



**CALIFORNIA  
ENERGY COMMISSION**



**California Energy Commission  
July 10, 2024 Business Meeting  
Backup Materials for Charge Bliss, Inc.**

The following backup materials for the above-referenced agenda item are available in this PDF packet as listed below:

1. Proposed Resolution
2. Grant Amendment Request Form
3. Scope of Work

**[PROPOSED]**

**RESOLUTION NO: 24-0710-10**

**STATE OF CALIFORNIA**

**STATE ENERGY RESOURCES  
CONSERVATION AND DEVELOPMENT COMMISSION**

**RESOLUTION: Charge Bliss, Inc.**

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

**RESOLVED**, that the CEC approves amendment 1 to agreement LDS-22-003 with Charge Bliss, Inc. This amendment will increase funding by \$3,500,000 and change the scope of work to include a microgrid controller and cybersecurity to improve the project's ability to serve the Paskenta Band of Nomlaki Indians, tribal members, and the local community during regional energy outages on Paskenta tribal lands in Tehama County; and

**FURTHER BE IT RESOLVED**, that the Executive Director or their designee shall execute the same on behalf of the CEC.

**CERTIFICATION**

The undersigned Secretariat to the CEC 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 CEC held on July 10, 2024.

AYE:

NAY:

ABSENT:

ABSTAIN:

Dated:

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Kristine Banaag  
Secretariat



STATE OF CALIFORNIA

**GRANT AMENDMENT REQUEST FORM (GARF)**

CEC-277 (Revised 01/2024)

CALIFORNIA ENERGY COMMISSION

Original Agreement # LDS-22-003 Amendment # 1

Division	Agreement Manager:	MS-	Phone
ERDD	Javier Flores		916-352-0594

Recipient's Legal Name	Federal ID #
Charge Bliss, Inc.	45-4012582

Revisions: (check all that apply)	Additional Requirements
<input type="checkbox"/> Term Extension New End Date: 6/15/2029	Include revised schedule and complete items A, B, C, & F below.
<input checked="" type="checkbox"/> Budget Augmentation Amendment Amount: \$ 3,500,000	Include revised budget and complete items A, B, C, D, & F below.
<input type="checkbox"/> Budget Reallocation	Include revised budget and complete items A, B, C, & F below.
<input checked="" type="checkbox"/> Scope of Work Revision	Include revised scope of work and complete items A, B, C, E, & F below.
<input type="checkbox"/> Change in Project Location or Demonstration Site	Include revised scope of work and complete items A, B, C, E, & F below.
<input type="checkbox"/> Novation/Name Change of Prime Recipient	Include novation documentation and complete items A, B, C, & F below.
<input checked="" type="checkbox"/> Terms and Conditions Modification	Include applicable exhibits with bold/underline/ strikeout and complete items A, B, C, & F below.

**A) Business Meeting Information****Business Meeting approval is not required for the following types of Agreements:**☐ Minor amendments delegated to Executive Director per December 2013 ResolutionProposed Business Meeting Date 7/10/2024 ☐ Consent ☒ Discussion

Business Meeting Presenter Javier Flores Time Needed: 5 minutes

Please select one list serve. Research (Energy RDD / PIER program)

**Agenda Item Subject and Description:****Charge Bliss, Inc.**

Proposed resolution approving amendment 1 to agreement LDS-22-003 with Charge Bliss, Inc., and adopting staff's determination that this action is exempt from CEQA. This amendment will increase funding by \$3,500,000 and change the scope of work to include a microgrid controller and cybersecurity to improve the project's ability to serve the Paskenta Band of Nomlaki Indians, tribal members, and the local community during regional energy outages on Paskenta tribal lands in Tehama County. (LDES Funding) Contact: Javier Flores (Staff Presentation: 5 minutes)



STATE OF CALIFORNIA

**GRANT AMENDMENT REQUEST FORM (GARF)**

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CALIFORNIA ENERGY COMMISSION

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

<b>Legal Company Name:</b>	<b>Budget</b>
Charge Bliss Construction California, Inc.	\$ 34,315,000
Woven Energy LLC	\$ 835,000
Paskenta Band of Nomlaki Indians	\$ 1,285,000
DC Energy Services, LLC	\$ 200,000
	\$
	\$
	\$
	\$
	\$
	\$

**C) List all key partners: (attach additional sheets as necessary)**

<b>Legal Company Name:</b>

**D) Budget Information (only include amendment amount information)**

<b>Funding Source</b>	<b>Funding Year of Appropriation</b>	<b>Budget List Number</b>	<b>Amount</b>
GGRF	23-24	303.201	\$3,500,000
			\$
			\$
			\$
			\$
			\$

R&amp;D Program Area: ESTB: ETSI

TOTAL: \$ 3,500,000

Explanation for "Other" selection

Federal Agreement #:

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

1. Is Agreement considered a "Project" under CEQA?

☒ Yes (skip to question 2)☐ No (complete the following (PRC 21065 and 14 CCR 15378)):

Explain why Agreement is not considered a "Project":

2. If Agreement is considered a "Project" under CEQA:

a) ☒ Agreement **IS** exempt.☐ Statutory Exemption. List PRC and/or CCR section number:

**GRANT AMENDMENT REQUEST FORM (GARF)**

☐ Categorical Exemption. List CCR section number:

☒ Common Sense Exemption. 14 CCR 15061 (b) (3)

Explain reason why Agreement is exempt under the above section: This project is covered by the Common Sense Exemption under 14 CCR 15061 (b) (3) that CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA.

