



**CALIFORNIA
ENERGY COMMISSION**



**California Energy Commission
May 8, 2024 Business Meeting
Backup Materials for Indian Energy LLC**

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: 24-0508-13

**STATE OF CALIFORNIA
STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION**

RESOLUTION: Indian Energy LLC

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-23-002 with Indian Energy LLC for a \$4,850,000 grant to fund non-lithium-ion long duration energy storage (LDES) testing at the Rapid Integration and Commercialization Unit using four different LDES technologies at the Marine Corps Air Station Miramar in San Diego. The LDES systems will be operated both independently and as part of a microgrid system to test and assess the demonstrated technology. Indian Energy LLC will develop and improve testing guidelines to evaluate the technology's ability to power critical operations under diverse use cases, loads, and operating conditions and work with first responders to develop safety guidelines.; 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 May 8, 2024.

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-23-002

B. Division Information

1. Division Name: ERDD
2. Agreement Manager: Caitlin Planchard
3. MS-: None
4. Phone Number: 916-637-8128

C. Recipient's Information

1. Recipient's Legal Name: Indian Energy LLC
2. Federal ID Number: 27-1375128

D. Title of Project

Title of project: Demonstration of LDES at the Rapid Integration and Commercialization Unit (RICU) Wave 2

E. Term and Amount

1. Start Date: 5/27/2024
2. End Date: 3/31/2028
3. Amount: \$4,850,000.00

F. Business Meeting Information

1. Are the ARFVTP agreements \$75K and under delegated to Executive Director? No
2. The Proposed Business Meeting Date: 5/8/2024 .
3. Consent or Discussion? Discussion
4. Business Meeting Presenter Name: Caitlin Planchard
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:

Indian Energy LLC. Proposed resolution approving agreement LDS-23-002 with Indian Energy LLC for a \$4,850,000 grant to fund non-lithium-ion long duration energy storage (LDES) testing at the Rapid Integration and Commercialization Unit using four different LDES technologies at the Marine Corps Air Station Miramar in San Diego, and adopting staff's determination that this action is exempt from CEQA. The LDES systems will be operated both independently and as part of microgrid system to test and assess the demonstrated technology. Indian Energy LLC will develop and improve testing guidelines to evaluate the technology's ability to power critical operations under diverse use cases, loads, and operating conditions; and will work in collaboration with first responders to develop safety guidelines for LDES systems on site. (LDES funding) Contact: Caitlin Planchard

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, § 15301 and 15303

Cal. Code Regs., tit. 14, sect. 15301 provides that projects which consist of the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, and which involve negligible or no expansion of existing or former use at the time of the lead agency's determination, are categorically exempt from the provisions of the California Environmental Quality Act (CEQA). The proposed project will consist of the installation, connection, and demonstration of modular long duration energy storage technologies at an existing military facility. Minor alteration of existing facilities and mechanical equipment in the form of reconfiguration of existing electrical infrastructure will take place before location of skid mounted modular energy storage units are brought into the existing facilities. Additional minor alterations to topographical features include minor grading and/or trenching for concrete pads. This project will result in negligible or no expansion of use beyond that already existing and is also subject to a National Environmental Policy Act (NEPA) categorical exclusion related to existing federal facilities. Therefore, the project falls within section 15301 and will not have a significant effect on the environment.

Cal. Code Regs., tit. 14, sec. 15303 provides that projects which consist of construction and location of limited numbers of new, small facilities or structures; installation of small new equipment and facilities in small structures; and the conversion of existing small structures from one use to another where only minor modifications are made in the exterior of the structure, are categorically exempt from the provisions of CEQA. The proposed project consists of installing four long duration



