



**CALIFORNIA
ENERGY COMMISSION**



**California Energy Commission
February 12, 2025 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 Request Form
3. Scope of Work

[PROPOSED]

RESOLUTION NO: 25-212-11

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 agreement LDS-24-005 with Charge Bliss, Inc. for the first phase of an up to \$28,091,162 grant. The agreement will fund deployment of a 33 MWh non-lithium-ion Long Duration Energy Storage (LDES) system, with a discharge duration of at least 10 hours, at the Valley Children's Hospital (VCH) in Madera County. The agreement will initially provide \$4,328,572 for the first phase consisting of preliminary engineering, detailed project planning, and commercial scale designs, and up to an additional \$23,762,590 may be added, with approval from the CEC's Executive Director, through an amendment. The LDES system will be operated as part of a microgrid being funded by VCH featuring 2.2MW of fuel cell capacity, 1.2MW of solar photovoltaics, and a 2.8 MWh LDES system; 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 February 12, 2025.

AYE:

NAY:

ABSENT:

ABSTAIN:

Dated:

Kristine Banaag
Secretariat



GRANT REQUEST FORM (GRF)

A. New Agreement Number

IMPORTANT: New Agreement # to be completed by Contracts, Grants, and Loans Office.

New Agreement Number: LDS-24-005

B. Division Information

1. Division Name: ERDD
2. Agreement Manager: Javier Flores
3. MS-:None
4. Phone Number: 916-352-0594

C. Recipient's Information

1. Recipient's Legal Name: Charge Bliss, Inc.
2. Federal ID Number: 45-4012582

D. Title of Project

Title of project: Valley Children's Hospital-Resilient Healthcare Services

E. Term and Amount

1. Start Date: 4/1/2025
2. End Date: 3/31/2031
3. Amount: \$28,091,162.00

F. Business Meeting Information

1. Are the ARFVTP agreements \$75K and under delegated to Executive Director? No
2. The Proposed Business Meeting Date: 2/12/2025 .
3. Consent or Discussion? Discussion
4. Business Meeting Presenter Name: Javier Flores
5. Time Needed for Business Meeting: 5 minutes.
6. The email subscription topic is: Research (Energy RD&D / PIER program).

Agenda Item Subject and Description:

Charge Bliss, Inc.

Proposed resolution approving agreement LDS-24-005 with Charge Bliss, Inc. for the first phase of an up to \$28,091,162 grant, and adopting staff's recommendation that this action is exempt from CEQA. The agreement will fund deployment of a 33 MWh non-lithium-ion Long Duration Energy Storage (LDES) system, with a discharge duration of at least 10 hours, at the Valley Children's Hospital (VCH) in Madera County. The agreement will initially provide \$4,328,572 for the first phase consisting of preliminary engineering, detailed project planning, and commercial scale designs, and up to an additional \$23,762,590 may be added, with approval from the CEC's Executive Director, through an amendment. The LDES system will be operated as part of a microgrid being funded by VCH featuring 2.2MW of fuel cell capacity, 1.2MW of solar photovoltaics, and a 2.8 MWh LDES system. (LDES Funding) Contact: Javier Flores (Staff Presentation 5 minutes)



G. California Environmental Quality Act (CEQA) Compliance

1. Is Agreement considered a “Project” under CEQA?

Yes

If yes, skip to question 2.

If no, complete the following (PRC 21065 and 14 CCR 15378) and explain why Agreement is not considered a “Project”:

Agreement will not cause direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment because:

2. If Agreement is considered a “Project” under CEQA answer the following questions.

a) Agreement **IS** exempt?

Yes

Statutory Exemption?

No

If yes, list PRC and/or CCR section number(s) and separate each with a comma. If no, enter “None” and go to the next question.

PRC section number: None

CCR section number: None

Categorical Exemption?

Yes

If yes, list CCR section number(s) and separate each with a comma. If no, enter “None” and go to the next question.