The Paskenta Band of Nomlaki Indians entered into a 2020 Gaming Compact with the State of California. The Legislature ratified the compact in California Government Code, section 12012.101. Under the Gaming Compact, the State has agreed to NOT follow the typical CEQA process in circumstances like this grant. Government Code section 12012.101(b) indicates:

In deference to tribal sovereignty, none of the following shall be deemed a project for purposes of the California Environmental Quality Act . . .

(D) The execution of an intergovernmental agreement between a tribe and the Department of Transportation, or other state agency, negotiated pursuant to the express authority of, or as expressly referenced in, a tribal-state gaming compact or an amended tribal-state gaming compact ratified by this section

(E) The on-reservation impacts of compliance with the terms of a tribal-state gaming compact or an amended tribal-state gaming compact ratified by this section

The grant activities fall under the Gaming Compact. The proposed Project consists of a single phase of development that will serve the entire gaming facility and accessory facilities amounting to an average peak load of approximately 1 MW. The Tribe has explained its environmental compliance under the Gaming Compact for this project in the Tribal Environmental Evaluation (TEE. The TEE shows that environmental factors have been evaluated and avoided or mitigated. On May 18, 2023, the Tribal Council of the Paskenta Band of Nomlaki Indians approved the issuance of a Finding of No Significant impact for the project through Resolution Number TC2023-46.

Off-reservation impacts must still be evaluated under Government Code section 12012.101(b)(2), but this project is exempt under the common sense CEQA exemption because the proposed project will not:

- construct on or alter any off-reservation land;
- impact local air quality;
- use groundwater resources or otherwise impact any off-reservation water resources;

**GRANT AMENDMENT REQUEST FORM (GARF)**

- build additional transportation infrastructure;
- generate additional traffic volumes from commercial activities of the Casino;
- increase, once the project is complete, ambient noise beyond the existing commercial activities; or
- degrade the visual character or quality of off-reservation views, including those of scenic resources or objects of aesthetic significance.

Compared with the current supply of energy, the proposed project will improve energy resiliency for Tribal facilities and the local electric grid, as well as reduce overall energy demand on the local energy provider and lower fossil fuel usage and greenhouse gas (GHG) emissions. Because the proposed project will improve air quality and reduce GHG emissions, and does not provide for any physical changes outside of the Indian reservation, it can be seen with certainty that there is no possibility that the proposed project may have a significant effect on the off-reservation environment. Based on all these factors, the proposed project meets the CEQA common sense exemption

This project does not involve impacts on any particularly sensitive environment; does not involve any cumulative impacts of successive projects of the same type in the same place that might be considered significant; does not involve unusual circumstances that might have a significant effect on the environment; will not result in damage to scenic resources within a highway officially designated as a state scenic highway; the project site is not included on any list compiled pursuant to Government Code section 65962.5; and the project will not cause a substantial adverse change in the significance of a historical resource. Therefore, none of the exceptions to categorical exemptions listed in CEQA Guidelines section 15300.2 apply to this project and this project will not have a significant effect on the environment.

- b) ☐ Agreement **IS NOT** exempt. (consult with the legal office to determine next steps)

Check all that apply

- ☐ Initial Study
- ☐ Negative Declaration
- ☐ Mitigated Negative Declaration
- ☐ Environmental Impact Report
- ☐ Statement of Overriding Considerations

**F) Is this project considered “Infrastructure”? No**



**GRANT AMENDMENT REQUEST FORM (GARF)**

**G) The following items should be attached to this GARF (as applicable)**

- |   |   |                                   |
|---|---|-----------------------------------|
| 1. Exhibit A, Scope of Work/Schedule                | <input type="checkbox"/> N/A            | <input type="checkbox"/> Attached |
| 2. Exhibit B, Budget Detail                         | <input type="checkbox"/> N/A            | <input type="checkbox"/> Attached |
| 3. CEQA Documentation                               | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> Attached |
| 4. Novation Documentation                           | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> Attached |
| 5. CEC 105, Questionnaire for Identifying Conflicts |   | <input type="checkbox"/> Attached |

