan (Subtask 3.1) using the Energy Marketplace, direct mailing, homeowner associations, customer data analysis, or another marketing approach.
- Meet with the test house homeowners in a group setting to explain the technology, test plan, and responsibilities for all parties.
- Perform energy audits on all five homes to identify simple measures that can be performed to reduce space conditioning loads.
- Implement building envelope retrofits identified through the energy audits.

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- Install pre-retrofit instrumentation package and initiate real-time monitoring.
- Design the radiant ceiling heating and cooling equipment packages for each house, including system sizing, layout, and controls.
- Procure the equipment and material necessary for the retrofits.
- Retrofit each house with a radiant ceiling heating and cooling system and air-to-water heat pump.
- Perform post-retrofit commissioning of new equipment.
- Install additional instrumentation necessary for the post-retrofit period as defined in the Research, Instrumentation, and Monitoring Plan and EM&V Framework developed in Task 3.
- Monitor performance of the radiant ceiling heating and cooling systems and make adjustments as necessary to ensure proper operation.
- Respond to concerns expressed by homeowners throughout the test period.
- Develop a *Program Participant Satisfaction Questionnaire for Homeowners* to document the homeowner's satisfaction with the equipment, along with any detailed issues (such as noise or comfort) that may not have been captured by the instrumentation package.
- Ask homeowners to complete the questionnaire and process the results.
- Remove instrumentation from all five houses at the end of the test period.
- Prepare a *Radiant Ceiling Heating and Cooling/Air to Water Heat Pumps Report*. The report shall identify the outcomes of the research and data collection performed as part of the project. The report shall contain, at a minimum, a report of retrofit costs, an analysis of pre- and post-retrofit energy and cost savings over the 12-month testing period, an extrapolation of the data for the 5 installation sites to be representative of California's diverse climate zones, and results of the occupant surveys, thermostat setting data, circuit level monitoring, occupancy sensors, and window operation data.

Products:

- Program Participant Satisfaction Questionnaire for Homeowners
- Radiant Ceiling Heating and Cooling/Air to Water Heat Pumps Report (draft and final)

SUBTASK 4.3 RADIANT CEILING HEATING AND COOLING/AIR TO WATER HEAT PUMP SIZING AND INSTALLATION GUIDE

The goal of this task is to develop a report, aimed at contractors and mechanical engineers, on best practices for equipment sizing and installation of radiant ceiling heating and cooling/air to water heat pumps, should the results of Subtask 4.2 indicate that current radiant ceiling heating and cooling/air to water heat pump technology is feasible and cost-effective for customers. .

The Recipient shall:

- Prepare a *Radiant Ceiling Heating and Cooling/Air to Water Heat Pumps Sizing and Installation Guide*. Based on the results of Subtask 4.2, the Guide shall specify best practices for sizing radiant systems in existing buildings, installation best practices for contractors, and inspection best practices for home energy rating system (HERS) raters and building officials.
- If the results of Subtask 4.2 do not show feasibility and cost-effectiveness, this subtask shall not be performed and the resources allocated in the budget shall be reallocated to Subtask 6.4 upon written approval by CAM.

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Products:

- Radiant Ceiling Heating and Cooling/Air to Water Heat Pumps Sizing and Installation Guide (draft and final)

SUBTASK 4.4 COMMERCIAL DAYLIGHTING RETROFITS APPLIED RESEARCH

The goal of this task is to verify the energy savings for a variety of innovative daylight enhancement and harvesting technologies, evaluate the potential of these pre-commercial technologies for wider deployment in existing programs and/or the Energy Marketplace, and develop a final report detailing the findings.

