

**GRANT REQUEST FORM (GRF)**

CEC-270 (Revised 10/2015)

CALIFORNIA ENERGY COMMISSION

New Agreement EPC-15-031 (To be completed by CGL Office)

Division	Agreement Manager:	MS-	Phone
ERDD	Jeffrey Doll	51	916-327-1367

Recipient's Legal Name	Federal ID Number
Electric Power Research Institute, Inc.	23-7175375

Title of Project
Flexible Control Strategies for Plug Loads with Cintext-Aware Smart Power Outlets to Mitigate Electricity Waste and Support & Demand Response

Term and Amount	Start Date	End Date	Amount
	5/2/2016	3/31/2020	\$ 1,050,022

Business Meeting Information			
<input type="checkbox"/> ARFVTP agreements under \$75K delegated to Executive Director.			
Proposed Business Meeting Date	4/13/2016	<input type="checkbox"/> Consent	<input checked="" type="checkbox"/> Discussion
Business Meeting Presenter	Felix Villanueva	Time Needed:	5 minutes
Please select one list serve. EPIC (Electric Program Investment Charge)			

Agenda Item Subject and Description
ELECTRIC POWER RESEARCH INSTITUTE (EPRI). Proposed resolution approving agreement EPC-15-031 with Electric Power Research Institute (EPRI) for a \$1,050,022 grant to research and develop an integrated flexible energy management system for plug loads incorporating user presence detection and information from plug load systems in buildings to achieve sustainable reductions in energy use with demand response.

California Environmental Quality Act (CEQA) Compliance
1. Is Agreement considered a "Project" under CEQA? <input type="checkbox"/> Yes (skip to question 2) <input checked="" type="checkbox"/> 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 activities funded by this agreement will involve the replacement of some existing receptacle outlets, developing and testing a plug-load control strategy to reduce energy use, and creating software. This work will occur in existing building and requires no new construction permitting. The work involves computer and paperwork, and the only alterations to the buildings are the replacement of some of the receptacle outlets.
2. If Agreement is considered a "Project" under CEQA: <input type="checkbox"/> a) Agreement <b>IS</b> exempt. (Attach draft NOE) <input type="checkbox"/> Statutory Exemption. List PRC and/or CCR section number: _____ <input type="checkbox"/> Categorical Exemption. List CCR section number: _____ <input type="checkbox"/> Common Sense Exemption. 14 CCR 15061 (b) (3) Explain reason why Agreement is exempt under the above section:  <input type="checkbox"/> b) Agreement <b>IS NOT</b> exempt. (Consult with the legal office to determine next steps.) Check all that apply <input type="checkbox"/> Initial Study <input type="checkbox"/> Environmental Impact Report <input type="checkbox"/> Negative Declaration <input type="checkbox"/> Statement of Overriding Considerations <input type="checkbox"/> Mitigated Negative Declaration

List all subcontractors (major and minor) and equipment vendors: (attach additional sheets as necessary)	
Legal Company Name:	Budget
Enmetric Systems, Inc.	\$ 96,480
Ibis Networks	\$ 42,400
SkyCentrics, Inc.	\$ 35,000
Southern California Edison	\$ 0
San Diego Gas & Electric Company	\$ 0
	\$
	\$
	\$
	\$

**GRANT REQUEST FORM (GRF)**

CEC-270 (Revised 10/2015)

CALIFORNIA ENERGY COMMISSION



<b>List all key partners:</b> (attach additional sheets as necessary)
Legal Company Name:
San Diego Gas & Electric Company

Budget Information			
Funding Source	Funding Year of Appropriation	Budget List No.	Amount
EPIC	14-15	301.001B	\$1,050,022
			\$
			\$
			\$
			\$
			\$
R&D Program Area:	EERO: Buildings	TOTAL:	\$1,050,022
Explanation for "Other" selection			
Reimbursement Contract #:		Federal Agreement #:	

Recipient's Administrator/ Officer		Recipient's Project Manager	
Name:	David Morrison	Name:	Angela Chuang
Address:	942 Corridor Park Blvd	Address:	3420 Hillview Ave
City, State, Zip:	Knoxville, TN 37932-3723	City, State, Zip:	Palo Alto, CA 94304-1355
Phone:	865-218-8104 / Fax: - -	Phone:	650-855-2488 / Fax: - -
E-Mail:	DMorrison@epri.com	E-Mail:	achuang@epri.com