\_\_\_\_\_  
**Agreement Manager**

\_\_\_\_\_  
**Date**

\_\_\_\_\_  
**Branch 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		Develop Site and Microgrid Design Integrating LDES Technologies
3	X	Procure Equipment and Materials for LDES System
4		Integrate Control Architecture, Install, Pre-Energize and Test Technologies
5	X	Test and Commission Project Systems
6		Operate LDES as Part of A Microgrid To Support Site During Outage Events; Reduce Peak Demand
7	X	Measurement and Verification
8		Evaluation of Project Benefits
9		Technology/Knowledge Transfer Activities

#### B. Acronym/Term List

Acronym/Term	Meaning
AHJ	Authority Having Jurisdiction
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer
CCI	California Climate Investments <sup>2</sup>
CEC	California Energy Commission
Commissioning	Full charge and discharge at 6MW for 10hrs for the combined LDES technologies during PSPS, other outage events, or for load reduction at times of peak demand
CPR	Critical Project Review
GGRF	Greenhouse Gas Reduction Fund
GHG	Greenhouse Gas
Grid	Bulk energy system
IIS	Internet Information Services
LDES	Long Duration Energy Storage
MW	Megawatt
MWh	Megawatt-hour
Mechanical completion of LDES systems	Point at which (a) structural installation of the applicable project system(s) has occurred and (b) the project(s) is mechanically, electrically, and functionally complete to the extent necessary to be ready for initial commissioning, adjustment, and testing

<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.

<sup>2</sup> An umbrella term and associated logo developed for the purpose of communication with funding recipients and the general public to identify programs or projects funded in whole or in part by the Greenhouse Gas Reduction Fund (GGRF). For information, visit: [www.caclimateinvestments.ca.gov](http://www.caclimateinvestments.ca.gov)



## Exhibit A Scope of Work

Acronym/Term	Meaning
MS	Microsoft
PSPS	Public Safety Power Shut Off
SQL	Structured Query Language
Tribe	Paskenta Band of Nomlaki Indians
TAC	Technical Advisory Committee

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

#### A. Purpose of Agreement

Funding for the Long Duration Storage (LDES) program comes from the California Climate Investments (CCI) program. The CCI program requires that all funded projects must facilitate the achievement of greenhouse gas (GHG) emission reductions and further the purposes of AB 32 (AB 32, Nunez, Global Warming Solutions Act of 2006, Chapter 488, 2006), SB 32 (SB 32, Pavley, California Global Warming Solutions Act of 2006, Chapter 249, 2016), and related statutes. The purpose of this Agreement is to fund deployment of 5 Megawatt (MW)/**15** Megawatt-hour (MWh) of non-lithium-ion LDES system. The LDES system will be operated as part of a microgrid that includes 5 MW of solar photovoltaic and serves the Paskenta Band of Nomlaki Indians (Tribe). The project will demonstrate the microgrid's ability to power critical Tribal operations during outage events, such as Public Safety Power Shut Off (PSPS) events, and peak grid demand, **as well as significant reduction of GHG emissions through substitution of clean energy resources for conventionally generated utility power.**

#### B. Problem/ Solution Statement

##### **Problem**

For multiple reasons, the utility bulk energy system (Grid) faces increasing costs and risks of instability. LDES has the potential to significantly lower energy and power costs, unburden strained utility and ISO systems, mitigate risks of system brown and blackouts, and provide resiliency to communities, particularly at grid-edge, but has yet to be demonstrated at scale. Underserved communities have not yet had the opportunity to take advantage of these opportunities and are particularly vulnerable to Grid outages and rising costs of electricity.

##### **Solution**

The project will deploy a **15MWh** flow battery coupled with a co-located **3.5MW solar array built with CEC funding and an additional 1.5MW solar array built independently by the Tribe, for a total of 5MW** to support all or nearly all Tribal energy needs. In particular, the system will be "islandable," or able to operate in parallel to the utility, during prolonged outages. While the expectation of the current design is that the system will be able to support Tribal energy needs for twenty hours, longer durations may be possible. During summer months, when PSPS, excess grid demand, or other factors may lead to outages, the solar array is expected to have its greatest productivity. In this setting, it may be possible for the system to

## Exhibit A

### Scope of Work

sustain Tribal operations indefinitely. Given adequate power reserves, the system may also be able to participate in ancillary services such as Automated Demand Response.

#### C. Goals and Objectives of the Agreement

##### Agreement Goals

The goals of this Agreement are to:

- Deploy a 20-hour, non-lithium-ion LDES technology in a Tribal Community.
- Demonstrate how LDES as part of a microgrid can provide reliability and resilience benefits through islanding, net load reduction, and time-shifting of solar.
- Demonstrate Tribal economic and social benefits resulting from decreased energy costs, increased reliability and resiliency, and expansion of Tribal workforce skills.
- Determine the long-term performance of flow-type battery systems.
- Achieve LDES system readiness by March 2025 and full microgrid operation by mid-2025.
- Realize reductions in GHG emissions through LDES microgrid deployment, as determined in Task 7.