CCR section number: Cal. Code Regs., tit. 14, § 15306 ;

Cal Code Regs., tit 14 section 15306 provides that basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource are categorically exempt from the provisions of CEQA. This first phase of this project, the only approved activities are strictly for information gather purposes, which may lead to an action the CEC might approve in the future.

The purpose of Phase 1 of this project is to complete the engineering and commercial-scale designs. This will include finalization of a Project Management Plan (PMP), a Risk Management Plan (RMP), an Intellectual Property Management Plan (IPMP), an initial financial model for the entire DOE 4-phase effort, and final site selection for the various technologies to be included in the LDES Demonstration. The approved is only to prepare all of these planning and preparation documents. Preparation of these documents is strictly for informational purposes and will not cause a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment.

The project will not impact an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies; 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.

Common Sense Exemption? 14 CCR 15061 (b) (3)

No

If yes, explain reason why Agreement is exempt under the above section. If no, enter "Not applicable" and go to the next section.

b) Agreement **IS NOT** exempt.

IMPORTANT: consult with the legal office to determine next steps.

No

If yes, answer yes or no to all that applies. If no, list all as "no" and "None" as "yes".

Additional Documents	Applies
Initial Study	No
Negative Declaration	No
Mitigated Negative Declaration	No
Environmental Impact Report	No
Statement of Overriding Considerations	No
None	Yes

H. Is this project considered "Infrastructure"?

No

I. Subcontractors

List all Subcontractors listed in the Budget (s) (major and minor). Insert additional rows if needed. If no subcontractors to report, enter "No subcontractors to report" and "0" to funds.

Delete any unused rows from the table.

Subcontractor Legal Company Name	CEC Funds	Match Funds
Please see attachment.	\$	\$

J. Vendors and Sellers for Equipment and Materials/Miscellaneous

List all Vendors and Sellers listed in Budget(s) for Equipment and Materials/Miscellaneous. Insert additional rows if needed. If no vendors or sellers to report, enter "No vendors or sellers to report" and "0" to funds. **Delete** any unused rows from the table.



Vendor/Seller Legal Company Name	CEC Funds	Match Funds
Sandis Civil Engineers Surveyors Planners	\$47,500	\$47,500
Mazzetti, Inc.	\$92,500	\$92,500
RS Studio Inc.	\$37,500	\$37,500
Brooks Ransom Associates	\$17,500	\$17,500
Troy Brown Consulting LLC	\$25,500	\$25,500
DC Energy Services LLC	\$80,000	\$80,000
Farallon Consulting, LLC	\$7,500	\$7,500
Marcum LLP	\$262,500	\$262,500
Please see attachment for additional vendors/sellers		

K. Key Partners

List all key partner(s). Insert additional rows if needed. If no key partners to report, enter "No key partners to report." **Delete** any unused rows from the table.

Key Partner Legal Company Name
No key partners to report

L. Budget Information

Include all budget information. Insert additional rows if needed. If no budget information to report, enter "N/A" for "Not Applicable" and "0" to Amount. **Delete** any unused rows from the table.

Funding Source	Funding Year of Appropriation	Budget List Number	Amount
GGRF	23-24	303.201	\$ 28,091,162

TOTAL Amount: \$ 28,091,162

R&D Program Area: ESTB: ETSI

Explanation for "Other" selection Not applicable

Reimbursement Contract #: Not applicable

Federal Agreement #: 101

M. Recipient's Contact Information

1. Recipient's Administrator/Officer

Name: Ryan Bliss

Address: 25 Mauchly Ste 320

City, State, Zip: Irvine, CA 92618-2361

Phone: 949-305-7820; ext 4



STATE OF CALIFORNIA
CALIFORNIA ENERGY COMMISSION

Grant Request Form
CEC-270 (Revised 01/2024)

E-Mail: rbliss@faradaymicro.com

3. Recipient's Project Manager

Name: Ryan Bliss

Address: 25 Mauchly Ste 320

City, State, Zip: Irvine, CA 92618-2361

Phone: 949-305-7820; ext 4

E-Mail: rbliss@faradaymicro.com

N. Selection Process Used

There are three types of selection process. List the one used for this GRF.