The Recipient shall:

- Collaborate with the subcontractor to develop and perform laboratory testing for the several daylight harvesting and control technologies.
- Collaborate with the SCP customer service team to identify candidate buildings based on electricity usage data.
- Install the most promising advanced technologies for daylight enhancement and harvesting in 3 non-residential buildings within SCP service territory.
- Monitor performance of the field installations and make adjustments as necessary to ensure proper operation.
- Respond to concerns expressed by building occupants and maintenance staff throughout the test period.
- Develop *Program Participant Satisfaction Questionnaire for Building Occupants and Maintenance Staff* to document their overall satisfaction with the equipment, along with any detailed issues that may not have been captured by the instrumentation package.
- Perform in-person interviews with building occupants and maintenance staff.
- Prepare a *Commercial Daylighting Retrofits Report*. The report shall identify the outcomes of the research and data collection performed and include, at a minimum, a report of retrofit costs, light levels in the spaces, results of occupant surveys, and an analysis of pre- and post-retrofit energy use and costs over the 12-month testing periods.

Products:

- Program Participant Satisfaction Questionnaire for Building Occupants and Maintenance Staff
- Commercial Daylighting Retrofits Report (draft and final)

SUBTASK 4.5 PHASE CHANGE MATERIALS IN RESIDENTIAL APPLICATIONS APPLIED RESEARCH

The goals of this task are to test the viability of PCMs as an energy savings measure in single family building retrofits, quantify the savings potential of PCMs in relation to more traditional materials, and evaluate the potential of PCMs in more traditional rebate programs and/or the Energy Marketplace.

The Recipient shall:

- Recruit and enlist at least five test houses in SCP service territory that meet the criteria defined in the research, instrumentation, and monitoring plan (Subtask 3.2) using the Energy Marketplace, direct mailing, homeowner associations, customer data analysis, or another marketing approach.

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- Meet with the homeowners in a group setting to explain the technology, test plan, and responsibilities for all parties.
- Work with a design subcontractor and the installing contractor(s) to develop drawings and specifications.
- Procure the equipment and material necessary for the retrofits.
- Retrofit each attic with PCMs.
- Perform post-installation verification of the attics.
- Install additional instrumentation necessary for the post-retrofit period as defined in Task 3.2.
- Monitor performance of the PCMs and make adjustments as necessary to ensure proper operation.
- Respond to concerns expressed by homeowners throughout the test period.
- Ask homeowners to complete the *Program Participant Satisfaction Questionnaire for Homeowners* (Subtask 4.2) and process the results.
- Use building energy optimization software to extrapolate the results to other Energy Commission climate zones.
- Prepare a *Phase Change Materials in Residential Applications Report*. The report shall identify the outcomes of the research and data collection performed as a part of the project. The report shall contain, at a minimum, a report of retrofit costs, analysis of pre- and post-retrofit energy savings over the 12-month testing period, extrapolation of the data for the installation sites to be representative of California's diverse climate zones, and results of the occupant and contractor surveys.

Products:

- Phase Change Materials in Residential Applications Report (draft and final)

SUBTASK 4.6 PCMs IN RESIDENTIAL APPLICATIONS BEST PRACTICE INSTALLATION GUIDE

The goal of this task is to develop a report, aimed at contractors, HERS raters, and building officials on best practices for installing and inspecting residential PCM projects, should the results of Subtask 4.5 indicate that current PCM technology is feasible and cost-effective for customers. The best practice installation guide may be used by program administrators considering PCMs as a potential energy efficiency measure for their program.

If the results of Subtask 4.5 show feasibility and cost-effectiveness,

The Recipient shall:

- If the results of Subtask 4.5 show feasibility and cost-effectiveness, prepare a *Phase Change Materials in Residential Applications Best Practice Installation Guide*. Based on the results of Subtask 4.5, the Guide shall specify best practices for installing PCMs in attics of existing residential buildings, installation best practices for contractors, and inspection best practices for HERS raters and building officials.
- If the results of Subtask 4.5 do not show feasibility and cost-effectiveness, this subtask shall not be performed and the resources allocated in the budget shall be reallocated to Subtask 6.4 upon written approval by the CAM.