##### LDES for Tribal and Underserved Communities:

To date, there have been an insufficient number<sub>1</sub> and capacity<sub>1</sub> of behind-the-meter long-duration energy storage deployments, particularly in communities of need. These communities ~~of need~~ are often at greater risk of adverse environmental impacts of conventional energy systems, Grid outages, and intentional shutoffs. This demonstration project will illustrate the capability to support all or nearly all Tribal power needs for upwards of twenty (20) hours continuously during Grid outages, using only renewable energy resources. Several additional notable achievements are expected. First, this project will demonstrate the feasibility of State, Tribal, Federal, and commercial collaboration for project execution. Using resources from all of these sources will demonstrate emerging financial models to deploy LDES in Tribal Communities. Second, the project will demonstrate the ability to time-shift clean energy production to both significantly reduce Tribal energy cost, as well as convert Tribal electricity consumption to nearly 100% renewables. By combining a large energy storage system with a sizable solar array, the project will mitigate the issues attendant to solar only including intermittent output, power quality variation, and unpredictable production. The project will also become a primary resource to, ~~rather than a draw upon,~~ increasingly precious grid resources. Third, the LDES system will ~~demonstrate opportunities to participate in ancillary services markets and realize emerging revenues for project partners.~~ reduce GHG emissions both through the reduction of diesel generator utilization and draw from the grid when system demand is highest and utility GHG emissions are greatest. Finally, as a long-term project studying the performance of non-lithium-ion batteries, the project will provide invaluable data about real-world system outputs, maintenance and operation needs, unanticipated expenses or savings, and overall performance within a fully integrated microgrid. This data will be indispensable to demonstrate a replicable, cost-effective, safe, and durable method to support rapid penetration of renewables in California and beyond, as well as increased reliability, resiliency, and overall Grid safety.

##### Agreement Objectives

The objectives of this Agreement are to:

## Exhibit A Scope of Work

- Demonstrate significant increased opportunities for the penetration of renewables in California using LDES.
- Improve grid-edge power reliability and resiliency.
- Create a replicable model for LDES deployment in Tribal communities.
- **Demonstrate a methodology to increase the penetration of renewable energy generation and the positive impacts upon GHG emissions.**

### 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)**. All products submitted which will be viewed by the public, must comply with the accessibility requirements of Section 508 of the federal Rehabilitation Act of 1973, as amended (29 U.S.C. Sec. 794d), and regulations implementing that act as set forth in Part 1194 of Title 36 of the Federal Code of Regulations. All technical tasks should include product(s). 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**

## **Exhibit A**

### **Scope of Work**

- Submit all data and documents required as products under this Agreement in an electronic file format that is fully editable and compatible with the California Energy Commission's (CEC) 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.

The following describes the accepted formats for electronic data and documents provided to the CEC 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.
  - Project management documents will be in MS 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:
    - MS ASP.NET framework (version 3.5 and up). Recommend 4.0.
    - MS 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.
    - Structured Query Language (SQL).
    - MS SQL Server 2008, Stored Procedures. Recommend 2008 R2.
    - MS 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. 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 CEC 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;
- Invoicing and auditing procedures;
- Administrative products (subtask 1.1);
- Critical Project Review (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 (subtask 1.5);
  - Final Report (subtask 1.6);
  - Technical Advisory Committee (TAC) meetings (subtasks 1.10 and 1.11); and
  - Any other relevant topics.
- Provide *Kick-off Meeting Presentation* to include but not limited to:
    - Project overview (i.e. project description, goals and objectives, technical tasks, expected benefits, etc.)
    - Project schedule that identifies milestones
    - List of potential risk factors and hurdles, and mitigation strategy
  - Provide an *Updated Project Schedule*, *Match Funds Status Letter*, and *Permit Status Letter*, 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:**

- Kick-off Meeting Presentation
- Updated Project Schedule (*if applicable*)
- Match Funds Status Letter (subtask 1.7) (*if applicable*)
- Permit Status Letter (subtask 1.8) (*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 CEC 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 CEC 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

## **Exhibit A**

### **Scope of Work**

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 CEC.

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 CEC, 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 and submit 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.
- 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* with 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)

#### **CAM Products:**

- CPR Agenda(s)
- 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 CEC 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 procured equipment.
  - The CEC'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 copies of *All Final Products* on a USB memory stick, organized by the tasks in the Agreement.

#### **Products:**

- Final Meeting Agreement Summary (*if applicable*)
- Schedule for Completing Agreement Closeout Activities
- All Final 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 Funds and in-state expenditures.

#### **Products:**

- Progress Reports
- Invoices

## **Exhibit A Scope of Work**

### **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. When creating the Final Report Outline and the Final Report, the Recipient must use the CEC 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 *Energy Commission Style Manual* provided by the CAM.