Selection Process	Additional Information
Competitive Solicitation #	Not applicable
First Come First Served Solicitation #	Not applicable
Other	A noncompetitive LDES grant award to the recipient is permissible under Public Resources Code section 25643(d)(1) because the recipient received funding for the original project through a competitive bid process from a federal agency and the grant award is consistent with the stated goals and criteria for the LDES program.

O. Attached Items

1. List all items that should be attached to this GRF by entering "Yes" or "No".

Item Number	Item Name	Attached
1	Exhibit A, Scope of Work/Schedule	Yes
2	Exhibit B, Budget Detail	Yes
3	CEC 105, Questionnaire for Identifying Conflicts	Yes
4	Recipient Resolution	No
5	Awardee CEQA Documentation	No

Approved By

Individuals who approve this form must enter their full name and approval date in the MS Word version.

Agreement Manager: Javier Flores



STATE OF CALIFORNIA
CALIFORNIA ENERGY COMMISSION

Grant Request Form
CEC-270 (Revised 01/2024)

Approval Date: 1/3/2025

Branch Manager: Cody Taylor

Approval Date: 1/3/2025

Director: Cody Taylor on behalf of Director

Approval Date: 1/3/2025

LDS-24-005 Charge Bliss, Inc.

Attachment 1 – TBD Subcontractor List

Subcontractor Name	Purpose	Energy Commission Funds
TBD - Geotech	geotechnical reports for soil quality	\$15,000
TBD - Special Inspector	Inspection company for supplying code required special inspections and observations of construction activities	\$412,250
TBD - Commissioning Agent	Third-party agent to witness/validate commissioning and testing of the system	\$125,000
TBD - Excavation Contractor	contractor for providing subgrade work	\$863,402
TBD - Electrical Contractor	contractor for providing electrical work	\$3,878,663
TBD - Concrete Contractor	contractor for providing foundation work	\$ 281,361
TBD - Security Contractor	contractor for installing security equipment	\$ 97,496
TBD – Tribal Consultant/Liaison	Tribal consultant for coordinating with tribal entities	\$ 30,000
TBD - Community Benefits Consultant	Community engagement consulting and program admin	\$ 150,000
TBD – Third-Party Engineer Review	Electrical/hospital design consultant/derisking engineer	\$ 32,500

I. TASK ACRONYM/TERM LISTS

A. Task List

Task #	CPR ¹	Task Name
1		General Project Tasks
2	X	Detailed Project Planning
3		Develop Materials for Environmental Compliance
4	X	Project Development and Permitting
5		Procure Equipment and Materials for LDES System
6		Installation, Integration, and Construction
7		Ramp-up and Sustained Operations
8	X	Measurement and Verification
9		Evaluation of Project Benefits
10		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 ²
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CPR	Critical Project Review
DOE	Department of Energy
GGRF	Greenhouse Gas Reduction Fund
GHG	Greenhouse Gas
Grid	Bulk energy system
IIS	Internet Information Services
LCA	Life Cycle Analysis
LDES	Long Duration Energy Storage
MW	Megawatt
MWh	Megawatt-hour
MS	Microsoft
NEPA	National Environmental Policy Act
OCED	Office of Clean Energy Demonstrations
PSPS	Public Safety Power Shut Off
SQL	Structured Query Language
TAC	Technical Advisory Committee
TEA	Techno-economic Analysis

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

2 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

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

A. Purpose of Agreement

The purpose of this Agreement is to fund the deployment of a 3.3-Megawatt (MW)/33 Megawatt-hour (MWh) non-lithium-ion Long Duration Energy Storage (LDES) system to fully support the emergency power of the Valley Children's Hospital (VCH) in Madera, California for ten (10) hours or longer during utility shutoffs. CEC grant funds will be used as the cost share funding for the Department of Energy Office of Clean Energy Demonstrations (DOE) supported collaborative agreement, DE-CD0000034. The LDES system will be operated in concert with a separate project, a commercial microgrid funded by VCH featuring 2.2MW of fuel cell capacity, 1.2MW of solar photovoltaic, and 2.8 MWh LDES system, which has already been fully approved. The project will demonstrate the microgrid's ability to power critical hospital operations during outage events, such as Public Safety Power Shut Off (PSPS) events, mitigate peak grid demand, and significantly reduce GHG emissions through substitution of clean energy resources for conventionally generated utility power.

