

GRANT REQUEST FORM (GRF)



New Agreement EPC-14-037 (To be completed by CGL Office)

Division	Agreement Manager:	MS-	Phone
ERDD	James Lee	51	916-445-5301

Recipient's Legal Name	Federal ID Number
Center for Sustainable Energy	33-0936366

Title of Project
Home Energy Efficiency Retrofits in California: An Analysis of Sociocultural Factors Influencing Customer Adoption

Term and Amount	Start Date	End Date	Amount
	5/8/2015	3/31/2018	\$ 599,924

Business Meeting Information

ARFVTP agreements under \$75K delegated to Executive Director.

Proposed Business Meeting Date	4/8/2015	<input type="checkbox"/> Consent	<input checked="" type="checkbox"/> Discussion
Business Meeting Presenter	James Lee	Time Needed:	5 minutes

Please select one list serve. Select

Agenda Item Subject and Description

CENTER FOR SUSTAINABLE ENERGY. Proposed resolution approving Agreement EPC-14-037 with the Center for Sustainable Energy for a \$599,924 grant to conduct research to characterize the nature and extent of sociocultural effects on the scope and scale of energy efficiency measure adoption in California's residential sector. (EPIC Funding) Contact: James Lee. (5 minutes)

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":
 Agreement will not cause direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment because the proposed work consists only of computer-based modeling of energy usage, and surveys and interviews on the same subject, which will result in a paper study. The proposed work will not involve any construction. Rather, it consists of ethnographic research, data analysis, and online experiments on sociocultural factors related to energy efficiency measure adoption. The proposed work will not require the issuance of any permit or license. None of these proposed tasks will cause a physical change in the environment.

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: _____
 Common Sense Exemption. 14 CCR 15061 (b) (3)
 Explain reason why Agreement is exempt under the above section:

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

List all subcontractors (major and minor) and equipment vendors: (attach additional sheets as necessary)

Legal Company Name:	Budget
Research Into Action	\$ 89,000
The Trustees of the University of Pennsylvania, Wharton School	\$ 89,000
Ghoulem Research (Mithra Moezzi)	\$ 50,000
Edward Vine	\$ 75,000
	\$
	\$
	\$
	\$
	\$

GRANT REQUEST FORM (GRF)

CEC-270 (Revised 02/13)

CALIFORNIA ENERGY COMMISSION



List all key partners: (attach additional sheets as necessary)
Legal Company Name:

Budget Information			
Funding Source	Funding Year of Appropriation	Budget List No.	Amount
EPIC	13-14	301.001A	\$599,924
			\$
			\$
			\$
			\$
			\$
R&D Program Area:	EDMFO: EDMF	TOTAL:	\$599,924
Explanation for "Other" selection			
Reimbursement Contract #:		Federal Agreement #:	

Recipient's Administrator/ Officer				Recipient's Project Manager			
Name:	Tim Treadwell			Name:	Laura Parsons		
Address:	9325 Sky Park Ct Ste 100			Address:	9325 Sky Park Ct Ste 100		
City, State, Zip:	San Diego, CA 92123-4380			City, State, Zip:	San Diego, CA 92123-4380		
Phone:	858-244-4871 /	Fax:	- -	Phone:	858-244-7288 /	Fax:	- -
E-Mail:	timothy.treadwell@energycenter.org			E-Mail:	laura.parsons@energycenter.org		

Selection Process Used	
<input checked="" type="checkbox"/> Competitive Solicitation	Solicitation #: PON-14-306
<input type="checkbox"/> First Come First Served Solicitation	

The following items should be attached to this GRF			
1. Exhibit A, Scope of Work	<input checked="" type="checkbox"/>	Attached	<input checked="" type="checkbox"/>
2. Exhibit B, Budget Detail	<input checked="" type="checkbox"/>	Attached	<input checked="" type="checkbox"/>
3. CEC 105, Questionnaire for Identifying Conflicts	<input checked="" type="checkbox"/>	Attached	<input checked="" type="checkbox"/>
4. Recipient Resolution	<input checked="" type="checkbox"/>	N/A	<input type="checkbox"/> Attached
5. CEQA Documentation	<input checked="" type="checkbox"/>	N/A	<input type="checkbox"/> Attached