Products:

- Phase Change Materials in Residential Applications Best Practice Installation Guide (draft and final)

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TASK 5 IDENTIFICATION OF PROJECT DRIVERS

The goal of this task is to identify key market barriers to large-scale retrofits and optimal strategies to overcome these barriers. This will integrate findings from the Applied Research activities and from existing energy efficiency program administrators to develop a customer targeting strategy, align with available incentives, and establish a marketing plan to accelerate the adoption of technologies under the Technology Demonstration and Deployment task

The Recipient shall:

- Prepare a *Technology Demonstration Program Implementation Plan* that:
 - Addresses specific technologies targeted for Applied Research and Technology Demonstration, such as: mini-split heat pumps with integrated ventilation, grid-integrated heat pump water heaters, induction cooking, aerosol envelope sealing, waste heat recovery, PCMs in residential and commercial applications, economizer/ventilation cooling retrofits.
 - Incorporates other advanced energy efficiency and distributed energy technologies as solicited through the Marketplace Request for Quotes (RFQ).
 - Documents existing energy efficiency programs offered to local customers and outlines a plan, based on interviews with energy efficiency program administrators, on how best to deploy those existing programs and/or technologies in the Marketplace.
 - Maps how technologies will be supported with available incentives, including a combination of midstream rebates and on-bill repayment, with the understanding that the program should be structured for continuation by other program implementers.
 - Maps how technologies will be supported for various customer classes such as: low-income CARE/FERA customers, solar customers, electric vehicle owners, TOU customers, and propane users.
 - Working with the affected jurisdictions, PG&E and Cal Fire, identify the extent of damage to yellow-tagged homes and businesses affected by the October 2017 wildfires. Based on this, the *Plan* shall identify outreach strategies, unique funding opportunities, educational sessions and/or potential energy efficiency measures specific to these customers. Where feasible, these strategies shall align with the proposed incentives for new construction homes within the wildfire footprint.
 - Identifies technologies to be offered in the marketplace, research plans and data collection points (as applicable), targeted markets, program eligibility requirements, and a map of existing programs that can be leveraged.
 - Outlines business models for building professional/contractor services and customer and market demands and maps these models to Applied Research and existing technologies and available incentives.
 - Documents the DR approach for scheduling the heat pump water heaters based on the applied research phase of the project.
 - Establishes program implementation guidelines, program implementation schedule, and program reporting guidelines.
 - Establishes technology and customer-class specific research questions to be deployed through post-purchase surveys.
- Prepare an *Energy Marketplace Outreach and Communication Plan* that outlines a customer outreach strategy based on customer meter data analysis. The plan shall include timelines, methods, partner organizations, metrics for success, and tools for customer outreach.

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- Prepare an *Optimal Retrofit Strategies Analysis* that evaluates potential customer fuel, greenhouse gas, and cost savings of technologies evaluated in the Applied Research Phase (Tasks 2-4) and technologies solicited through the Marketplace Request for Quotes (RFQ). The analysis shall utilize common Sonoma Clean Power customer rates, including low-income customers, solar customers, and Time of Use (TOU) customers and evaluate various measure combinations. The analysis will inform the *Technology Demonstration Program Implementation Plan* in how to value equipment incentives and the *Energy Marketplace Outreach and Communications Plan* in what customer segments present the best case for the modeled retrofit strategies.

Products:

- Technology Demonstration Program Implementation Plan (draft and final)
- Energy Marketplace Outreach and Communication Plan (draft and final)
- Optimal Retrofit Strategies Analysis (draft and final)

TASK 6 TECHNOLOGY DEMONSTRATION AND DEPLOYMENT

SUBTASK 6.1 TECHNOLOGY DEMONSTRATION AND DEPLOYMENT AND EM&V PLAN

The goal of this task is to develop the EM&V framework for technologies deployed through the Energy Marketplace.

The Recipient shall:

- Prepare an *EM&V Framework* that includes, but is not limited to, the following: a detailed summary for project independent monitoring and verification using Investor Owned Utility accepted protocols, a detailed timeline of the evaluation periods associated with each technology, a description of data assumptions and inputs to be used for building simulation models, a description of data extrapolation strategies, and description of on-going monitoring and verification to evaluate persistence and sustainability of savings, post-EPIC funding.

Products:

- EM&V Framework (draft and final)

SUBTASK 6.2 ENERGY MARKETPLACE ESTABLISHMENT

The goal of this task is to establish an Energy Marketplace that can be used to accelerate deployment of energy savings technologies in the SCP service territory.