DOE Grant

The DOE grant was competitively awarded to the Recipient to deploy the 3.3MW/33MWh LDES system at VCH and requires 50% cost share funding. The CEC is providing \$28,091,162 in grant funding and together the Recipient and VCH are providing a total of \$1,000,000. Combined those funds will serve as 50% cost share for the \$30,000,000 provided by the DOE.¹ The DOE divides their grant award into four phases each with a Go/No-Go assessment at its end, prior to funding the subsequent phase. Tasks 2, 4, 6, and 7 below correspond to each of DOE'S four phases.

LDES Grant Funding

LDES program funding 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.

¹ The CEC is providing an additional approximate \$908,838 in cost share funding supporting this project through previously approved technical support agreements with Aspen Environmental Group and National Technology & Engineering Solutions of Sandia, LLC as Management and Operating Contractor for the Sandia National Laboratories.

The CEC's initial approval of this project only authorizes the Recipient to perform portions of Task 1 and all of Tasks 2 and 3. Accordingly, the Recipient is only authorized to incur expenses detailed in the preliminary agreement budget, Exhibit B-2, which covers costs for portions of Task 1, and all of Tasks 2 and 3. The Recipient may not incur reimbursable expenses that exceed the amount detailed in the preliminary agreement budget, Exhibit B-2, without further CEC approval.

The full agreement budget, Exhibit B-1, encompasses all tasks, including the remaining tasks of this agreement, Tasks 4 - 10, and the preliminary tasks initially approved. Recipient will only be authorized to incur reimbursable expenses beyond the preliminary agreement budget, Exhibit B-2, if the CEC approves both the CEQA analysis for the LDES system deployment and the remaining tasks in the SOW, and they are consistent with the full agreement budget, Exhibit B-1.

The CEC's Scope of Work is designed to align with the DOE's scope of work. As the DOE approves phases 2 - 4 and provides the Recipient additional details of the requirements of those phases, the CEC will amend the SOW to maintain consistency. Tasks 4, 6, and 7 equate to DOE phases 2 - 4, and will be reviewed and amended as DOE information becomes available.

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 Independent System Operator (ISO) systems, mitigate risks of system power outages, and provide resiliency to communities, but has yet to be demonstrated at scale. Underserved communities have not yet had the opportunity to take advantage of these solutions and are particularly vulnerable to Grid outages and rising costs of electricity.

LDES for a Children's Hospital Serving Disadvantaged Communities:

To date, there have been an insufficient number, and a lack of capacity, of behind-the-meter LDES deployments, particularly in communities of need. These disadvantaged communities 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 VCH's power needs for at least ten (10) hours continuously during Grid outages, and perhaps indefinitely, with the utilization of co-located microgrid resources. Per CalEnviroScreen 4.0, VCH, a pediatric hospital serving children within roughly a 150-mile radius, is located in a disadvantaged community experiencing high levels of pollution. This project will help ensure the hospital can continually operate, with clean energy, and provide critical services to the surrounding community.

Several additional notable achievements are expected from this project. First, it will demonstrate the feasibility of a State, Federal, and commercial collaboration for project execution. Using resources from all these sources will demonstrate the effectiveness of emerging financial models to deploy LDES in Disadvantaged Communities. Second, the project will demonstrate the ability to time-shift clean energy production to both significantly reduce hospital energy cost, as well as convert electricity consumption to nearly 80% site-based generation and energy storage. By combining a large energy storage system with a solar array, the project will mitigate the issues

attendant to solar only including intermittent output, power quality variation, and unpredictable production. Third, the LDES system will reduce GHG emissions both through the reduction of diesel genset utilization and draw from the grid when system demand is highest and utility GHG emissions are greatest. Finally, this long-term project studying the performance of non-lithium-ion batteries 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 LDES and renewables in California and beyond, as well as increased reliability, resiliency, and overall Grid safety.