_____ Agreement Manager	_____ Date	_____ Office Manager	_____ Date	_____ Deputy Director	_____ Date
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Exhibit A Scope of Work Template

A. Task List

Task #	CPR ¹	Task Name
1		General Project Tasks
2	x	Market Characterization and Hypothesis Refinement
3	x	Experimentation and Hypothesis Testing
4	x	Conduct Quasi-Experimental Field Studies
5	X	Integration of Research Findings into Policies and Programs
6		Evaluation of Project Benefits
7		Technology/Knowledge Transfer Activities

B. Acronym/Term List

Acronym/Term	Meaning
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer
CPR	Critical Project Review
EE	Energy Efficiency
IOU	Investor-Owned Utility
HERO	Home Energy Renovation Opportunity Program
TAC	Technical Advisory Committee

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

A. Purpose of Agreement

The purpose of this Agreement is to fund research designed to characterize the nature and extent of sociocultural effects on the scope and scale of energy efficiency measure adoption in California's residential sector.

B. Problem/ Solution Statement

Problem

The current policy framework for assessing the potential and likely adoption of energy efficiency is driven primarily by estimates of cost effectiveness of energy efficiency measures from different stakeholder perspectives, using methods required by the

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.

Exhibit A

Scope of Work Template

California Public Utilities Commission. Recent studies suggest social, cultural and behavioral factors have a significant influence on the adoption of energy efficiency measures in residential households; however, the extent to which different sociocultural factors play a role as well as differences in sub-communities is not well understood. Limited information on sociocultural factors has led to suboptimal residential energy efficiency program design.

Solution

The Recipient will conduct research into the sociocultural drivers of residential energy efficiency (EE) measure adoption. The research will include statistical modeling of data on EE adoption, ethnographic research, and online and field experiments to test hypotheses. Results of this project will be synthesized for streamlined integration into EE policy initiatives and program design.

C. Goals and Objectives of the Agreement

Agreement Goals

The goals of this Agreement are to:

- Increase the understanding of the roles that social, cultural, and behavioral factors play in the adoption of energy efficiency measures in California’s residential market.
- Explore the potential for increasing the adoption of energy efficiency measures through messaging and framing that speaks to the unique characteristics of distinct sociocultural sub-communities.
- Inform the design and implementation of investor-owned utility (IOU) residential energy efficiency programs.

Ratepayer Benefits:² This Agreement will result in the ratepayer benefits of greater electricity reliability and lower costs by improving the predictability and expanding the adoption of residential EE measures. By improving the predictability of market adoption estimates for preferred resources such as energy efficiency, this project will enable regulators to move with confidence to rely on these resources as a viable alternative to replace generation-based resources, resulting in reduced costs; energy savings; greenhouse gas emissions reductions; and air quality improvements for ratepayers. In addition, the expanded adoption of residential energy efficiency measures that this work will facilitate, including HVAC upgrades and building shell measures, will lead to reduced cooling load and the associated late-afternoon demand peaks, thereby increasing grid reliability.

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 Template

Technological Advancement and Breakthroughs:³ This Agreement will lead to technological advancement and breakthroughs to overcome barriers to the achievement of the State of California's statutory energy goals by providing critical insight into the role that sociocultural factors play in the residential EE market. This insight will improve accuracy of energy efficiency adoption rates and accelerate the commercial viability of high-priority energy efficiency technologies and strategies in IOU service territories. This advancement will be achieved by formulating hypotheses informed by the existing body of literature, then testing these hypotheses through a series of on-line and field experiments. Finally, the results of our research will be synthesized and summarized for inclusion into future policies and program. Specifically, the Recipient will catalog the sources and weighting of sociocultural factors for use in future EE potential studies, as well as develop specific recommendations on enhancements to CPUC programs.