**Recipient Products:**

- Final Report Outline (draft and final)

**CAM Product:**

- Energy Commission 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, Energy Commission 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/Summary table that includes the following information, but not limited to (**required**):
      - Recipient name;
      - Project description;
      - Project location(s);
      - Census tract;
      - Dates: project selected and completed;
      - GGRF dollars allocated;
      - Leveraged and/or match funds;
      - Estimated/actual total project GHG emission reductions;
      - Estimated/actual energy saved (kWh, therms, or other fuels) for energy efficiency projects;



## Exhibit A

### Scope of Work

- Estimated/actual energy generated (kWh or therm equivalents) for renewable energy projects;
- Other benefits or results;
- Other market sectors that can benefit from the project;
- Benefits to priority populations;
- References (if applicable)
- Glossary/Acronyms (If more than 10 acronyms or abbreviations are used, it is required.)
- Bibliography (if applicable)
- Appendices (if applicable) (Create a separate volume if very large.)
- Attachments (if applicable)
- Submit a draft of the Executive Summary to the TAC for review and comment.
- Develop and submit a *Summary of TAC Comments on Draft Final Report* received on the Executive Summary. For each comment received, the recipient will identify in the summary the following:
  - Comments the recipient proposes to incorporate.
  - Comments the recipient does not propose to incorporate and an explanation for why.
- 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.
- Incorporate all CAM comments into the *Final Report*. If the Recipient disagrees with any comment, provide a *Written Responses to Comments* explaining why the comments were not incorporated into the final product.
- Submit the revised *Final Report* electronically with any Written Responses to Comments within 10 days of receipt of CAM's Written Comments on the Draft Final Report, unless the CAM specifies a longer time period or approves a request for additional time.

#### Products:

- Summary of TAC Comments on Draft Final Report
- Draft Final Report
- Written Responses to Comments (*if applicable*)
- 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 CEC 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

## **Exhibit A**

### **Scope of Work**

Agreement. If no match funds were part of the proposal that led to the CEC 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 CEC 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.
  - If different from the solicitation application, provide a letter of commitment from an authorized representative of each source of match funding that the funds or contributions have been secured.
- At the Kick-off meeting, discuss match funds and the impact on the project if they are significantly reduced or not obtained as committed. If applicable, match funds will be included as a line item in the progress reports and will be a topic at CPR meetings.
- Provide a *Supplemental Match Funds Notification Letter* to the CAM of receipt of additional match funds.
- Provide a *Match Funds Reduction Notification Letter* to the CAM if existing match funds are reduced during the course of the Agreement. Reduction of match funds may trigger a CPR meeting.

#### **Products:**

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

#### **Subtask 1.8 Permits**

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

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

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

## **Exhibit A**

### **Scope of Work**

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 each 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, availability, and need. TAC members will serve at the CAM's discretion. The purpose of the TAC is to:

## **Exhibit A**

### **Scope of Work**

- 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.
- Help set the project team's goals and contribute to the development and evaluation of its statement of proposed objectives as the project evolves.
- Provide a credible and objective sounding board on the wide range of technical and financial barriers and opportunities.
- Help identify key areas where the project has a competitive advantage, value proposition, or strength upon which to build.
- Advocate, to the extent the TAC members feel is appropriate, on behalf of the project in its effort to build partnerships, governmental support, and relationships with a national spectrum of influential leaders.
- Ask probing questions that ensure a long-term perspective on decision-making and progress toward the project's strategic goals.

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.

## **Exhibit A**

### **Scope of Work**

- 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.

#### **The TAC shall:**

- Help set the project team's goals and contribute to the development and evaluation of its statement of proposed objectives as the project evolves.
- Provide a credible and objective sounding board on the wide range of technical and financial barriers and opportunities.
- Help identify key areas where the project has a competitive advantage, value proposition, or strength upon which to build.
- Advocate on behalf of the project in its effort to build partnerships, governmental support and relationships with a national spectrum of influential leaders.
- Ask probing questions that ensure a long-term perspective on decision-making and progress toward the project's strategic goals.
- Review and provide comments to proposed project performance metrics.
- Review and provide comments to proposed project Draft Technology Transfer Plan.

#### **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

#### Subtask 1.12 Project Performance Metrics

The goal of this subtask is to finalize key performance targets for the project based on feedback from the TAC and report on final results in achieving those targets. The performance targets should be a combination of scientific, engineering, techno-economic, and/or programmatic metrics that provide the most significant indicator of the research or technology's potential success.

#### The Recipient shall:

- Complete and submit the project performance metrics section of the *Initial Project Benefits Questionnaire*, developed in the Evaluation of Project Benefits task, to the CAM.
- Present the draft project performance metrics at the first TAC meeting to solicit input and comments from the TAC members.
- Develop and submit a *TAC Performance Metrics Summary* that summarizes comments received from the TAC members on the proposed project performance metrics. The *TAC Performance Metrics Summary* will identify:
  - TAC comments the Recipient proposes to incorporate into the *Initial Project Benefits Questionnaire*, developed in the Evaluation of Project Benefits task.
  - TAC comments the Recipient does not propose to incorporate with and explanation why.
- Develop and submit a *Project Performance Metrics Results* document describing the extent to which the Recipient met each of the performance metrics in the *Final Project Benefits Questionnaire*, developed in the Evaluation of Project Benefits task.
- Discuss the *Project Performance Metrics Results* at the Final Meeting.