Solution

The project will deploy a 33MWh LDES battery system which, coupled with separate 1.5MW PV solar generation and 2.2MW fuel cell, to be built independently by the VCH, will support all or nearly all of VCH's energy needs. In particular, the system will be "islandable," or, able to operate in parallel to the utility during prolonged outages of at least 10 hours, when PSPS events, excess grid demand, or other factors may lead to outages. While the expectation of the current design is that the system will be able to support VCH's energy needs for ten hours, longer durations may be possible during summer months when the solar array is expected to have its greatest productivity. In this setting, it may be possible for the system to sustain VCH's operations indefinitely. Given adequate power reserves, the system may also be able to participate in ancillary services such as frequency regulation at the utility or ISO level.

C. Goals and Objectives of the Agreement

Agreement Goals

The goals of this Agreement are to:

- Demonstrate significant effectiveness and impacts of LDES upon critical facilities.
- Demonstrate the ability of LDES to facilitate rapid interconnection of site-based generation systems through a zero-export methodology.
- Improve grid-edge power reliability and resiliency.
- Create a replicable financial and social model for LDES deployment in disadvantaged communities.
- Significantly reduce GHG emissions attributable to site energy usage.
- Determine the long-term performance of flow-type battery systems.

Agreement Objectives

The objectives of this Agreement are to:

- Design and engineer an LDES system with capacity to discharge of at least 3.3 MW for a minimum of 10-hours of continuous operation, serving a children's hospital in a disadvantaged community.
- Demonstrate economic and social benefits to surrounding disadvantaged communities resulting from decreased GHG emissions, decreased energy costs, increased hospital

reliability and resiliency, leading to operational availability of the facility, contribution to the local economy, and development of local workforce skills.

- Construct LDES system and achieve LDES system readiness by June 2028 and full microgrid operation by October 2028.
- Decrease site energy GHG emissions by 40%.

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 Phase One Report Outline and Final Report

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

For products that require a final version only

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

For all products

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

Instructions for Submitting Electronic Files and Developing Software:

- **Electronic File Format**

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

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);
- Permit documentation (subtask 1.7);
- 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* 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)
 - Permit Status Letter (subtask 1.7) (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 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 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.

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, DOE funds spent 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 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. 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;
 - Estimated/actual total project GHG emission reductions;
 - Estimated/actual energy saved (kWh, therms, or other fuels) for energy efficiency projects;
 - 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

PERMITS AND SUBCONTRACTS

Subtask 1.7 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.
- 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 1.8 Subcontracts and Site Host Agreements

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:

- Execute, manage, and coordinate subcontractor activities in accordance with the requirements of this Agreement.
- Execute and manage site host agreement and ensure the right to use the project site throughout the term of the Agreement, as applicable.
- Notify the CEC in writing immediately, but no later than five calendar days, if there is a reasonable likelihood the project site cannot be acquired or can no longer be used for the project.
- 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 and any site host agreement required to conduct the work under this Agreement.
- Submit a final copy of each executed subcontract and any site host agreement.
- 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*)
- Site Host Agreement (*draft if required by the CAM*)

TECHNICAL ADVISORY COMMITTEE

Subtask 1.9 Technical Advisory Committee (TAC)

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

- Provide guidance in project direction. The guidance may include scope and methodologies, timing, and coordination with other projects. The guidance may be based on:
 - Technical area expertise;
 - Knowledge of market applications; or
 - Linkages between the agreement work and other past, present, or future projects (both public and private sectors) that TAC members are aware of in a particular area.
- Review products and provide recommendations for needed product adjustments, refinements, or enhancements.
- Evaluate the tangible benefits of the project to the state of California, and provide recommendations as needed to enhance the benefits.
- Provide recommendations regarding information dissemination, market pathways, or commercialization strategies relevant to the project products.
- 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.
- 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 1.10 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