Agreement Objectives

The objectives of this Agreement are to:

- Identify factors, through econometric modeling, that have a statistically significant association with energy efficiency measure adoption.
- Evaluate customer perceptions of and motivations for adopting energy efficiency measures through surveys of participants and non-participants in energy efficiency financing programs.
- Measure customer responsiveness to energy efficiency messaging tailored to social and cultural receptivity, using a series of on-line and field experiments.

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.

Exhibit A Scope of Work Template

II. 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

- 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.
- Submit the final product to the CAM once agreement has been reached on the draft. The CAM will provide written approval of the final product within 15 days of receipt, unless otherwise specified in the task/subtask for which the product is required.
- If the CAM determines that the final product does not sufficiently incorporate his/her comments, submit the revised product to the CAM within 10 days of notice by the CAM, unless the CAM specifies a longer time period.

For products that require a final version only

- Submit the product to the CAM for approval.
- If the CAM determines that the product requires revision, submit the revised product to the CAM within 10 days of notice by the CAM, unless the CAM specifies a longer time period.

For all products

- Submit all data and documents required as products in accordance with the following Instructions for Submitting Electronic Files and Developing Software:

Exhibit A

Scope of Work Template

- **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 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.

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.

Exhibit A Scope of Work Template

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.

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

- Terms and conditions of the Agreement;
- Administrative products (subtask 1.1);
- CPR 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.

Exhibit A

Scope of Work Template

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 (CPR) 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. 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 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.

Exhibit A

Scope of Work Template

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.

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.

Exhibit A

Scope of Work Template

- 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 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 all Agreement activities conducted by the Recipient for the preceding month, including 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.
 - Provide a synopsis of the project progress, including accomplishments,

Exhibit A

Scope of Work Template

problems, milestones, products, schedule, fiscal status, and any evidence of progress such as photographs.

- Submit a monthly or quarterly *Invoice* that follows the instructions in the “Payment of Funds” section of the terms and conditions. In addition, each invoice must document and verify:
 - Energy Commission funds received by California-based entities;
 - Energy Commission funds spent in California (*if applicable*); and
 - Match fund expenditures.

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 and approve 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 a 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.
- Submit a draft of the outline to the CAM for review and comment.
- Once agreement has been reached on the draft, submit the final outline to the CAM. The CAM will provide written approval of the final outline within 10 days of receipt.

Recipient Products:

- Final Report Outline (draft and final)

CAM Product:

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

Exhibit A Scope of Work Template

Subtask 1.6.2 Final Report

The Recipient shall:

- Prepare a *Final Report* for this Agreement in accordance with the approved Final Report Outline and the Style Manual provided by the CAM.
- Submit a draft of the report to the CAM for review and comment. Once agreement on the draft report has been reached, the CAM will forward the electronic version for Energy Commission internal approval. Once the CAM receives approval, he/she will provide written approval to the Recipient.
- Submit one bound copy of the Final Report to the CAM.

Recipient Products:

- Final Report (draft and final)

CAM Product:

- Comments on 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 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.

Exhibit A Scope of Work Template

- 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.
- A copy of 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.

Exhibit A

Scope of Work Template

- 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 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).

Exhibit A Scope of Work Template

Products:

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

TECHNICAL ADVISORY COMMITTEE

Subtask 1.10 Technical Advisory Committee (TAC)

The goal of this subtask is to create an advisory committee for this Agreement. The 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
 - 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.

Exhibit A

Scope of Work Template

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.

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 of major TAC issues.

Products:

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

Exhibit A Scope of Work Template

III. TECHNICAL TASKS

*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. **Subtask 1.1 (Products)** describes the procedure for submitting products to the CAM.*

TASK 2 MARKET CHARACTERIZATION AND HYPOTHESIS REFINEMENT

The goals of this task are to use data from Renovate America’s Home Energy Renovation Opportunity (HERO) program combined with external data sources (such as American Community Survey (ACS) demographic data, precinct level voting data, and building characteristic data from county assessor offices) to characterize key regional markets in the state’s IOU service territories. This work will lead to the identification and selection of at least two communities, i.e., the project “study areas,” to include in the ethnographic research to be performed in this Task, Task 3, Task 4, and Task 5. These study areas, once selected, will be examined in detail to identify sociocultural trends in participation and non-participation in the HERO program, to refine hypotheses.

