



STATE OF CALIFORNIA

**GRANT REQUEST FORM (GRF)**

CEC-270 (Revised 12/2019)

CALIFORNIA ENERGY COMMISSION

**A) New Agreement # EPC-20-002**

<b>B) Division</b>	<b>Agreement Manager:</b>	<b>MS-</b>	<b>Phone</b>
ERDD	Joseph Sit		916-327-1315

<b>C) Recipient's Legal Name</b>	<b>Federal ID Number</b>
Charge Bliss, Inc.	45-4012582

<b>D) Title of Project</b>
Essential Power Support for the Kaiser Permanente Ontario Medical Center using Long Duration Batteries within a Renewable Energy Microgrid

**E) Term and Amount**

<b>Start Date</b>	<b>End Date</b>	<b>Amount</b>
9/15/2020	3/29/2024	\$ 8,351,000

**F) Business Meeting Information**

☐ ARFVTP agreements \$75K and under delegated to Executive Director

Proposed Business Meeting Date 9/9/2020 ☐ Consent ☒ Discussion

Business Meeting Presenter Joseph Sit Time Needed: 5 minutes

Please select one list serve. EPIC (Electric Program Investment Charge)

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

CHARGE BLISS, INC. Proposed resolution approving Agreement EPC-20-002 with Charge Bliss, Inc. for a \$8,351,000 grant to demonstrate an 8 MWh long-term flow battery plus 2.2 MW solar photovoltaic array microgrid for the Kaiser Permanente Ontario Medical Center in a disadvantaged and low-income community, and adopting staff's determination that this action is exempt from CEQA. The microgrid will provide the ability to meet 90% of the medical center's essential power needs for over 10 hours and demonstrate support of essential facilities within the medical center.

**G) 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: Pub. Resources Code § 21080.35

☒ Categorical Exemption. List CCR section number: Cal. Code Regs., tit. 14, §§ 15301, 15311



STATE OF CALIFORNIA

## GRANT REQUEST FORM (GRF)

CEC-270 (Revised 12/2019)

CALIFORNIA ENERGY COMMISSION

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

Explain reason why Agreement is exempt under the above section:

This project involves the installation and demonstration of a renewable energy microgrid including a battery system and solar photovoltaic (PV) systems at the City of Ontario's Kaiser Permanente Ontario Medical Center. Specifically, the project includes the: (1) installation of solar PV systems on existing rooftops, (2) installation of carport solar PV systems over existing parking lots; and (3) installation of flow batteries at the site.

The rooftop and carport solar PV systems' will total approximately 2.2 MW. The rooftop solar PV systems' associated equipment, such as electrical conduits and controls, will be located on the same parcels as the PV arrays, will not occupy more than 500 square feet of ground surface, and the locations of the associated equipment will not contain plants protected by the Native Plant Protection Act. The rooftop solar PV systems will not require any of the permits listed in Public Resources Code section 21080.35(d). The carport solar PV systems will be installed over parking lots that have existed for more than 2 years and will not require the removal of any trees.

The long-term flow batteries are fully containerized. There will be eight containers with approximate dimensions of 44' x 10' each. 4 containers will be stacked on top of the other 4 containers to reduce space. Concrete pads will be poured outdoors on already developed land and the containers will be set upon the pads to anchor the batteries. No additional site modifications besides the concrete pads will be needed to accommodate the flow batteries.

Some trenching through the existing parking will be needed and approximately 100' of underground conduit will be needed in total for the project. The project will not generate noise in excess of permitted levels, will not generate odors, will not affect any historic resources, and will not involve any hazardous or toxic materials.

The rooftop and carport solar PV system measures of this project are therefore statutorily exempt under Public Resources Code section 21080.35. The project as a whole is categorically exempt from environmental review pursuant to CEQA Guidelines section 15301 as minor alterations to existing facilities that involve no expansion of an existing or former use at the sites and categorically exempt pursuant to CEQA Guidelines section 15311 as the construction of minor structures accessory to, or appurtenant to, existing facilities. The project, when considered as a whole, will not result in a cumulative impact that is significant on the environment. Further, none of the exceptions to exemptions listed in CEQA Guidelines section 15300.2 apply to this project.