Subtask 1.11 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

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: DETAILED PROJECT PLANNING

Activities in this task will focus on completing details about the overall project plan and analysis to refine the projections submitted as part of the proposal. These activities should provide assurance to CEC that the overall LDES Demonstration plan is technologically, financially, and legally viable, with buy-in from relevant local and community stakeholders. Preliminary engineering and commercial-scale designs will be completed. This will include finalization of a Project Management Plan (PMP), a Risk Management Plan (RMP), an Intellectual Property Management Plan (IPMP), an initial financial model for the entire DOE 4-phase effort, and a final site selection for the various technologies to be included in the LDES Demonstration.

This task corresponds to Phase 1 of DOE award DE-CD0000034. Phase 1 is designed to identify, minimize, and/or mitigate project business risks. It may also include start of long lead time activities that OCED and the Recipient judge to be worth starting early. The Phase 1 plan includes:

- Making substantial progress on business agreements,
- Initiating community benefit activities,
- Obtaining land rights,
- Starting permitting and interconnection activities, as applicable,
- Compiling all information needed for DOE's National Environmental Policy Act (NEPA) review,
- Identifying long lead procurement items, and
- Refining the project schedule, budget, and financial model.

The Recipient shall:

- Refine and update life cycle analysis (LCA) and techno-economic analysis (TEA) data provided in the application.
- Finalize Project Management Plan (PMP)
- Finalize the Risk Management Plan (RMP), to include:
 - A corresponding risk register that can be used for ongoing risk management.
 - A narrative that analyzes the commercial, technical, construction, schedule, regulatory, permitting, safety, scale-up, infrastructure, financial, management, organizational, and market related risks.
 - An evaluation of each identified risk, which includes clearly describing the risk, its probability of realization, its potential impacts, and proposed mitigations.
 - The incorporation of the identified risks into other project documentation, such as execution schedules, cost estimate maturity, and contingency, as applicable.
 - The RMP and risk register will be revised and updated as needed throughout the project life cycle.
- Finalize the Intellectual Property Management Plan (IPMP)
 - The IPMP should describe how the Recipient and Subrecipients will handle intellectual property rights and issues between themselves while ensuring compliance with federal intellectual property laws, regulations, and policies.
- Draft initial financial model for LDES project
- Provide approved Phase 2 DOE Scope of Work and applicable Terms and Conditions
- Prepare a *CPR Report #1* and participate in CPR Meeting, per subtask 1.3. Report shall also include summaries of the reports and plans produced in this task.

Products:

- Updated LCA and TEA
- Finalized PMP
- Finalized RMP
- IPMP
- Initial financial model
- Approved Phase 2 DOE Scope of Work and applicable Terms and Conditions
- CPR Report #1

TASK 3: DEVELOP MATERIALS FOR ENVIRONMENTAL COMPLIANCE

The goal of this task to develop proposed modifications to agreement documents if needed and assist as needed to ensure the materials supporting environmental compliance are accurately completed.

The Recipient shall:

- Provide assistance, as requested by the CAM, to ensure the CEQA documents are complete and fully analyze the project effects.
- Prepare draft updated Scope of Work and any other agreement documents for consideration (if applicable)

Products:

- Supporting documents for CEQA compliance, as requested
- Any draft updated agreement documents, if needed

Approval of the remaining tasks, starting with Task 4 will be considered at a future CEC Business Meeting and is contingent on the successful completion of preliminary planning and resource evaluation (Tasks 2 – 3) and environmental compliance for Tasks 4 - 10. No work on Tasks 4 – 10 may start unless and until the CEC authorizes beginning work on those tasks. Recipient is not authorized to incur expenses beyond the preliminary budget Exhibit B-2 unless and until further CEC approval is provided.