The Recipient shall:

- Prepare a *List of Potential Energy Marketplace Locations* that includes address, square footage, lease price, images, and pros and cons of each and identify a subset of preferred location options. The team will discuss the options at the Kick-off meeting and enlist the CAM's feedback.
- Execute a Lease Agreement and obtain appropriate insurance for the preferred location of the Energy Marketplace as soon as possible following the Kick-off meeting.
- Develop and issue a *Marketplace RFQ and Scoring Matrix* for potential Marketplace vendors.
- Develop a sample *Marketplace Vendor Contract*.

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- Prepare a *List of Marketplace Vendors*, including product name, vendor contacts, and specifications. The list shall be updated quarterly.
- Develop a Contractor Matching Tool.
- Prepare a demonstration of the *Marketplace Website Design*, which shall include basic information about the marketplace, available rebates through the Marketplace, and other available rebates for which customers are eligible.
- Prepare a demonstration of the Contractor Matching Tool to be used in the Energy Marketplace.
- Prepare a *Marketplace Training Plan* which outlines the schedule for technology trainings to be hosted at the Marketplace.
- Prepare a *List of Attendees at Energy Marketplace Ribbon Cutting*

Products:

- List of Potential Energy Marketplace Locations (draft and final)
- Marketplace RFQ and Scoring Matrix (draft and final)
- Marketplace Vendor Contract (draft and final)
- List of Marketplace Vendors
- Draft of Marketplace website design
- Marketplace Training Plan (draft and final)
- Memo documenting Contractor Matching Tool
- Copy of Lease Agreement and proof of insurance for Energy Marketplace
- List of Attendees at Energy Marketplace Ribbon Cutting

SUBTASK 6.3 ENERGY MARKETPLACE MANAGEMENT

The goal of this task is to organize and set up the Energy Marketplace, with the purpose of developing a viable management structure that will allow the Energy Marketplace to continue ongoing operation after this EPIC award ends.

The Recipient shall:

- Prepare a quarterly *Marketplace Update Report*, which will include the following sections:
- Quantitative Results: A list of participating technologies, contractors, and HERS raters. The report shall include the number of website page views, quantity of visitors to the Marketplace storefront; the total number of technologies incentivized through the Marketplace, and associated energy savings. These results shall be compared to the metrics for success identified in Task 5. Where not on track to hit specific goals, the team shall outline additional marketing and/or process strategies to deploy in the next quarter.
- Savings Results: A section of the report shall detail initial energy, greenhouse gas, and cost savings of energy efficiency measures deployed through the Marketplace. These shall be compared with savings predicted in Task 5. Where savings are misaligned, the team will propose strategies such as contractor training, retro-commissioning, or modification to measures in the Marketplace to re-align savings with those projected in Task 5.
- Feedback: A section of the report shall include customer, contractor, and training attendee feedback on the Marketplace and specific technologies as solicited through the contractor scheduling tool, along with associated responses from the project team. As applicable,

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the team will develop strategies to respond to feedback and outline these strategies in this section of the Marketplace Updated Report.

- Marketing: The report shall include a section specific to marketing that will detail quarterly outreach efforts including: customer class targeted, technology targeted, outreach type (direct mail, e-mail, social media, etc), and number of responses (ie: Marketplace visits, clickthroughs) associated with each marketing effort. The results of this section shall be compared to the metrics for success identified in Task 5. Where not on track to hit specific goals, the team shall outline additional outreach strategies that may be leveraged.
- Training/Technology Transfer: The report shall also include a list of the number of trainings and attendees held in the Marketplace along with a proposed schedule of trainings for the next quarter. The training schedule shall be developed to accelerate technologies that are not hitting the metrics identified in Task 5 and to bolster education in industry groups critical to success.

Products:

- Marketplace Update Report

SUBTASK 6.4 TECHNOLOGY DEMONSTRATION AND DEPLOYMENT VERIFICATION

The goal of this task is to perform necessary monitoring and utility data analysis to verify performance of the Technology Demonstration and Deployment projects, and write a final report summarizing results.