Market characterization work will use exploratory data analysis techniques and geospatial analysis tools. Study areas will be selected based on the size of the markets, their growth rate, composition, and diversity of projects. Once selected, the Recipient will statistically model program data in each study area, utilizing regression and machine learning techniques. This modeling will review community-level distribution of program participation, as well as under and over-participation of specific sociocultural groups. The results of this modeling will be evaluated in conjunction with the literature to enhance the Recipient’s initial hypotheses.

Data from the HERO program used in this agreement will be specified in the data plan, and may include sociocultural factors, such as language, economic, and ethnic data to determine subpopulations that participate in the HERO financing program for energy efficiency measures.

The data plan will also specify additional data the Recipient will collect as part of this agreement. The Recipient will collect data on sociocultural factors under this agreement through focus groups, interviews, quasi-experimental field studies, online experiments and online surveys. Additional sociocultural data may include: context, language, and metaphor; user awareness, concern, personal responsibility, behaviors, intention, situational constraints, demographics, and political values. For example, the online experiments will be designed to explore customer responsiveness to tailored framing (linguistic, cultural, political), messaging (positive vs. negative, environmental vs. economic), and program design.

Exhibit A

Scope of Work Template

The Recipient shall:

- Prepare a literature review of sociocultural factors affecting energy efficiency measure adoption, utilization of PACE and related financing mechanisms, and frameworks for communicating energy efficiency which speak to the unique sociocultural aspects of key subpopulations.
- Prepare a data plan summarizing:
 - The data to be used from the HERO program.
 - The data the recipient will collect through this agreement. The Recipient will collect data on sociocultural factors under this agreement through focus groups, interviews, quasi-experimental field studies, online experiments and online surveys.
 - CAM must approve data plan before data collection may begin.
- Perform market characterization of key regions in the IOU service territory using HERO program data; and identify at least two project study areas. Market characterization work shall use exploratory data analysis techniques and geospatial analysis tools. Study areas will be selected based on the size of the markets, their growth rate, composition, and diversity of projects.
- Perform statistical modeling within the study areas, utilizing regression modeling and machine learning techniques. This modeling will review community-level distribution of program participation, as well as under and over-participation of specific sociocultural groups. The results of this modeling will be evaluated in conjunction with the literature to enhance the Recipient's initial hypotheses.
- Prepare a *Study Area Summary Report* that includes but is not limited to the following:
 - A description of the HERO market size, growth rate, and sociocultural composition, including key subpopulations, within the study areas;
 - A list of variables that modeling revealed as having a statistically significant effect on customer adoption, as well as levels of significance; and
 - A list of preliminary hypotheses with a discussion of their relationship to the literature and modeling results.
- Prepare a *CPR Report* in accordance with subtask 1.3 (CPR Meetings).
- Participate in a CPR meeting.

Product:

- Literature Review (draft and final)
- Data plan (draft and final)
- Study Area Summary Report (draft and final)
- CPR Report (draft and final)

TASK 3 EXPERIMENTATION AND HYPOTHESIS TESTING

The goals of this task are to construct various frameworks for discussing energy efficiency which speak to the unique sociocultural aspects of key subpopulations within

Exhibit A

Scope of Work Template

the study areas, and test the effectiveness of these frameworks through online experiments.

The frames will be developed through in-depth ethnographic research of targeted subpopulations to ensure that early stage experimentation reflects the unique values and perspectives of these targeted groups. These frames will then be tested in online experiments to explore customer responsiveness to tailored framing (linguistic, cultural, political), messaging (positive vs. negative, environmental vs. economic), program design.

The ethnographic research will include an intensive review of the literature, supplemented with structured interviews and focus groups. This work will inform the development of web-based or other appropriate survey approaches, which will be deployed to participants and non-participants in the study area. Survey data will be analyzed to explore variations in motivations, perceptions and behaviors of various sociocultural groups with regards to EE measure adoption. The results of this analysis will be used to develop the content for online experiments.