TASK 4: PROJECT DEVELOPMENT AND PERMITTING

This task encompasses advanced planning activities. Project development plans, commercial agreements (per subtask 1.8), and the financial structure of the entire project will be finalized. The necessary permitting and approval activities required to begin construction of the project will be completed. Engineering designs should be sufficiently mature to support completion and execution of relevant procurement or construction contracts and overall commencement of major project execution tasks. Risk management plans should be revised and updated to reflect progress made and risks mitigated as well as new or emerging risks and corresponding management plans. Safety and security plans should be finalized and execution ready. All necessary permits and approvals (subtask 1.7) should be in place to prepare for construction.

Final pre-implementation LCA and TEA activities should be completed, and corresponding verification and validation (V&V) plans should be in place. V&V plans may overlap with the Measurement and Verification task below. Products related to V&V plans will be determined by CAM once DOE's Phase 2 Scope of Work is submitted and reviewed by CAM. Community and labor engagement should have progressed towards a comprehensive Community Benefits Plan that reflects community input, community and labor agreements negotiated or in progress, and

implementation experience to date, and that sets the stage for ongoing engagement. Goals, outcomes, and implementation strategies for supporting community and labor engagement, quality jobs, DEIA, and equity and justice should be finalized, and plans should be in place to monitor, evaluate, and learn from the economic and social impacts of the LDES demonstrations as they progress to implementation.

This task corresponds to Phase 2 of DOE award DE-CD0000034. Once the DOE approves Phase 2, and the necessary documents are submitted to the CAM, this task and scope will be amended accordingly to reflect DOE's Phase 2 scope, to include the recipient and CAM products. Additionally, products not included in DOE's scope may be added per CEC's discretion.

The Recipient shall:

- Obtain all necessary permits and approvals to begin project construction (subtask 1.7)
- Update Risk Management Plans (if applicable)
- Develop Community Benefits Plan
 - Community and labor engagement should have progressed towards a comprehensive Community Benefits Plan that reflects community input, community and labor agreements negotiated or in progress, and implementation experience to date, and that sets the stage for ongoing engagement.
 - Goals, outcomes, and implementation strategies for supporting community and labor engagement, quality jobs, DEIA, and equity and justice should be finalized, and plans should be in place to monitor, evaluate, and learn from the economic and social impacts of the LDES demonstrations as they progress to implementation.
- Finalize life cycle analysis (LCA) and techno-economic analysis (TEA) pre-implementation activities.
- Finalize safety and security plans.
- Prepare verification and validation plan(s) (if applicable).
- Provide approved Phase 3 DOE Scope of Work and applicable Terms and Conditions.
- 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 a *CPR Report #2* and participate in CPR Meeting, per subtask 1.3. Additional content may be required to be included or submitted with, as determined by CAM, the *CPR Report #2* based on DOE phase 2 scope of work.

Products:

- Execution-ready Engineering and Design plan and documents
- Updated Risk Management Plans (if applicable)
- Execution-ready Safety Plan
- Final Cybersecurity Plan
- Verification and Validation Plans (if applicable)
- Community Benefits Plan (draft and final)
- DOE Phase 3 Scope of Work and Terms and Conditions
- CPR Report #2
- Other products to be determined by CAM

TASK 5: PROCURE EQUIPMENT AND MATERIALS FOR LDES SYSTEM

The goal of this task is to procure, track and manage logistics for delivery of the 33MWh LDES 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.
- 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 upon verification of successful systems commissioning and project operation.

Products:

- Master List of Equipment and Materials
- Supplier Specific Payment Schedules

TASK 6: INSTALLATION, INTEGRATION, AND CONSTRUCTION

The goal of this task is to focus on project implementation and commissioning, as well as to test the major components of the system. The project will employ industry standard project management tools and Recipient will be required to provide regular status updates and reports as part of the monthly progress reports listed in Subtask 1.5. Plans developed in the preceding phases will be revised and updated as appropriate to reflect actual performance and community engagements. Previously and newly developed risks will be tracked, actively managed, and regularly reported to CEC.