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

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

Legal Company Name:	Budget
Golden State Power, LLC	\$ 4,211,360



STATE OF CALIFORNIA

**GRANT REQUEST FORM (GRF)**

CEC-270 (Revised 12/2019)

CALIFORNIA ENERGY COMMISSION

<b>Legal Company Name:</b>	<b>Budget</b>
Charge Bliss Construction California, Inc.	\$ 3,199,022
DC Energy Services	\$ 98,000
Mazzetti, Inc.	\$ 99,124
ConTech-CA	\$ 30,000
KPC Group	(match only)
Troy Brown Consulting	\$ 20,000
Nhu Energy	\$ 163,650

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

<b>Legal Company Name:</b>

**J) Budget Information**

<b>Funding Source</b>	<b>Funding Year of Appropriation</b>	<b>Budget List Number</b>	<b>Amount</b>
EPIC	19-20	301.001G	\$8,351,000

R&amp;D Program Area: ESRO: ETSI

TOTAL: \$ 8,351,000

Explanation for "Other" selection

Reimbursement Contract #:      Federal Agreement #:

**K) Recipient's Contact Information****1. Recipient's Administrator/Officer**

Name: David Bliss

Address: 9 Orchard Ste 109

Suite 109

City, State, Zip: Lake Forest, CA 92630-8317

Phone: 323-364-9936

E-Mail: dbliss@chargebliss.com

**2. Recipient's Project Manager**

Name: Jon Harding

Address: 9 Orchard Ste 109

Suite 109

City, State, Zip: Lake Forest, CA 92630-8317

Phone: 949-305-7820

E-Mail: jharding@chargebliss.com

**L) Selection Process Used**☒ Competitive Solicitation      Solicitation #: GFO-19-306☐ First Come First Served Solicitation Solicitation #:**M) The following items should be attached to this GRF**

1. Exhibit A, Scope of Work

☒ Attached

2. Exhibit B, Budget Detail

☒ Attached

3. CEC 105, Questionnaire for Identifying Conflicts

☒ Attached

4. Recipient Resolution

☒ N/A☐ Attached



STATE OF CALIFORNIA  
**GRANT REQUEST FORM (GRF)**  
CEC-270 (Revised 12/2019)

5. CEQA Documentation

☐ N/A

CALIFORNIA ENERGY COMMISSION  
☒ Attached

Joseph Sit 05/15/20  
Agreement Manager Date

Fernando Pina 05/15/20  
Office Manager Date

Linda Spiegel 05/15/20  
Deputy Director Date

**Exhibit A**  
**Scope of Work**  
**Charge Bliss, Inc.**

**I. TASK ACRONYM/TERM LISTS**

**A. Task List**

Task #	CPR <sup>1</sup>	Task Name
1		General Project Tasks
2		Determination of Baseline Site Performance, Project Future Performance, and Stakeholder Expectations
3	X	Microgrid Design, Engineering, Specification, OSHPD Approvals, Permitting, and Procurement
4	X	Microgrid Installation, Inspection, Interconnection, and Commissioning
5		System Performance Optimization and Data Collection
6		Evaluation of Project Benefits
7		Technology/Knowledge Transfer Activities

**B. Acronym/Term List**

Acronym/Term	Meaning
ADR	Automated Demand Response
ATS	Automatic Transfer Switch
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer
CBCCA	Charge Bliss Construction CA
CPR	Critical Project Review
DER	Distributed Energy Resource
GHG	Greenhouse Gas
IOU	Investor-Owned Utility
ISO	Independent Systems Operator
KPOMC	Kaiser Permanente Ontario Medical Center
kW	Kilowatt
kWh	Kilowatt-hour
NRE	Non-recurring engineering
MTS	Manual Transfer Switch
OSHPD	Office of Statewide Health Planning & Development
SCE	Southern California Edison
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 demonstrate the technical, financial, and environmental value of long-duration batteries at the Kaiser Permanente Ontario Medical Center. The facility

---

<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**

#### **Charge Bliss, Inc.**

provides essential services to a disadvantaged air-quality and low-income community (Ontario, CA). The project will build upon work previously funded by the California Energy Commission (PON 14-301) demonstrating the safety, effectiveness, and value of a renewable energy microgrid at Kaiser Permanente Richmond using shorter-term, lithium-ion batteries. In addition to advancing standards and regulations for healthcare and critical facility energy support, the ability to compare the two project types directly affords unique and unprecedented insights into their relative merits, limitations, and factors requiring additional study.