The Recipient will deploy online experiments using a consumer panel service provider (e.g. Qualtrics). Experiments will measure customer responsiveness to various framing, messaging, and program approaches, allow for segmentation by customer demographics and the refinement of hypotheses formulated in earlier stages of the project.

The Recipient shall:

- Perform ethnographic research regarding key subpopulations within the study areas. This research will include:
 - Utilization of Insights from Literature Review prepared in Task 2 to develop questions for focus groups and structured interviews and plan for selecting participants for focus groups and structured interviews.
 - At least 3 focus groups
 - At least 10 structured interviews
- Using results of focus groups and structured interviews, develop and launch online surveys to gauge perceptions of and motivations to adopt energy efficiency measures among HERO participants and non-participants.
- Analyze online survey results and prepare a *Survey Summary Report* including specific information to be determined with CAM, such as: 1) number of respondents to each question; 2) responses to each question 3) analysis of results for each question and for survey overall explaining how the survey results help explain variations in motivations, perceptions, and behaviors of various sociocultural groups with regards to EE measure adoption. 4) Explain how the results of this analysis will be used to develop the content for online experiments.

Exhibit A

Scope of Work Template

- Using information and insights from previous tasks, including in-depth ethnographic research of targeted subpopulations, to ensure that early stage experimentation reflects the unique values and perspectives of these targeted groups, construct various frameworks for discussing energy efficiency which speak to the unique sociocultural aspects of key subpopulations within the study areas.
- Using information and insights from previously completed tasks, develop and launch online experiments using a consumer panel service provider (e.g., Qualtrics) to measure customer responsiveness to various framing, messaging, and program approaches, allow for segmentation by customer demographics and the refinement of hypotheses formulated in earlier stages of the project.
- Prepare a *Summary Report of Online Experiments* that includes but is not limited to the following:
 - A description of the framing, messaging, and program designs tested; and
 - Findings on responsiveness of various sociocultural groups to each treatment.
- Revise preliminary hypotheses based on the results of online experiments.
- Prepare a *CPR Report* in accordance with subtask 1.3 (CPR Meetings).
- Participate in a CPR meeting.

Product:

- Questions and Plan for Participant Selection for Focus Groups and Structured Interviews (draft and final)
- Online Survey Questions (draft and final)
- Survey Summary Report (draft and final)
- Summary Report of Online Experiments (draft and final)
- CPR Report (draft and final)

TASK 4 CONDUCT QUASI-EXPERIMENTAL FIELD STUDIES

The goal of this task is to develop and deploy quasi-experimental field studies that incorporate results from previous tasks (see Tasks 2, 3) on customer responsiveness to messaging, framing and HERO program design.

Based on the results of previous tasks the project team will develop and deploy quasi-experimental field studies that incorporate prior project learning on customer responsiveness to messaging, framing, and program design. The recipient will coordinate with Renovate America to embed these quasi-experimental field studies into their existing engagement between contractors and customers.

The field work proposed in this task will leverage the project partnership with Renovate America and incorporate field research into various aspects of HERO program delivery. These activities may include contractor trainings, mentoring, and/or customized marketing collateral. Test and control groups will be established among contractors and

Exhibit A

Scope of Work Template

regions of the study areas to examine how customers respond to socioculturally tailored messaging and program design options in a real work environment.

The Recipient shall:

- In coordination with Renovate America, develop and incorporate quasi-experimental field studies among contractors and selected project study areas from Renovate America's HERO program.
 - Develop a *Plan for Quasi-Experimental Field Studies*, including how participants will be selected, research design, questions for participants, and data to be collected, based on work completed in previous tasks (see Tasks 2, 3).
 - Establish test and control groups among contractors and regions of the study areas to examine how customers respond to socioculturally tailored messaging and program design options in a real work environment.
 - Create contractor trainings, mentoring guides, and/or marketing collateral that includes messaging, frameworks, and design elements developed in previous tasks (see Tasks 2, 3).
 - Conduct quasi-experimental field studies.
- Analyze field data collected from quasi-experimental field studies among contractors and/or selected project study areas.
- Prepare *Field Studies Report* that describes experimental design and results, including how the field experiments leveraged existing relationships between Renovate America and its' HERO contractor base to test the effectiveness of customized messaging within an otherwise static system. Explain insights provided by the quasi-experimental field studies into changes in the adoption of energy efficient actions within an existing program structure.
- Prepare a *CPR Report* in accordance with subtask 1.3 (CPR Meetings).
- Participate in a CPR meeting.