#### Products:

- TAC Performance Metrics Summary
- Project Performance Metrics Results

## Exhibit A

### Scope of Work

#### IV. 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: DEVELOP SITE AND MICROGRID DESIGN INTEGRATING LDES TECHNOLOGIES**

The goal of this task is to complete the engineering design for installation and integration of the LDES technologies and microgrid components including all electrical, civil, structural, architectural, and miscellaneous items required to develop a complete Issued for Construction set of design drawings.

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

- Develop and submit *Issued for Construction Drawings* for review that include but are not limited to the following:
  - Hardware design and specifications for the LDES technologies and microgrid components
  - Anticipated construction and interconnection timelines
  - All necessary permits filed for building, interconnection, and back up generation
- Conduct TAC Meeting #1 per subtask 1.10
  - Document, submit, and discuss these tasks and lessons learned during the TAC meeting with the TAC and the CAM
- **Prepare and provide a Cyber Security Architecture Assessment to include: Cyber security architecture for the microgrid based on a high-level risk assessment. The risk assessment process will involve: identifying key assets, characterizing potential threats, assessing vulnerabilities and their impact, assessing threat likelihood, determining risk, and recommending security controls. Key findings will be documented in a Cyber Security Architecture Assessment.**
- Prepare a draft and final *Design Report* that includes but is not limited to the following.
  - Summary of all planned operational use cases for the LDES and microgrid over the course of the project
  - Schematics and integration details
  - Electrical design
  - Definition of schematic symbols and data entry types
  - Documentation of the capabilities of the battery management system(s)
  - System documentation
- Obtain approval and provide a *Copy of Notice to Proceed* from the authorities having jurisdiction (AHJ)
- Prepare a *Design Report Presentation (PowerPoint)* which will include the design plans and summarize and highlight the *Design Report* and present at a *Design Report* meeting.

##### **Products:**

- Issued for Construction Drawings
- **Cyber Security Architecture Assessment (draft and final)**
- Design Report (Draft and Final)

## Exhibit A

### Scope of Work

- Copy of Notice to Proceed
- Design Report Presentation (PowerPoint)

#### TASK 3: PROCURE EQUIPMENT AND MATERIALS FOR LDES SYSTEM

The goal of this task is to procure, track and manage logistics for delivery of the **3.5MW solar photovoltaic system and the 15MWh battery energy storage system** to the demonstration site.

##### The Recipient shall:

- Develop a detailed *Master List of Equipment and Materials* for the technologies
- Receive written approval of *Master List of Equipment and Materials* from CAM before placing purchase order for technologies
- **Prepare and provide a Procurement Plan for the proposed microgrid controller (cogeneration unit, battery, controller unit, switchgear, and all appurtenances) that will detail the process for procurement of equipment, materials, and services. The Procurement Plan will include, but not be limited to:**
  - **A description of the bid packages to be assembled**
  - **A methodology for receiving and evaluating responses**
- **Execute the Procurement Plan**
- **Prepare and provide to the CAM a Procurement Report for the project, which will include but not be limited to:**
  - **A list of respondents to bid packages**
  - **A rationale for the selected service providers**
- Issue purchase orders based on approved *Master List of Equipment and Materials*
- Coordinate delivery of technologies to the project demonstration site
- Confirm and document receipt of the technologies to facility
- Develop and submit *Supplier-Specific Payment Schedules* for written approval by
- CAM reflecting a milestone process for purchasing technologies and associated equipment. This will include an explicit schedule for reimbursement of specific retention costs.
- Assume ownership of all systems, equipment, and materials ("Project") upon verification of successful systems commissioning and project operation.
- Prepare a *CPR Report #1* and participate in CPR Meeting, per subtask 1.3. Report shall also include:
  - Equipment and materials purchase orders

##### Products:

- Master List of Equipment and Materials
- **Procurement Plan**
- **Procurement Report**
- Supplier Specific Payment Schedules
- CPR Report #1

#### TASK 4: INTEGRATE CONTROL ARCHITECTURE, INSTALL, PRE-ENERGIZE, AND TEST TECHNOLOGIES



## Exhibit A Scope of Work

The goal of this task is to fully integrate the Charge Bliss microgrid controller with all systems and install the combined photovoltaic and LDES technologies **per the engineering documentation completed in Task 2**. Testing will be completed up to the point of commissioning.