#### **B. Problem/Solution Statement**

##### **Problems**

Long-duration batteries such as flow redox are in the early stages of development. Despite technological improvements, concerns persist regarding low round-trip efficiency and energy density- both of which result in greater physical size and weight to achieve the same capacity as lithium-ion. Advances in flow battery chemistries, innovations in electrolyte type and management, and integrated manufacturing are expected to improve performance such that experts posit that there are greater opportunities for improvement in flow battery performance than other battery types.

Furthermore, integration of long-duration batteries into renewable energy microgrids faces additional hurdles. First, the value of extended duration discharge has not been demonstrated. There have been small, scattered deployments to show safety and feasibility, but little information is available to support the economic, environmental, or other value of these technologies. Second, specific technical performance capabilities remain in development. Sophisticated controls have yet to be carried out in flow or other long-duration battery installations. Third, there is little real-world data directly comparing lithium ion and flow batteries. Differences in control architectures, operational goals, deployment sites, ownership and maintenance are variables that limit comparison and understanding of value. As was seen in the early stages of lithium-ion deployments, successful and effective long-duration battery installations are necessary to give developers, investors, and host sites sufficient understanding of the technologies to undertake their deployment.

Finally, as increasing “Duck Curve” challenges arise from renewable generation, novel methods are required for time-shifting of clean generation that exceeds load. In order to redistribute time-constrained energy generation of solar and wind over the full 24-hour day, durable, long-duration energy storage will be needed. This will be particularly important in communities of need because technology penetration generally arrives much later than those with greater resources. Furthermore, given the increasingly “full” utility circuits, disadvantaged communities will face greater obstacles to integration of renewable generation. Methods to mitigate power export and time-shift energy are needed.

##### **Solutions**

The Recipient will demonstrate a long-duration (10+ hours) flow redox battery plus solar microgrid, supporting the demonstration site. This builds on a prior Energy Commission-funded project and allows a direct performance comparison. Technical performance will be measured by up time, energy production, round-trip efficiency, capacity decay over time, demand reduction, islanding number and duration, and ancillary services. The project will show financial efficacy through the value of energy savings (generation and usage reduction, demand reduction) as well as ancillary services. Environmental benefits will emerge indirectly from reduction of utility and ISO generation and load and directly through reduction of on-site backup diesel generation. Strategies to mitigate “Duck Curve” impacts will be demonstrated. First, this

## **Exhibit A Scope of Work Charge Bliss, Inc.**

deployment approaches a net zero scenario, but without significant power export. The system can time-shift the usage of solar generation for periods of highest facility and utility loads with large battery capacity and the ability to serve virtually 100% of real-time hospital loads for 12-hours or more. Second, interconnection to critical power ensures the ability to island the facility for 10-12 hours in the absence of utility supply. The cost savings, reliability, and resiliency despite utility outages will provide invaluable data for stakeholders. The Recipient will further develop the next generation microgrid controller capable of optimizing energy generation and storage.

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

#### **Agreement Goals**

The goals of this Agreement are to:

- 1: Demonstrate prolonged support of facility critical power, disseminate knowledge, and advance regulatory standards
- 2: Define comparative performances of long-duration vs. lithium-ion microgrids
- 3: Integrate and advance a cutting-edge microgrid controller

Ratepayer Benefits:<sup>2</sup> Multiple direct and indirect ratepayer benefits will be realized from the long-duration battery deployment. First, aversion of direct and indirect emission of GHG and criteria pollutants is significant in a disadvantaged air quality community. Support of an important medical facility supports continuous delivery of healthcare services to a community with a disproportionate burden of disease. Third, community economic benefits including green jobs, the “halo effect” for area expenditures, increased tax base, and financial stability of an important area employer is highly valuable in a low-income community. Fourth, decreased peak system load, utility energy usage, and collaboration in ancillary services will make more power available in the region without need for additional generation, decrease upward pressure on utility operational cost and, therefore, ratepayer tariffs, and decrease the risk of regional outages.