Selection Process Used	
<input checked="" type="checkbox"/> Competitive Solicitation	Solicitation #: GFO-15-310
<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
2. Exhibit B, Budget Detail	<input checked="" type="checkbox"/> Attached
3. CEC 105, Questionnaire for Identifying Conflicts	<input checked="" type="checkbox"/> Attached
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
----------------------------	---------------	-------------------------	---------------	--------------------------	---------------

## EXHIBIT A Scope of Work

### I. TASK ACRONYM/TERM LISTS

#### A. Task List

Task #	CPR <sup>1</sup>	Task Name
1		General Project Tasks
2		Installation and Integration for Baseline Data Collection
3	X	Flexible Plug Load Strategy Development and Implementation
4		Pilot Testing for Measurement and Verification
5		Evaluation of Project Benefits
6		Technology/Knowledge Transfer Activities

#### B. Acronym/Term List

Acronym/Term	Meaning
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer
CPR	Critical Project Review
DR	Demand Response
EE	Energy Efficiency
FEMS	Flexible Energy Management System (for Plug Loads)
M&V	Measurement and Verification
PLEMS	Plug Load Energy Management System
Recipient	Electric Power Research Institute
TAC	Technical Advisory Committee

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

#### A. Purpose of Agreement

The purpose of this Agreement is to fund the research and development of an integrated, flexible energy management system (FEMS) for plug loads. The system will incorporate user presence detection, information from plug load systems and other energy consuming systems in commercial buildings to achieve actual and sustainable energy reductions with demand response applications.

---

<sup>1</sup> 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

### B. Problem/ Solution Statement

#### Problem

The need for flexibility to manage plug loads intensifies with plug load growth leading other end-use categories in the increase of electricity consumption within buildings. In particular, electronic and miscellaneous plug loads pose uncertainty in regards to customer power consumption and device load profiles, including consumption coincident with system peak. Plug loads are not typically targeted by utility energy efficiency nor demand response programs. Consequently, plug load energy consumption is not well-understood across building types and spaces within buildings, especially in the commercial building sector. Moreover, effective integrated plug load control strategies for achieving energy savings and supporting demand response across building types and space within buildings are yet to be developed.

The baseline of plug loads within commercial buildings is not well-understood today. However, a clear understanding is needed to inform future building and appliance energy efficiency codes and standards, such as Title 24 and Title 20, respectively. The proposed FEMS for plug loads has yet to be implemented and pilot tested in an integrated fashion across multiple building types with energy management systems to demonstrate effective plug load control strategies. Other issues that inhibit plug load energy and demand savings is the environment where recipients of energy benefits (e.g., building tenants) and payers of system costs (building owners) are not always aligned. In addition, other specialty plug load types (e.g., research lab plug load equipment), have historically been under-served due to limited utility incentives for energy efficiency (EE) and demand response (DR).

#### Solution

The recipient will develop integrated plug load control strategies appropriate for different spaces within multiple building types in the commercial sector. This project will implement a FEMS to demonstrate the integrated control strategies to govern operation of plug loads at pilot sites. The plug load control strategies will be pilot tested under integrated operation with building energy management and/or lighting control systems. The project is designed to demonstrate and measure the degree of effectiveness of the flexible control strategies developed for integrally managing operation of plug loads to achieve energy efficiency and demand reductions.

### C. Goals and Objectives of the Agreement

#### Agreement Goals

The goals of this Agreement are to:

- Develop integrated plug load control strategies appropriate for targeted user spaces and user behavior and preferences, in order to advance EE and DR;
- Pilot test the developed control strategies in an office building and research lab;
- Determine effective plug load control strategies for achieving a minimum 10% energy reduction level with demand response functionality; and
- Advance industry understanding on best practices for employing plug load control in targeted building types and spaces that vary by degree of user assignment to the spaces.

## **EXHIBIT A**

### **Scope of Work**

#### Ratepayer Benefits:<sup>2</sup>

This Agreement will result in the ratepayer benefit of greater electricity reliability by identifying potential DR strategies through coordinated operation of plug loads in an integrated building system environment. This could help support power and market systems, particularly during critical periods when the grid is stressed or prices are high. The FEMS is capable of modulating plug load operation to match system demands during critical periods, within user-configured limits and preferences. Enabling a non-traditional category of end-use like plug loads to support demand response helps to augment power system reliability for independent system operator and utility systems. This is especially valuable as intermittent renewable penetration drives need for demand response (e.g., shifting charging of electronic plug load with batteries to targeted times of system over-generation coinciding with excess renewable energy production).