The Recipient shall:

- Recruit residential and commercial customers for technology demonstration projects in a minimum of 300,000 square feet of existing building space using the Energy Marketplace, direct mailing, homeowner associations, customer data analysis, or another marketing approach to enlist the appropriate number of buildings in SCP service territory that meet the criteria defined in the Technology Demonstration Program Implementation Plan (Task 5).
- Collect information from customers recruited into the program for use in the impact analysis; such information should include changes in equipment, occupancy, or other major energy consumption causal factors that could invalidate pre- post-treatment comparisons.
- Pair customers with a trained contractor through the contractor matching tool.
- Pair customers with other existing energy efficiency rebate programs, as appropriate.
- Perform post-retrofit verification and/or commissioning of new equipment.
- Install any additional instrumentation necessary for the post-retrofit period as defined in the Technology Demonstration Program Implementation Plan.
- Where available, Collect and weather-normalize energy use information for each site for the 12 months prior to project treatment for the purpose of constructing a pre-treatment comparison with post-treatment consumption data. For sites for which the full 12 months of prior data are not available (e.g. occupancy less than 12 months) appropriate statistical corrections shall be used to reduce error in the analysis.
- Monitor performance for one year.
- Respond to concerns expressed by building owners throughout the test period.
- Ask building owners and occupants to complete a program participant satisfaction questionnaire, and process the results.

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- Prepare a Technology Demonstration Final Report. The report shall identify the outcomes of each technology demonstration project, including, at a minimum, project costs, an analysis of pre- and post-retrofit energy usage comparing the 12-month testing period with the 12 months of pre-treatment data, an extrapolation of the data for the demonstration sites to be representative of California's diverse climate zones, and results of the occupant surveys.

Products:

- Technology Demonstration Report (draft and final)

TASK 7 EVALUATION OF PROJECT BENEFITS

The goal of this task is to report the benefits resulting from this project.

The Recipient shall:

- Complete three Project Benefits Questionnaires that correspond to three main intervals in the Agreement: (1) *Kick-off Meeting Benefits Questionnaire*; (2) *Mid-term Benefits Questionnaire*; and (3) *Final Meeting Benefits Questionnaire*.
- Provide all key assumptions used to estimate projected benefits, including targeted market sector (e.g., population and geographic location), projected market penetration, baseline and projected energy use and cost, operating conditions, and emission reduction calculations. Examples of information that may be requested in the questionnaires include:
 - For Product Development Projects and Project Demonstrations:
 - Published documents, including date, title, and periodical name.
 - Estimated or actual energy and cost savings, and estimated statewide energy savings once market potential has been realized. Identify all assumptions used in the estimates.
 - Greenhouse gas and criteria emissions reductions.
 - Other non-energy benefits such as reliability, public safety, lower operational cost, environmental improvement, indoor environmental quality, and societal benefits.
 - Data on potential job creation, market potential, economic development, and increased state revenue as a result of the project.
 - A discussion of project product downloads from websites, and publications in technical journals.
 - A comparison of project expectations and performance. Discuss whether the goals and objectives of the Agreement have been met and what improvements are needed, if any.
 - Additional Information for Product Development Projects:
 - Outcome of product development efforts, such copyrights and license agreements.
 - Units sold or projected to be sold in California and outside of California.
 - Total annual sales or projected annual sales (in dollars) of products developed under the Agreement.
 - Investment dollars/follow-on private funding as a result of Energy Commission funding.
 - Patent numbers and applications, along with dates and brief descriptions.

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- Additional Information for Product Demonstrations:
 - Outcome of demonstrations and status of technology.
 - Number of similar installations.
 - Jobs created/retained as a result of the Agreement.
- For Information/Tools and Other Research Studies:
 - Outcome of project.
 - Published documents, including date, title, and periodical name.
 - A discussion of policy development. State if the project has been cited in government policy publications or technical journals, or has been used to inform regulatory bodies.
 - The number of website downloads.
 - An estimate of how the project information has affected energy use and cost, or have resulted in other non-energy benefits.
 - An estimate of energy and non-energy benefits.
 - Data on potential job creation, market potential, economic development, and increased state revenue as a result of project.
 - A discussion of project product downloads from websites, and publications in technical journals.
 - A comparison of project expectations and performance. Discuss whether the goals and objectives of the Agreement have been met and what improvements are needed, if any.
- Respond to CAM questions regarding responses to the questionnaires.