Technological Advancement and Breakthroughs:<sup>3</sup> This Agreement will lead to technological advancement and breakthroughs to overcome barriers to the achievement of the State of California’s statutory energy goals. This Agreement will have four main technological advancements. First, the project will demonstrate the effectiveness and commercial viability of non-lithium-ion based long-duration energy storage microgrids. This will show the ability to time-shift solar usage from low system load periods (daytime) to morning and evening. In doing so, this will illuminate a pathway for far more significant penetration of renewable energy technologies with salutary grid impacts. Second, the project will demonstrate the ability to support critical power during utility outages and shutdowns. This is particularly relevant with natural and man-made events that increasingly disrupt grid performance. Demonstration of continuous facility support through islanding will help define new commercial building electrical

---

<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**

#### **Charge Bliss, Inc.**

standards and inform modifications to CPUC, ISO, and IOU rules regarding renewables operation in parallel. Third, the Agreement will define the relative merits and limitations of flow redox and lithium-ion batteries. The opportunity to compare similar topologies under the direction of the same microgrid controller and team will provide unprecedented insights. Access to the Charge Bliss lithium-ion based renewable energy microgrid at Kaiser Richmond microgrid and its performance data will facilitate direct comparisons between the two types of energy storage technologies. This will contribute to optimizing battery energy storage system deployments and operations to best serve ratepayer and grid system needs and is expected to open markets for long-duration batteries as occurred previously for lithium-ion. Finally, this Agreement will fund the further development of the next generation microgrid controller. This controller was previously developed under an EPIC funded grant and is currently in operation at the Kaiser Richmond microgrid (CEC PON-14-301). Addition of automated demand response (ADR) 2.0b signaling will facilitate ancillary services such as demand response as well as open opportunities to study Virtual Power Plant coordination between two geographically distant facilities. This study will be essential to build a cooperative network of microgrids across the State that will be coordinated, efficient, and effective at providing discretionary power from clean resources despite the temporal mismatch of generation and demand. In turn, this will permit the rapid expansion of all forms of renewable energy generation, reduction of fossil fuel use and related emissions, and will unburden the utilities of further costs of centralized energy infrastructure development, operation, and maintenance.

#### **Agreement Objectives**

The objectives of this Agreement are to:

- Objective 1: Interconnect a 800 kW / 8 MWh flow battery microgrid with hospital critical branch
- Objective 2: Demonstrate ability to island 98% of essential facility loads
- Objective 3: Create and disseminate multi-lingual reporting of project findings through digital and traditional media, community engagement, and professional presentations
- Objective 4: Advance Office of Statewide Health Planning & Development (OSHPD) regulations for healthcare microgrids. This will include seeking alignment of OSHPD and NFPA99 standards, creating language specific to microgrid deployment in healthcare facilities for incorporation into OSHPD standards at the ensuing code cycle, and promulgate standards through the Energy Management Committee and Technology Committee of the OSHPD Hospital Building Safety Board.
- Objective 5: Study actual vs. projected technical, economic, and environmental outcomes
- Objective 6: Study use cases of prolonged battery discharge
- Objective 7: Assess stakeholder impacts through a structured questionnaire
- Objective 8: Implement and study ADR 2.0b signaling for demand response
- Objective 9: Study viability of Virtual Power Plant coordination of multiple sites including differential capacities of flow vs. lithium-ion technologies

### **III. TASK 1 GENERAL PROJECT TASKS**

#### **PRODUCTS**

##### **Subtask 1.1 Products**

## **Exhibit A**

### **Scope of Work**

#### **Charge Bliss, Inc.**

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.

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.

## **Exhibit A Scope of Work Charge Bliss, Inc.**

- 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.

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;

## **Exhibit A**

### **Scope of Work**

#### **Charge Bliss, Inc.**

- 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 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.

**Exhibit A**  
**Scope of Work**  
**Charge Bliss, Inc.**

- 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.  
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).

## Exhibit A Scope of Work Charge Bliss, Inc.

- 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.

### 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

## **Exhibit A**

### **Scope of Work**

#### **Charge Bliss, Inc.**

end date. When creating the Final Report Outline and the Final Report, the Recipient must use the Style Manual provided by the CAM.