This task corresponds to Phase 3 of DOE award DE-CD0000034. Once DOE approves Phase 3, and the necessary documents are submitted to the CAM, this task and scope will be amended accordingly to reflect DOE's Phase 3 scope, to include the recipient and CAM products. Additionally, products not included in DOE's scope may be added per CEC's discretion.

The Recipient shall:

- Prepare as-built drawings.
- Complete all construction activities
- 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 of microgrid controls integration
- Provide a *Systems Readiness Certification*
- Provide approved Phase 4 DOE Scope of Work and applicable Terms and Conditions
- 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 the tasks and lessons learned during the TAC meeting with the TAC and the CAM

Products:

- As-built drawings
- Summary report of completed construction activities
- Project Performance Report(s)
- Acceptance Test Result(s)
- Systems Readiness Certification
- Authority to Operate Letter
- Approved Phase 4 DOE Scope of Work and applicable Terms and Conditions
- Other products to be determined by CAM

TASK 7: RAMP-UP AND SUSTAINED OPERATIONS

This task consists of completion of project-specific criteria, such as mechanical completion or production capacity demonstration, which will be negotiated in prior phases. Demonstration of full commercial-scale design operations over an extended period. This task includes substantial financial, socio-economic, environmental, and operational data collection and reporting to CEC.

This task corresponds to Phase 4 of DOE award DE-CD0000034. Once DOE approves Phase 4, and the necessary documents are submitted to the CAM, this task and scope will be amended accordingly to reflect DOE's Phase 4 scope, to include the recipient and CAM products. Additionally, products not included in DOE's scope may be added per CEC's discretion.

The Recipient shall:

- Operate the LDES facility for an extended period.
- Prepare financial, socioeconomic, environmental and operational data collection

Products:

- Financial, socioeconomic, environmental and operational data collection
- Other products to be determined by CAM

TASK 8: MEASUREMENT AND VERIFICATION OF LDES PERFORMANCE

The goal of this task is to measure and verify the performance of the LDES installation and report the benefits of GHG and energy consumption reduction resulting from this project. Using an experienced third-party firm, local measurement devices (CT, PT, controller), and utility data, system capabilities and performance will be determined objectively. This will include, but not necessarily be limited to, the ability of the system to operate in parallel to the grid during outages, serve utility ancillary services, mitigate peak facility loads, and store "excess" on-site power generation.

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.
 - Ensure installation of sub-metering equipment and data loggers for pre/post data analysis.
- Prepare and provide a detailed *M&V Plan* for the 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.
- Perform 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 the 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 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 the 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.

Products:

- Measurement and Verification 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 9: 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.
- 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 10: 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.

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.
 - A discussion of policy development. State if project has been or will be cited in government policy publications or used to inform regulatory bodies.
 - Additional areas as determined by the CAM.
- Present the Draft Technology Transfer Plan to the TAC for feedback and comments.
- Develop and submit a Summary of TAC Comments that summarizes comments received from the TAC members on the Draft Knowledge Transfer Plan.
 - TAC comments the Recipient proposes to incorporate into the Final Knowledge Transfer Plan.
 - TAC comments the Recipient does not propose to incorporate with and explanation why.
- Submit the Final Technology Transfer Plan to the CAM for approval.
- Conduct technology transfer activities in accordance with the Technology/Knowledge Transfer Plan. These activities will be reported in the Progress Reports.
- Prepare a Technology/Knowledge Transfer Report on technology transfer activities conducted during the project to include:
 - 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.
- When directed by the CAM, develop *Presentation Materials* for an Energy Commission-sponsored conference/workshop(s) on the project. Presentation materials must be approved by the CAM in writing prior to the conference/workshop(s).
 - 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.
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Products:

- Initial Fact Sheet (draft and final)
- Final Project Fact Sheet (draft and final)
- Technology Transfer Plan (draft and final)
- Summary of TAC Comments
- Technology Transfer Report (draft and final)
- Presentation Materials (draft and final)
- High Quality Digital Photographs

V. PROJECT SCHEDULE

Please see the attached Excel spreadsheet.