### The Recipient shall:

- Install all equipment at the demonstration site, including but not limited to the LDES technologies, solar photovoltaic generation, balance of systems, **cyber security measures**, and controls
- Make appropriate electrical connections to utility distribution system
- Receive final approval for interconnection from the utility providing service
- Prepare a draft and final *Equipment Testing and Readiness Report* that includes but is not limited to the following:
  - Specific pre-energization testing, and evaluation performed on all components to confirm proper functionality
  - Testing data sheets that verify all equipment was evaluated and tested according to established procedures to ensure all equipment and individual system components are safe to energize and will function as designed
- Participate in final inspection and obtain *Final Installation Inspection Letter* from the AHJ or its representative, confirming Mechanical Completion of LDES Systems and System Readiness

### Products:

- Equipment Testing and Readiness Report (Draft and Final)
- Final Installation Inspection Letter

## TASK 5: TEST AND COMMISSION PROJECT SYSTEMS

The goals of this task are to test each major component and system individually and then together as one microgrid system, to complete commissioning, and to receive permission to operate.

### The Recipient shall:

- Execute a LDES acceptance testing and commissioning plan and create a *Project Performance Report* including the following:
  - Results of subsystem and system verification tests
  - *Acceptance Test Result(s)* for each subsystem as indicated
  - Test results of full system performance verification
  - Test results microgrid controls integration
  - **Assessment and test results of cyber security controls integration**
- Provide a *Systems Readiness Certification*
- Achieve *Authority to Operate* by the AHJ or its representative and provide a copy of approval documentation.
- Conduct TAC Meeting #2 per subtask 1.10
  - Document, submit, and discuss this tasks lessons learned during the TAC meeting with the TAC and the CAM.
- Prepare a *CPR Report #2* and participate in CPR Meeting, per subtask 1.3

### Products:

- Project Performance Report(s)

## Exhibit A

### Scope of Work

- Acceptance Test Result(s)
- Systems Readiness Certification
- Authority to Operate Letter
- CPR Report #2

#### **TASK 6: OPERATE LDES AS PART OF A MICROGRID TO SUPPORT SITE DURING OUTAGE EVENTS; REDUCE PEAK DEMAND**

This task will demonstrate how the LDES/microgrid will automatically switch between normal and parallel operation during outages utilizing 100 percent renewable energy for 20+ continuous hours as well as routinely reduce peak coincident loads.

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

- Develop a draft and final *Microgrid Sequence of Operation Plan*
  - Define conditions under which systems should island
  - Program sequence of microgrid systems isolation and restart
  - Set conditional prioritization schema for solar, batteries, and loads
  - Define limitations on minimum and maximum duration of support
  - Incorporate grid resynchronization procedures
- Test the LDES and microgrid under the following use cases both while grid connected and while islanded:
  - 1-2MW discharge for 20 hrs.
  - 100 percent renewable energy-based operation with on-site generation
  - Peak load reduction
  - Ancillary services program participation (where feasible)
- Prepare a *Microgrid Sequence of Operations Report*
- Prepare a *Microgrid System Performance Report*

##### **Products:**

- Microgrid Sequence of Operation Plan (Draft and Final)
- Microgrid Sequence of Operations Report
- Microgrid System Performance Report

#### **TASK 7: MEASUREMENT AND VERIFICATION**

The team will measure and verify the performance of the microgrid and LDES technologies and compare to projected performance. The goal of this task is to report the benefits resulting from this project by performing measurement and verification (M&V) of GHG and energy consumption reduction.

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

- Enter into an agreement with M&V subcontractor per Task 1.9 (if using an outside vendor)
- Coordinate site visits with the M&V subcontractor at the demonstration site(s)
  - Develop a *M&V protocol* for **pre-installation** measurement (and calculation) of electric, natural gas and/or other fossil fuel consumption, and GHG emissions of the equipment/process/system(s)/sub-system(s) that are to be upgraded and/or replaced and/or modified.

## Exhibit A Scope of Work

- Ensure installation of sub-metering equipment and data loggers for pre/post data analysis.
- Prepare and provide a detailed *M&V Plan* for each project demonstration site to include but not be limited to:
  - A description of the monitoring equipment and instrumentation which will be used.
  - A description of the key input parameters and output metrics that will be measured.
  - A description of the M&V protocol, analysis, and collection methods to be employed.
  - A data collection schedule
  - A description of the independent, third-party M&V services to be employed, if applicable.
  - **A description of the cyber security measures deployed.**
- Perform three months (or a shorter period as approved in writing by the CAM) of pre-installation measurements (and calculations) based on the M&V protocol for pre-installation.
- Prepare and provide a *Pre-Installation M&V Findings Report* for each demonstration site that includes M&V protocol, pre-install measurements (and calculations), analysis, and results performed in this task.
- Develop M&V protocol for ***post-installation*** measurements (and calculations) of:
  - Electric, natural gas and/or other fossil fuel consumption, and GHG emissions of the equipment/process/system(s)/sub-system(s) that will be upgraded and/or replaced and/or modified. Factors and metrics to be approved by the CAM.
- Perform at least 6 months or two seasons, for seasonal facilities, (or a shorter period as approved in writing by the CAM) of post-installation measurements based on M&V protocol for post-installation.
- Provide a summary of post-installation M&V progress in Progress Report(s) (see subtask 1.5) which shall include but not be limited to:
  - A narrative on operational highlights from the reporting period, including any stoppages in operation and why; and
  - A summary of M&V findings from the reporting period.
- Analyze post-installation electrical, natural gas and/or other fossil fuel consumption, and GHG emissions.
- Prepare and provide a *Post-Installation M&V Findings Report* for each demonstration site that includes M&V protocol, pre- and post-install measurements (and calculations), analysis, and results performed in this task. Results should at a minimum report on the reduction of electricity, natural gas and/or other fossil fuel usage and reductions of GHG emissions that directly result from this project.
- Provide all key assumptions used to estimate and determine energy and GHG reductions (and additions, if applicable).
- 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.
- Report GGRF benefits per the frequency and metrics listed in the terms and conditions and as provided by CARB guidance
- Prepare a *CPR Report #3* in accordance with subtask 1.3.
- Participate in a CPR Meeting.