#### **Subtask 1.6.1 Final Report Outline**

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

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

##### **Recipient Products:**

- Final Report Outline (draft and final)

##### **CAM Product:**

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

#### **Subtask 1.6.2 Final Report**

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

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

## Exhibit A Scope of Work Charge Bliss, Inc.

- Follow the Style Guide format requirements for headings, figures/tables, citations, and acronyms/abbreviations.
- Ensure that the document omits subjective comments and opinions. However, recommendations in the conclusion of the report are allowed.
- Include a brief description of the project results in the Abstract.
- Submit a draft of the report to the CAM for review and comment. The CAM will provide written comments to the Recipient on the draft product within 15 days of receipt
- Consider incorporating all CAM comments into the Final Report. If the Recipient disagrees with any comment, provide a written response explaining why the comment was not incorporated into the final product
- Submit the revised Final Report and responses to comments within 10 days of notice by the CAM, unless the CAM specifies a longer time period or approves a request for additional time.
- Submit one bound copy of the *Final Report* to the CAM along with *Written Responses to Comments on the Draft Final Report*.

### Products:

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

### CAM Product:

- Written Comments on the Draft Final Report

## **MATCH FUNDS, PERMITS, AND SUBCONTRACTS**

### **Subtask 1.7 Match Funds**

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

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

### **The Recipient shall:**

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

## **Exhibit A**

### **Scope of Work**

#### **Charge Bliss, Inc.**

(including a contact name, address, and telephone number), and the task(s) to which the match funds will be applied. If the in-kind contribution is equipment or other tangible or real property, the Recipient must identify its owner and provide a contact name, address, telephone number, and the address where the property is located.

- If different from the solicitation application, provide a letter of commitment from an authorized representative of each source of match funding that the funds or contributions have been secured.
- At the Kick-off meeting, discuss match funds and the impact on the project if they are significantly reduced or not obtained as committed. If applicable, match funds will be included as a line item in the progress reports and will be a topic at CPR meetings.
- Provide a *Supplemental Match Funds Notification Letter* to the CAM of receipt of additional match funds.
- Provide a *Match Funds Reduction Notification Letter* to the CAM if existing match funds are reduced during the course of the Agreement. Reduction of match funds may trigger a CPR meeting.

#### **Products:**

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

#### **Subtask 1.8 Permits**

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

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

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

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

## **Exhibit A**

### **Scope of Work**

#### **Charge Bliss, Inc.**

- 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, 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.

## **Exhibit A**

### **Scope of Work**

#### **Charge Bliss, Inc.**

- 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 shall include the expertise of each proposed TAC member and the value to the project. The list will be discussed at the Kick-off meeting, and a schedule for recruiting members and holding the first TAC meeting will be developed.
- Recruit TAC members. Ensure that each individual understands member obligations and the TAC meeting schedule developed in subtask 1.11.
- Prepare a *List of TAC Members* once all TAC members have committed to serving on the TAC.
- Submit *Documentation of TAC Member Commitment* (such as Letters of Acceptance) from each TAC member.

#### **Products:**

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

#### **Subtask 1.11 TAC Meetings**

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

**Exhibit A**  
**Scope of Work**  
**Charge Bliss, Inc.**

**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 insure a long-term perspective on decision-making and progress toward the project's strategic goals.

**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**  
**Charge Bliss, Inc.**

**IV. TECHNICAL TASKS**

**TASK 2: DETERMINATION OF BASELINE SITE PERFORMANCE, PROJECTED FUTURE PERFORMANCE, AND STAKEHOLDER EXPECTATIONS**

The goal of this task is to determine the site's baseline energy performance of the proposed facility as well as the Kaiser Permanente installation prior to microgrid installation.