energy storage system technologies, each with a footprint of around 150 square feet, to an preexisting microgrid infrastructure at an existing military facility. This will require minor alterations to the existing electrical infrastructure of the microgrid infrastructure to connect the skid mounted energy storage units. Therefore, the proposed project falls within section 15303 and will not have a significant effect on 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
Michael Firenze Inc	\$ 771,330	\$0
Mr. Nice Guy Kauai LLC	\$ 198,000	\$0
Energy Design 4 All, LLC	\$ 198,000	\$0
Blue Nose IT Solutions, Inc. dba Blue Nose Construction	\$ 310,636	\$0
Global Power Group, Inc.	\$ 750,000	\$0
Electric Power Research Institute, Inc.	\$ 90,000	\$0
HDK Civil, PLLC	\$ 15,000	\$0
Naval Facilities Engineering Systems Command, Southwest	\$ 50,000	\$0
SMR-ISD Consulting Structural Engineers, Inc.	\$ 15,000	\$0
Coffman Engineers Inc.	\$ 30,000	\$0
Underwriters Laboratories Inc.	\$ 90,000	\$0
CohnReznick LLP	\$ 50,000	\$0
The Orrick Herrington & Sutcliffe Foundation	\$ 50,000	\$0
TBD (Safety Expert)	\$ 75,000	\$0

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
No vendors to report	\$	\$

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	\$ 4,850,000

TOTAL Amount: \$ 4,850,000

R&D Program Area: ESTB: ETSI

Explanation for "Other" selection Not applicable

Reimbursement Contract #: Not applicable

Federal Agreement #: 3360-102-0001

M. Recipient's Contact Information

1. Recipient's Administrator/Officer

Name: Henry Boulley

Address: 7991 E Altair Ln

City, State, Zip: Anaheim, CA 92808-2201

Phone: 541-698-0153

E-Mail: hjboulley@indianenergy.com

3. Recipient's Project Manager

Name: Mike Firenze

Address: 15970 Misty Meadow Rd

City, State, Zip: Poway, CA 92064-6202

Phone: 619-962-6446

E-Mail: mefirenze@indianenergy.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	This noncompetitive award is authorized under (PRC 25643(d)(1) because recipient has received funding for the original project (EPC-19-051) through a competitive bid process from the CEC and the awarding of these moneys is consistent with the stated goals and criteria of the Long-Duration Energy Storage Program. This award is also authorized under (PRC 25643(d)(3)) because the cost to the state is reasonable and because it is in the best interest of the state to do so. Recipient is a company with resources to facilitate LDES projects and experience in grid-connected, green energy projects in California and around the world, and the battery to be assessed is unique. Moreover, California needs to dramatically increase its energy storage.
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O. Attached Items

- 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	Yes
5	Awardee CEQA Documentation	Yes

Approved By

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

Agreement Manager: Caitlin Planchard

Approval Date: 3/18/2024

Branch Manager: Reynaldo Gonzalez

Approval Date: 3/22/2024

Director: Reynaldo Gonzalez on behalf of Deputy Director

Approval Date: 3/22/2024

Exhibit A Scope of Work

I. TASK ACRONYM/TERM LISTS

A. Task List

Task #	CPR ¹	Task Name
1		General Project Tasks
2	X	Develop Design Integrating LDES Technologies
3		Procure Equipment and Materials for LDES Systems
4		Installation of LDES Technologies And Microgrid Components
5	X	Test and Commission LDES Systems
6	X	Validate Performance Metrics and Use Cases with LDES Systems
7		Measurement and Verification
8		Evaluation of Project Benefits
9		Technology/Knowledge Transfer Activities

B. Acronym/Term List

Acronym/Term	Meaning
AHJ	Authority Having Jurisdiction
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer
CCI	California Climate Investments ²
CEC	California Energy Commission
Commissioning	Full charge and discharge at 6MW for 10 hours for the combined LDES technologies in support grid reliability activities and events.
CPR	Critical Project Review
GGRF	Greenhouse Gas Reduction Fund
GHG	Greenhouse Gas
LDES	Long Duration Energy Storage
M&V	Measurement and Verification
MCAS Miramar	Marine Corps Air Station Miramar
MW	Megawatt
MWh	Megawatt-hour
PSPS	Public Safety Power Shut Off
Recipient	Indian Energy LLC
RICU	Rapid Integration and Commercialization Unit
TAC	Technical Advisory Committee
USMC	United States Marine Corps