Products:

- Plan for Quasi-Experimental Field Studies (draft and final)
- Field Studies Report (draft and final)
- CPR Report (draft and final)
- Training materials, mentoring guides and/or marketing material (draft and final)

TASK 5 INTEGRATION OF RESEARCH FINDINGS INTO POLICIES AND PROGRAMS

The goal of this task is to develop tools and resources that will allow for easy integration of research findings into CPUC and Energy Commission policy processes and investor-owned utility energy efficiency program design.

The results of previous tasks will be distilled and cataloged into an operational plan for possible incorporation into future energy efficiency policy processes at the CPUC and

Exhibit A

Scope of Work Template

the Energy Commission and investor-owned utility energy efficiency program design. To help integrate research findings into EE potential studies, the project team will catalog the sources and weighting of sociocultural factors that were shown to have a statistically significant impact on residential EE measure adoption. The team will also provide specific recommendations for program enhancements resulting from the research findings.

The team will identify the source, availability, type, and update frequency of these data, as well as the extent to which projections are available in the 5 to 10 year time horizons. Recipient will also evaluate alternative program requirements, contractor engagement strategies, as well as approaches to customer marketing and outreach that resulted from the lessons learned in this project.

The Recipient shall:

- Catalog the data collected as part of the work completed in Tasks 2, 3, and 4 and process for inclusion of research results into potential EE studies.
 - Catalog the sources and weighting of sociocultural factors that were shown to have a statistically significant impact on residential EE measure adoption.
 - Identify the source, availability, type, and update frequency of data
 - Outline the extent to which data projections are available to the CPUC, the Energy Commission, and the public in 5 to 10 year time horizons.
- Evaluate research findings from Tasks 2, 3, and 4 within the context of current and potential future residential EE program design.
 - Include an evaluation and specific recommendations for program enhancements resulting from the research findings, such as alternative program requirements, contractor engagement strategies, as well as approaches to customer marketing and outreach that resulted from the lessons learned in this project.
- Prepare a *CPR Report* in accordance with subtask 1.3 (CPR Meetings), including: 1) a catalog of data into an operational plan for possible incorporation into future energy efficiency policy processes at the CPUC and the Energy Commission and investor-owned utility energy efficiency program design; and 2) an evaluation of research findings.
- Participate in a CPR meeting.

Products:

- CPR Report (draft and final)

TASK 6 EVALUATION OF PROJECT BENEFITS

Exhibit A Scope of Work Template

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.
 - 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.

Exhibit A Scope of Work Template

- 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 has 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 7 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.

Exhibit A

Scope of Work Template

- Published documents, including date, title, and periodical name.
- Copies of documents, fact sheets, journal articles, press releases, and other 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 on the results of the project.
- 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)
- Technology/Knowledge Transfer Plan (draft and final)
- Technology/Knowledge Transfer Report (draft and final)

Exhibit A
Scope of Work Template

IV. PROJECT SCHEDULE

Please see the attached Excel spreadsheet.

STATE OF CALIFORNIA

STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION - RE: CENTER FOR SUSTAINABLE ENERGY

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

RESOLVED, that the Energy Commission approves Agreement EPC-14-037 from PON-14-306 with the **Center for Sustainable Energy** for a **\$599,924** grant to conduct research utilizing data from a statewide retrofit program to advance understanding of the role of societal, cultural and behavioral factors in the adoption of energy efficient measures; 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 8, 2015.

AYE: [List of Commissioners]

NAY: [List of Commissioners]

ABSENT: [List of Commissioners]

ABSTAIN: [List of Commissioners]

Harriet Kallemeyn,
Secretariat