**The Recipient shall:**

- Execute contracts with all main project partners, as applicable including the Measurement and Verification Plan contract with DC Energy. Main project partners include the following: Golden State Power, Nhu Energy, Charge Bliss Construction CA, Troy Brown Consulting, VionX, EPC Power Corp, Contech Engineering, Mazzetti Engineering, and KPC Group. Additionally, there are approximately 28 subcontractors that are TBD. These are classified as “Minor” subs by CEC standards. These will be determined and contracted with during later phases on the grant project.
- Produce a *Baseline Energy, Demand, and Stakeholder Engagement Report*, to include but not be limited to:
  - The prior 12-month utility hourly weekday and weekend load averages by month, the projected load profiles for the year after project initiation based upon expected long-duration battery microgrid performance, planned changes to load items, and institution of onsite generation systems other than the microgrids.
  - If load data is not available, synthetic loads will be estimated based upon known profiles of healthcare facilities, indexed for the respective sizes of the test facilities.
  - Projections will include energy production, efficiency losses, demand reduction, site cost savings and ancillary services revenues, facility islanding, GHG and criteria pollutant emissions reductions, percent of facility loads to be supported during utility outages or shutdowns, islanding duration and number, and system performance decay over time. These will be based upon published industry norms or, if these are not available, from manufacturer performance specifications. Projections will also consider two battery use cases at the proposed installation.
    - Split charge/discharge: The battery will begin discharging at approximately 6am and will ramp down commensurate to increased solar production. Battery charge and discharge will be used to maintain demand regulation at or greater than 400kW while using “excess” generation to re-charge the batteries. As solar production wanes at approximately 3-4pm, battery discharge will ramp-up to maintain level demand reduction until 9pm. In total, this is anticipated to maintain similar site load control for a minimum of 15 continuous hours.
    - Single charge/discharge: The battery will begin charging when solar generation exceeds load. As solar production wanes, at approximately 3-4pm, battery discharge will initiate to maintain >400kW discharge for 10 contiguous hours.
  - Baseline stakeholder engagement will include structured interviews with facility personnel, investors, community citizens and political leadership to assess perceptions of renewable energy and battery energy storage systems in the target community.

## **Exhibit A**

### **Scope of Work**

#### **Charge Bliss, Inc.**

- This will also include but not be limited to:
  - At least one community forum to receive stakeholder comments
  - At least one meeting with facility leadership and operations personnel to document expectations
  - Development team expectations for final project performance

#### **Products:**

- Baseline Energy, Demand, and Stakeholder Engagement Report

### **TASK 3: MICROGRID DESIGN, ENGINEERING, SPECIFICATION, OSHPD APPROVALS, PERMITTING, AND PROCUREMENT**

The goal of this task is to proceed from design through procurement of the flow battery, long-duration discharge, energy storage microgrid. This will occur in parallel to Task 2, baseline assessment.

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

- Provide *Site "Before" Photos*
- Form collaborating working groups to design and engineer systems including:
  - OSHPD compliance: The Recipient will coordinate with subcontractors to ensure all aspects of project execution and operation are in compliance with OSHPD regulations.
  - Microgrid systems: Collaborate with subcontractors to perform the following:
    - Complete site assessment.
    - Engineering and specifying of solar, flow batteries, power conditioning, monitoring and safety systems.
    - Consult with Southern California Edison (SCE) and receive interconnection approval and agreement for islanding with physical and firmware isolation.
    - Reconciling designs with OSHPD group requirements and engineering.
    - Producing all relevant PE-stamped drawings and obtaining permits.
  - Control Team: Plan and specify controller integration including establishing communication protocols with the inverters and battery management systems.
- Coordinate TAC meetings to refine and verify designs
  - Validate buildings operations stakeholder acceptance of designs
  - Modify designs as needed based upon SCE and OSHPD input
  - Incorporate TAC recommendations as feasible and reasonable based upon best practices
- Determine and engage the construction trades that are needed for construction.
  - Confirm constructability of the designs.
  - Define all materials specifications and contract for services
  - Define all equipment specifications and contract for services
- Provide the *Microgrid Design Report* including preliminary and final specifications, engineered drawings (Professional Engineer stamped drawings: Architectural, Civil, Mechanical, Structural designs), unexpected site findings, major modifications and innovations, replicable best design practices, obstacles and challenges to design, permits and projected systems impacts. This document will also include the commissioning and test plan for the system once installed in task 4.
- Procure all equipment and materials as specified in engineered drawings, permits, and plans