## Exhibit A

### Scope of Work

#### Products:

- M&V Plan (Draft and Final)
- Pre-Installation M&V Findings Report (*draft and final*)
- Post-Installation M&V Findings Report(s) (*draft and final*)
- GGRF benefits data and metrics
- CPR Report #3

#### TASK 8: EVALUATION OF PROJECT BENEFITS

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

#### The Recipient shall:

- Complete the *Initial Project Benefits Questionnaire*. The Initial Project Benefits Questionnaire shall be initially completed by the Recipient with 'Kick-off' selected for the 'Relevant data collection period' and submitted to the CAM for review and approval.
- Complete the *Annual Survey* by January 31st of each year. The Annual Survey includes but is not limited to the following information:
  - Technology commercialization progress
  - New media and publications
  - Company growth
  - Follow-on funding and awards received
- Complete the *Final Project Benefits Questionnaire*. The Final Project Benefits Questionnaire shall be completed by the Recipient with 'Final' selected for the 'Relevant data collection period' and submitted to the CAM for review and approval.
- Respond to CAM questions regarding the questionnaire drafts.
- Complete and update the project profile on the CEC's public online project and recipient directory on the [Energize Innovation website \(www.energizeinnovation.fund\)](http://www.energizeinnovation.fund), and provide *Documentation of Project Profile on EnergizeInnovation.fund*, including the profile link.
- If the Prime Recipient is an Innovation Partner on the project, complete and update the organizational profile on the CEC's public online project and recipient directory on the [Energize Innovation website \(www.energizeinnovation.fund\)](http://www.energizeinnovation.fund), and provide *Documentation of Organization Profile on EnergizeInnovation.fund*, including the profile link.

#### Products:

- Initial Project Benefits Questionnaire
- Annual Survey(s)
- Final Project Benefits Questionnaire
- Documentation of Project Profile on EnergizeInnovation.fund
- Documentation of Organization Profile on EnergizeInnovation.fund

#### TASK 9: Technology/Knowledge Transfer Activities

The goal of this task is to ensure the technological learning that resulted from the demonstration(s) is captured and disseminated to the range of professions that will be responsible for future deployments of this technology or similar technologies.

## **Exhibit A**

### **Scope of Work**

#### **The Recipient Shall:**

- Develop and submit a *Project Case Study Plan* that outlines how the Recipient will document the planning, construction, commissioning, and operation of the technology or system being demonstrated. The Project Case Study Plan should include:
  - An outline of the objectives, goals, and activities of the case study.
  - The organization that will be conducting the case study and the plan for conducting it.
  - A list of professions and practitioners involved in the technology's deployment.
  - Specific activities the recipient will take to ensure the learning that results from the project is disseminated to those professions and practitioners.
  - Presentations/webinars/training events to disseminate the results of the case study.
- Present the draft *Project Case Study Plan* to the TAC for review and comment.
- Develop and submit a *Summary of TAC Comments* that summarizes comments received from the TAC members on the draft *Project Case Study Plan*. This document will identify:
  - TAC comments the recipient proposes to incorporate into the final *Technology Transfer Plan*.
  - TAC comments the recipient does not propose to incorporate with and explanation why.
- Submit the final *Project Case Study Plan* to the CAM for approval.
- Execute the final Project Case Study Plan and develop and submit a Project Case Study.
- When directed by the CAM, develop presentation materials for a CEC sponsored conference/workshop(s) on the project.
- When directed by the CAM, participate in knowledge sharing event(s) sponsored by the California CEC.
- 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.

#### **Products:**

- Technology Transfer Plan (draft and final)
- Summary of TAC Comments
- Technology Transfer Summary Report (draft and final)
- High Quality Digital Photographs

## **V. PROJECT SCHEDULE**

Please see the attached Excel spreadsheet.