This Agreement will result in the ratepayer benefit of lower costs by identifying effective cost-saving plug load control strategies that will clarify display designs, control settings and incorporate behavioral considerations. In a commercial office environment, a 10% electricity savings in plug load usage is obtainable, particularly during low-occupancy times and in user-assigned spaces, thereby achieving lower electricity costs for the ratepayer.

#### Technological Advancement and Breakthroughs:<sup>3</sup>

This Agreement will lead to technological advancement and breakthroughs that will overcome barriers in achieving the State of California's statutory energy goals by advancing FEMS coupled with smart power outlet technologies for controlling plug load use, and by enhancing strategies for operating different plug load types in an integrated fashion to achieve energy efficiency and demand response. The proposed technologies include controllable outlets, and technical advancements in control strategies, which can inform future codes and standards governing operation of controllable outlets in commercial buildings.

#### **Agreement Objectives**

The objectives of this Agreement are to:

- Design and implement a novel FEMS architecture to integrally manage multiple plug loads and building technology components, including electronic and miscellaneous plug loads in common areas, shared and assigned spaces associated with offices and research labs
- Install and integrate plug load control devices with building system and lighting controls in commercial pilot sites, and evaluate applicability of the control strategies
- Develop control strategies and test plans for piloting the architected system and monitoring its performance to achieve targeted efficiency and demand savings
- Assess the overall system performance compared against an established baseline
- Evaluate the cost-effectiveness and beneficial impacts of the demonstrated system for lowering electricity use and costs in commercial buildings.

---

<sup>2</sup> 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](http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/167664.PDF)).

<sup>3</sup> 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

### 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 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.

## **EXHIBIT A**

### **Scope of Work**

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.

## **EXHIBIT A**

### **Scope of Work**

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.

#### **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

## **EXHIBIT A**

### **Scope of Work**

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.

## EXHIBIT A Scope of Work

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 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.
- 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.

## EXHIBIT A Scope of Work

### 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)

## **EXHIBIT A**

### **Scope of Work**

- Appendices (if applicable) (Create a separate volume if very large.)
- Attachments (if applicable)
- Ensure that the document is written in the third person.
- 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

## EXHIBIT A Scope of Work

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.
  - 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:

## **EXHIBIT A**

### **Scope of Work**

- 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 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 (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,

## **EXHIBIT A**

### **Scope of Work**

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.

#### **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

## **EXHIBIT A**

### **Scope of Work**

#### **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

### IV. TECHNICAL TASKS

#### **TASK 2: INSTALLATION AND INTEGRATION FOR BASELINE DATA COLLECTION**

The goals of this task are to: (1) develop a taxonomy for plug load control contexts; (2) install smart power outlets; (3) assess building systems and interfaces at commercial pilot sites; (4); develop software interfaces necessary for baseline data collection; (5) develop a repository of cleansed baseline plug load data for different plug load types inventoried at the pilot sites; and (6) assess user behavioral opportunities and corporate policies.

##### **Subtask 2.1 Taxonomy for Plug Load Types**

The goal of this subtask is to develop a taxonomy (e.g., a scheme of classification) for plug load contexts applicable for control of plug loads by type of building, space, and plug load.

##### **The Recipient shall:**

- Identify factors that characterize appropriate contexts for plug load control
- Develop a framework that associates the various factors to form a plug load context taxonomy
- Prepare and provide a *Taxonomy for Plug Load Control* presentation that includes but is not limited to:
  - Building type;
  - Space type on a continuum of assigned space including unassigned common areas, limited assignment shared room or lab space, and assigned office spaces.
  - Plug load type and common characteristics governing appropriate control contexts (e.g., rechargeable battery-powered device, always-on device, impacts of control)
  - Assigned user direction of movement (e.g., away from assigned space or return)
  - A hierarchical diagram for framing relationships between plug load contexts

##### **Product:**

- Presentation Materials on Taxonomy for Plug Load Control

##### **Subtask 2.2 Baseline Data Collection**

The goal of this subtask is to (1) install smart power outlets and develop software interfaces between the FEMS and vendor plug load energy management system (PLEMS) platforms to facilitate data collection; (2) install smart power outlets; (3) assess building systems and interfaces at commercial pilot sites; (4) develop software interfaces necessary for baseline data collection; and (5) develop a repository of cleansed baseline plug load data for different plug load types inventoried at the pilot sites.