The Energy Commission may send the Recipient similar questionnaires after the Agreement term ends. Responses to these questionnaires will be voluntary.

Products:

- Kick-off Meeting Benefits Questionnaire
- Mid-term Benefits Questionnaire
- Final Meeting Benefits Questionnaire

TASK 8 TECHNOLOGY/KNOWLEDGE TRANSFER ACTIVITIES

The goal of this task is to develop a plan to make the knowledge gained, experimental results, and lessons learned available to the public and key decision makers.

The Recipient shall:

- Prepare an *Initial Fact Sheet* at start of the project that describes the project. Use the format provided by the CAM.
- Prepare a *Final Project Fact Sheet* at the project's conclusion that discusses results. Use the format provided by the CAM.
- Prepare a *Technology/Knowledge Transfer Plan* that includes:
 - An explanation of how the knowledge gained from the project will be made available to the public, including the targeted market sector and potential outreach to end users, utilities, regulatory agencies, and others.
 - A description of the intended use(s) for and users of the project results.
 - Published documents, including date, title, and periodical name.
 - Copies of documents, fact sheets, journal articles, press releases, and other

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Sonoma Clean Power

documents prepared for public dissemination. These documents must include the Legal Notice required in the terms and conditions. Indicate where and when the documents were disseminated.

- A discussion of policy development. State if project has been or will be cited in government policy publications, or used to inform regulatory bodies.
- The number of website downloads or public requests for project results.
- Additional areas as determined by the CAM.
- Conduct technology transfer activities in accordance with the Technology/Knowledge Transfer Plan. These activities will be reported in the Progress Reports.
- When directed by the CAM, develop *Presentation Materials* for an Energy Commission-sponsored conference/workshop(s) on the project.
- When directed by the CAM, participate in annual EPIC symposium(s) sponsored by the Energy Commission.
- Provide at least (6) six *High Quality Digital Photographs* (minimum resolution of 1300x500 pixels in landscape ratio) of pre and post technology installation at the project sites or related project photographs.
- Prepare a *Technology/Knowledge Transfer Report* on technology transfer activities conducted during the project.

Products:

- Initial Fact Sheet (draft and final)
- Final Project Fact Sheet (draft and final)
- Presentation Materials (draft and final)
- High Quality Digital Photographs
- Technology/Knowledge Transfer Plan (draft and final)
- Technology/Knowledge Transfer Report (draft and final)

V. PROJECT SCHEDULE

Please see the attached Excel spreadsheet.

STATE OF CALIFORNIA

STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION - RE: SONOMA CLEAN POWER AUTHORITY

RESOLVED, that the State Energy Resources Conservation and Development Commission (Energy Commission) adopts the staff CEQA findings contained in the Agreement or Amendment Request Form (as applicable); and

RESOLVED, that the Energy Commission approves Agreement EPC-17-041 from GFO-17-304 with Sonoma Clean Power Authority for \$9,814,596, to develop and demonstrate a program that evaluates energy savings, cost effectiveness, and training requirements for innovative retrofit technologies and promotes the most promising technologies through multiple channels in existing residential and commercial buildings. The program includes training for building professionals, real estate professionals, and building departments. The goal is to accelerate adoption of energy efficiency upgrades and to complement current fire recovery efforts in Sonoma and Mendocino Counties; and

FURTHER BE IT RESOLVED, that the Executive Director or his/her designee shall execute the same on behalf of the Energy Commission.

CERTIFICATION

The undersigned Secretariat to the Commission does hereby certify that the foregoing is a full, true, and correct copy of a Resolution duly and regularly adopted at a meeting of the California Energy Commission held on April 11, 2018.

AYE: [List of Commissioners]

NAY: [List of Commissioners]

ABSENT: [List of Commissioners]

ABSTAIN: [List of Commissioners]

Cody Goldthrite,
Secretariat