## **Exhibit A Scope of Work Charge Bliss, Inc.**

- Complete site preparations for systems installation
  - Set schedule for construction including any shutdowns
  - Repair, modify, or replace any existing electrical systems required for microgrid systems deployment
  - Define sequencing of microgrid installation and commissioning
- Review equipment specs to determine the basis for the cybersecurity report and protocol
- Provide a *CPR Report #1* and participate in a CPR Meeting per subtask 1.3.
- Provide *Baseline Cybersecurity and Communication Protocol Report* (this report includes but is not limited to the following information)
  - List of the communication specs for each device
  - An equipment specification review to identify all electronic equipment included in the project that may be subject to cyber attack
  - Basic review of the communication protocols for each DER
  - Basic review of the security protocols for each DER
  - Baseline information for communications and security that will be the basis for the final communications and security report (provided during a later task)

### **Products:**

- Site “Before” Photos
- Microgrid Design Report
- CPR Report #1
- Baseline Cybersecurity and Communication Protocol

### **TASK 4: MICROGRID INSTALLATION, INSPECTION, INTERCONNECTION, AND COMMISSIONING**

The goal of this task is the complete installation, interconnection, and commissioning of the microgrid.

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

- Execute subcontract for oversight of all aspects of construction.
- Work with subcontractor to develop an installation schedule that limits disruptions to the fullest extent.
- Provide Method of Procedure reports, as required by OSHPD.
- Contract with a third-party inspection service to provide inspection reports and approvals
- Install the balance of the solar, battery, and inverters.
- Conduct comprehensive performance and safety testing using standard manufacturer and code-directed testing protocols to validate system safety, data acquisition and reporting effectiveness, communication and control system operation, emergency protocols, system shutdown, and system restart.
- Create an *Operation & Maintenance Manual* that will be provided in both electronic and print forms.
- Define the parameters that will be set within the control software for detecting and reporting system health variation from acceptable, consequent automated system self-regulation and person-to-person communication, and safety protocols such as throttling of microgrid energy production, re-direction of power flows, or microgrid disconnection.
- Perform commissioning of microgrid, after performance and safety testing are completed.
- Validate through monitoring the successful microgrid operation, including solar productivity, battery charging and discharge, peak load control, data reporting and control

**Exhibit A**  
**Scope of Work**  
**Charge Bliss, Inc.**

- Provide *As-Built Drawings*
- Determine whether an attacker can perform unintended and/or unauthorized behaviors on the system equipment. This includes but is not limited to:
  - Unauthorized power command and control
  - Network denial of service
  - Network intrusion
  - Performing device firmware updates without authorization
  - Causing degraded experience
  - Causing any project equipment to become non-functional
- Provide a *Testing & Commissioning Report* which will include the following:
  - Start-up Checklist of items (provided by the battery supplier, controller supplier, and gen-set supplier) that need to be verified as operating.
- Provide *Cybersecurity Report* to include the following information:
  - A physical hardware security assessment of each piece of equipment identified to be at risk of attack, to include:
    - A detailed analysis of each equipment item to determine equipment components (embedded microcontrollers, memory modules, network physical and logical ports) that may be at risk to attack
    - Identification of existing security CVE's (Common Vulnerabilities and Exposures) for each equipment item and associated patch status
    - Assessment of all physical and logical inputs and outputs to identify risks of each equipment item
    - Security policy document detailing the risks of each item (FIPS140-2 Format)
    - Risk mitigation details for each identified risk to prevent such attack
    - Equipment substitution recommendations, as applicable
- Review necessary information to perform a Black Box security review. The findings of this report represent what a typical attacker is likely to discover without access to any internal information about the project or equipment schedule
- Provide *Site & Microgrid "After" Photos*
- Provide *Compilation of Inspection Reports* including third-party inspection approvals.
- Provide *Signed Interconnection Approval* from SCE.
- Provide a *CPR Report #2* and participate in a CPR Meeting per subtask 1.3.

**Products:**

- Operation & Maintenance Manual
- As-built Drawings
- Testing & Commissioning Report (draft & final)
- Site & Microgrid "After" Photos
- Signed Interconnection Approval
- Cybersecurity Report
- Compilation of Inspection Reports
- CPR Report #2

**TASK 5: SYSTEM PERFORMANCE OPTIMIZATION AND DATA COLLECTION**

The goal of this task is to optimize the microgrid controller functions and provide reporting.