##### **The Recipient shall:**

- Identify targeted plug load devices and locations and install smart power outlets for monitoring and control at each of the pilot test locations in California.
- Assess building systems and interfaces at each of the commercial pilot sites.
- Develop software interfaces necessary for baseline data collection.
- Develop and provide a Site Installation Log and Interface Summary for each pilot site that includes but is not limited to:
  - List of plug load devices and locations, and associated smart power outlet identifier for the hardware installed to monitor and control the devices;
  - Summary of building systems and interfaces

## **EXHIBIT A**

### **Scope of Work**

- Summary of software interfaces implemented and resulting data transfer capability between FEMS interfaced with PLEMS platforms
- List types of data included in baseline data collection per vendor platform
- Develop a repository of cleansed baseline plug load data for different plug load types inventoried at the pilot sites including, but not limited to plug load usage, user location, room occupancy detection, etc.
- Develop and provide a *Plug Load Baseline Data Summary* that depicts user presence and/or occupancy and plug load usage over time and identifies opportunities for reducing electricity consumption.

#### **Product:**

- Site Installation Log and Interface Summaries
- Plug Load Baseline Data Summary

#### **Subtask 2.3 User Behavioral Opportunities Assessment**

The goals of this task are to assess the opportunities for consumer behavior to be incorporated into development of plug load control strategies, identify attributes of strategies, such as motion timeout and presence detection, and identify levels of attributes such as seconds and minutes that may be explored in the behavioral research.

#### **The Recipient shall:**

- Interface with pilot test sites to brainstorm potential control strategies and the attributes and levels that could vary as a function of behavior.
- Meet with the pertinent building and functional managers to identify attributes and levels of attributes to be tested.
- Develop and provide a *List of Attributes* relevant to occupancy and presence detection that include but is not limited to:
  - Discussion of type of attributes, bounds and levels preferred by occupants.  
Examples include:
    - Time since last motion detected
    - Time away from assigned space
    - Distance away from assigned space
- Assess user interface design options to enable customization by occupants of their control strategies.
- Identify messaging and notification concepts to be implemented in Task 3, along with bounds of user acceptability (e.g., frequency of notification messaging during normal occupancy versus a critical demand response event).
- Prepare and provide a *Presentation Materials on Initial Learnings* on plug load behavior opportunities.

#### **Products:**

- List of Attributes
- Presentation Materials on Initial Learnings

### **TASK 3: FLEXIBLE PLUG LOAD STRATEGY DEVELOPMENT AND IMPLEMENTATION**

The goal of this task is to develop integrated plug load control strategies and implement them with FEMS.

## **EXHIBIT A**

### **Scope of Work**

#### **Subtask 3.1 Flexible Plug Load Strategy Development**

The goal of this subtask is to develop integrated plug load control strategies for piloting FEMS to achieve energy savings and support demand response.

##### **The Recipient shall:**

- Perform data analytics on collected baseline data to develop effective models for predicting electricity waste.
- Identify control strategies for plug loads treating building systems as disparate systems.
- Develop integrated plug load strategies with available building system controls.
- Document control algorithms.
- Provide guidelines for testing control strategies to determine the most viable ones.
- Develop and provide an *Integrated Control Strategies Summary* that includes but is not limited to the following:
  - Identification of prediction models and control algorithms for implementation to curb electricity waste
  - Plug load control strategies
  - Integrated plug load control strategies with available building system controls
  - Guidelines for testing control strategies under different conditions and contexts for plug load control

##### **Product:**

- Integrated Control Strategies Summary

#### **Subtask 3.2 Flexible Energy Management System (FEMS) Implementation**

The goal of this subtask is to develop the FEMS prototype software architecture, along with system interfaces to vendor servers, plus implement graphical user's interfaces to support pilot demonstration.

##### **The Recipient shall:**

- Work with project vendors to identify control interfaces to their available plug load data systems and any available building energy management or lighting control systems.
- Define a database structure to manage the available data required by control algorithms.
- Develop and provide a *System Architecture Description Summary* to discuss findings including:
  - Primary components of the architecture
  - Definition of the database structure to manage available data
  - Communication pathways and methods between systems
  - Available control interfaces
- Prepare the necessary database and interface connections.
- Develop the prototype server software.
- Implement the proposed control algorithms into the software, as identified by prior tasks.
- Develop the administrative client software and end user interfaces, including a mobile web application for smartphone users.
- Prepare and provide an *Installation Check List Summary* that includes but is not limited to the following:
  - Basic user instructions for configuration FEMS
  - Basic user instructions for using FEMS

## **EXHIBIT A**

### **Scope of Work**

- Summary of the database and interface connections, prototype server software development, proposed control algorithms, and administrative client software and end user interfaces.
- Develop test scenarios for verifying the functionality of the FEMS software.
- Perform testing of the FEMS software
- Prepare and provide a *FEMS Summary Test Report* that includes but is not limited to
  - Test procedures
  - Test results
  - Issues resolution log
- Participate in CPR as per Task 1.3 and provide a *CPR Report*

#### **Product:**

- System Architecture Description Summary
- Installation Check List Summary
- FEMS Summary Test Report (draft and final)
- CPR Report

#### **Subtask 3.3 Occupant Preferences Research**

The goals of this task are to Inform plug load strategy development and to characterize preferences of the users and building managers of the test sites.

#### **The Recipient shall:**

- Apply findings from the behavior opportunities assessment effort under Task 2.3 to inform plug load strategy development.
- Develop interview questions for each pilot test site to identify preferences for the attributes, levels, and communications options for both office and research lab buildings.
- Develop sample strategies based on baseline findings including energy use patterns and occupancy patterns.
- Conduct interviews of building managers and users at both sites.
- Analyze results of interviews and inform final control strategies to be tested.
- Prepare and provide a *Presentation Materials and Summary* that includes but is not limited to
  - The results and findings from this task
  - Copy of survey instrument
  - Names of individuals interviewed at each site and/or job function (based on permission of interviewed)
  - Presentation Materials to include:
    - Key insights from interviews of users and building managers
    - User preferences
    - Sample strategies

#### **Products:**

- Presentation Materials and Summary (draft and final)

#### **TASK 4 PILOT TESTING FOR MEASUREMENT AND VERIFICATION**

The goals of this task are to: (1) provide a detail measurement and verification (M&V) plan for FEMS; (2) pilot test the control strategies developed in Task 3 with FEMS; (3) collect and

## **EXHIBIT A**

### **Scope of Work**

analyze field data to determine impact of FEMS on energy and demand savings; and (4) conduct behavioral research on FEMS to determine user satisfaction in conjunction with Subtask 2.3.

#### **Subtask 4.1 Measurement and Verification Plan**

The goals of this subtask are to develop the data requirements and the analytical plans to assess the impacts of the pilot flexible plug load strategies and implementation. Baseline data will be collected in Task 2 and will form the basis of determining the impacts from the flexible strategies developed in Task 3.

##### **The Recipient shall:**

- Describe the data being collected for each of the assigned spaces and common areas.
- Develop hypotheses as to the expected impacts of each of the combined plug load strategies.
- In consultation with the CAM, collect data over a sufficient period of time to assert with confidence the acceptance or rejection of each hypothesis being tested.
- Perform any necessary baseline data adjustments to account for changes in the level of activity at each of the field locations.
- Assess the internal and external validity of the data collected.
- Conduct behavioral research on FEMs to determine user satisfaction in conjunction with Subtask 2.3.
- Describe the analysis and the output format that will be conducted on the baseline and treatment data to assess the load shape impacts from the installation of the measures and strategies.
- Develop and provide an *M&V Plan Summary* including but not limited to:
  - M&V Plan
    - Data collection methods
    - Specific data elements to be collected
    - Impacts to be measured for each flexible plug load strategy to be tested
  - Summary on:
    - How baseline data adjustments will be handled
    - How to validate data collected
    - Customer satisfaction findings
    - Analysis of the output format to conducted on the baseline and treatment data to assess load shapes from the installation of the measures

##### **Product:**

- M&V Plan Summary (draft and final)

#### **Subtask 4.2 Pilot Testing**

The goal of this subtask is to implement the Task 4.1 M&V plan for pilot testing at pilot sites in California.