**The Recipient shall:**

## **Exhibit A**

### **Scope of Work**

#### **Charge Bliss, Inc.**

- Work with the occupants of the buildings to balance the desired building environment standards of the users and occupants and the perceived need to preserve a minimum battery capacity at all times, to sustain building operations during outages
- Optimize the microgrid for financial performance. This will take into consideration tariff structures, the value of immediate usage, storage, or export of renewable generation, demand reduction, demand response, and ancillary services revenue.
- Prepare a summary of monthly energy data totals for a minimum of 12-months of microgrid data during the grant period, which will be included in the M&V data collection report product in this task.
- Provide annual microgrid data reporting for an additional three (3) years.
- Provide a *Ratepayer Value Report* which will show the value to the ratepayers by assessing the GHG emissions averted using CEC metrics, decrease in non-coincident peak demand, impact upon coincident utility peak demand, and qualitative measures including building occupant/user satisfaction, ability to support emergency services for the community, and improved overall site reliability.
- Provide an *Economic Performance Report* which will consider the net change in energy cost from baseline and new revenue sources directly attributable to microgrid function.
- Provide a *Microgrid Controller Development Report* including:
  - Pre-deployment testing and validation
  - ADR 2.0b signaling
  - Demand response summary
  - Performance differences between lithium-ion and flow controls
- Provide a *One-year Measurement & Verification Data Collection Report* that will include the collection and measurement and verification of data on the installation over the one year demonstration period. The duration of data collection may be reduced with prior CAM written approval. M&V includes plots of charge/discharge power levels, storage efficiencies, ambient temperatures, and PV output as a function of time. The data collected for each site will include but not be limited to the following:
  - Renewable energy generation (kWh/mo., total during project operation)
  - Average monthly number and depth of battery discharges (State of Charge)
  - Maximum monthly microgrid power delivery in kW
  - Monthly peak site demand from utility
  - Average weekday demand profile
  - Average weekend demand profile
  - Number and duration per year of spontaneous islanding episodes >1 hour
  - Number of islanding episodes ended before 5 hours AND before utility service returns
  - Site cost savings
  - Ancillary services revenues
  - Averted site diesel consumption
  - Averted direct and indirect GHG emissions
  - Stakeholder interviews and questionnaires
  - Real vs. projected performances
  - Use case performances
  - Comparison with Kaiser site microgrid performance

#### **Products:**

- One-year Measurement & Verification Data Collection Report
- Economic Performance Report

**Exhibit A**  
**Scope of Work**  
**Charge Bliss, Inc.**

- Ratepayer Value Report
- Microgrid Controller Development Report

**TASK 6: EVALUATION OF PROJECT BENEFITS**

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

**The Recipient shall:**

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

## **Exhibit A**

### **Scope of Work**

#### **Charge Bliss, Inc.**

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

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

#### **Products:**

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

#### **TASK 7: TECHNOLOGY/KNOWLEDGE TRANSFER ACTIVITIES**

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

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

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

**Exhibit A**  
**Scope of Work**  
**Charge Bliss, Inc.**

- A discussion of policy development. State if project has been or will be cited in government policy publications, or used to inform regulatory bodies.
- The number of website downloads or public requests for project results.
- Additional areas as determined by the CAM.
- Conduct technology transfer activities in accordance with the Technology/Knowledge Transfer Plan. These activities will be reported in the Progress Reports.
- When directed by the CAM, develop *Presentation Materials* for an Energy Commission-sponsored conference/workshop(s) on the project.
- When directed by the CAM, participate in annual EPIC symposium(s) sponsored by the 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 Excel spreadsheet.

STATE OF CALIFORNIA

STATE ENERGY RESOURCES  
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION - RE: 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 Agreement EPC-20-002 with Charge Bliss, Inc. for a \$8,351,000 grant to demonstrate an 8 MWh long-term flow battery plus 2.2 MW solar photovoltaic array microgrid for the Kaiser Permanente Ontario Medical Center in a disadvantaged and low-income community. The microgrid will provide the ability to meet 90 percent of the medical center's essential power needs for over 10 hours and demonstrate support of essential facilities within the medical center; and

**FURTHER BE IT RESOLVED**, that the Executive Director or his/her 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 September 9, 2020.

AYE:

NAY:

ABSENT:

ABSTAIN:

---

Cody Goldthrite  
Secretariat