##### **The Recipient shall:**

- Prepare and provide a *Pilot Test Plan* for FEMS at each pilot site including but not limited to:
  - Communication plans with users at pilot sites
  - Dates for series of tests along with the purpose of each test

## **EXHIBIT A**

### **Scope of Work**

- Guidelines to share with users and building managers on control strategies to be tested, expected outcomes, and options for configuration of preferences as well as override.
- Coordinate with customer pilot site contacts to set expectations and maximize user participation.
- Monitor data collection by exception reporting to identify anomalies for correction (e.g., missing data, loss of device connectivity, etc.).
- Prepare and provide a *Video Recording* of the overall implemented system that includes but is not limited to the following:
  - Major system components involved in pilot testing
  - Device switching under different plug load contexts and control strategies
  - Video showing FEMS operation under viable contexts for mitigating waste and supporting DR
  - Visual snapshot of integration platform software interfaces including the FEMS graphical user interface and heat map display
  - Video record of physical connections implemented to integrate disparate platforms
  - Pictures of equipment installed under the installation and integration plans
- Prepare and provide a *Pilot Test Checklist Summary* that includes but is not limited to the following:
  - A list of tested control strategies;
  - A list of interfaces implemented to support integration;
  - A list of software and physical connections built to integrate disparate platforms;
  - A summary of outcomes of pilot tests for tested control strategies, including status of equipment installation and platform integration
  - A summary of the monitored data collection and reporting of anomalies and the correction implemented

#### **Product:**

- Pilot Test Plan (draft and final)
- Video Recording
- Pilot Test Checklist Summary

#### **Subtask 4.3 Collect and Analyze Data**

The goals of this task are to execute the provisions of the M&V plan from Task 4.1 to determine the demand and energy impacts from the FEMS implementation of flexible plug load measures and strategies

#### **The Recipient shall:**

- Assess the impacts of measures and strategies from the implementation of flexible plug load strategies.
- Assess statistically the strength of impacts from each measure and strategy.
- Make adjustments to the data to account for any changes in baseline conditions during the treatment phase of the data collection.
- Incorporate participant satisfaction results into the analysis.
- Interpret the results of each measure and strategy impacts and assess the internal and external validity of these impacts subject to customer acceptance.
- Prepare and provide an *Analysis Report* including but not limited to

## **EXHIBIT A**

### **Scope of Work**

- Impacts of measures and strategies, including the results from statistical assessment of each and adjustments made to account for changes in baseline conditions
- Data from participation satisfaction
- Assumptions and data collection periods used for the analyses, including internal and external validity of impacts
- Overall energy and demand savings and potential findings
- Discuss whether the Agreement Goals and Objectives were met (Sections II.C), including evaluation of the cost-effectiveness and beneficial impacts of the demonstrated system for lowering electricity costs
- Recommendations for further deployments

#### **Products:**

- Analysis Report

#### **Subtask 4.4 Satisfaction Research**

The goals of this task are to determine how well the plug load control strategies met building managers' and users' preferences and needs and to glean recommendations for improvements in control strategies.

#### **The Recipient shall:**

- Develop interviews to research satisfaction for the attributes, levels, and communications options for both office and research lab buildings and to capture recommendations on improvements that could increase satisfaction while minimizing waste.
- Conduct interviews with the same people interviewed for preferences research under Task 2.
- Analyze results of interviews and inform final outcomes and recommendations.
- Prepare a *Satisfaction Presentation Materials and Summary* on findings that include but are not limited to
  - Draft Presentation
    - Types of interviewees at each pilot site
    - Satisfaction findings
    - Recommendation for improvements
  - Summary
    - Analysis of interview results
    - Copy of the interview questions
    - List of people interviewed and/or job function (based on permission of interviewees)

#### **Products:**

- Satisfaction Presentation Materials and Summary (draft and final)

### **TASK 5 EVALUATION OF PROJECT BENEFITS**

## EXHIBIT A Scope of Work

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.
  - 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.

## **EXHIBIT A**

### **Scope of Work**

- 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 6 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 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 project.
- When directed by the CAM, participate in annual EPIC symposium(s) sponsored by the

## **EXHIBIT A Scope of Work**

California 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 Exhibit A Attachment A-1 Excel spreadsheet.

STATE OF CALIFORNIA

STATE ENERGY RESOURCES  
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION - RE: ELECTRIC POWER RESEARCH INSTITUTE (EPRI)

**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-15-031 from GFO-15-310 with EPRI for a \$1,050,022 grant, to research and develop an integrated flexible energy management system that incorporates user presence and information from plug load systems to achieve energy and demand reductions. The project locations are in the Bay Area; 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 13, 2016.

AYE: [List of Commissioners]

NAY: [List of Commissioners]

ABSENT: [List of Commissioners]

ABSTAIN: [List of Commissioners]

---

Cody Goldthrite,  
Secretariat