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

Exhibit A Scope of Work

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

A. Purpose of Agreement

Funding for the Long Duration Energy Storage (LDES) program comes from the California Climate Investments (CCI) program. The CCI program requires that all funded projects must facilitate the achievement of greenhouse gas (GHG) emission reductions and further the purposes of AB 32 (AB 32, Nunez, Global Warming Solutions Act of 2006, Chapter 488, 2006), SB 32 (SB 32, Pavley, California Global Warming Solutions Act of 2006, Chapter 249, 2016), and related statutes. The purpose of this Agreement is to fund Wave 2 of non-lithium-ion LDES testing at the Rapid Integration and Commercialization Unit (RICU) using four different LDES technologies at the Marine Corps Air Station Miramar (MCAS Miramar) in San Diego. The LDES systems will be operated both independently and as part of microgrid system to test and assess the demonstrated technology. Indian Energy LLC (the Recipient) will develop and improve testing guidelines to evaluate the performance and ability of the LDES technology to power critical operations under diverse use cases, loads, and operating conditions. Additionally, the Recipient will work in collaboration with first responders to develop safety guidelines for LDES systems on site.

B. Problem/ Solution Statement

Problem

LDES technologies capable of storing and discharging electricity for eight hours or longer can play an important role supporting electric reliability and resilience with high levels of renewable generation. However, the majority of the energy storage in California is short duration energy storage and LDES models and use cases have not been proven, nor do there exist enough competitive firms to drive economics down such that a market-wide economies of scale can occur.

Solution

The project will provide for a Wave 2 of LDES vendor intake and commercial acceleration through the RICU aboard MCAS Miramar. This project continues the efforts of Wave 1 (EPC-19-051) to test and evaluate the performance of various energy storage technologies under different operating conditions by installing more types of LDES technology on RICU testing facility microgrid.

C. Goals and Objectives of the Agreement

Agreement Goals

The goals of this Agreement are to:

- Deploy four proven non-lithium-ion LDES technologies at a combined scale of 2 megawatt-hour (MWh) discharged for 10 hours for rapid integration standardization and specification validation.
- Achieve system readiness in early 2025 and proceed with testing and operation throughout 2025 and 2026.
- Provide product and project level development and scaling support to meet the needs of the State of California and their LDES goals.

Exhibit A Scope of Work

- Provide metrics to measure and track for LDES with regard to GHG emission reduction in alignment with the Greenhouse Gas Reduction Fund (GGRF).
- Demonstrate LDES technologies as part of a microgrid using 100 percent on-site renewable generation capable of sustaining critical operations for 72 hours or more.
- Demonstrate how LDES as part of a microgrid can provide reliability and resilience benefits to the electricity grid by reducing load at times of peak demand.
- Increase the scale of LDES technology deployments to help reduce costs and inform future deployments in California.
- Develop strategies to increase deployment of LDES technologies in low-income, disadvantaged, and tribal communities to support a more equitable distribution of benefits.
- Develop safety guidelines for LDES systems on site in collaboration with first responders and local authorities

Deployment of Innovative Energy Storage System: This Agreement will result in the deployment and commercialization assistance of multiple innovative energy storage systems to the electrical grid for purposes of providing critical capacity and grid services by deploying and demonstrating how large-scale LDES can enable 100 percent renewable penetration in a rapid and seamless manner. The project will provide aid in upcoming larger projects and a clear and replicable path toward implementing 100 percent renewables in a resilient manner and includes a new non-lithium-ion technology that can demonstrate future savings that are repeatable. This will enable a cleaner environment that is less harmful to humans, a grid that is more resilient and able to adapt to climate change, and significantly reduced long term ownership costs which will eventually lead to the dramatic reduction in the costs of electrical energy throughout California.

Additionally, this agreement will allow the non-lithium-ion technology provider to demonstrate the ability to perform all the services necessary to accomplish this goals that is currently only being done by lithium-ion technology providers.

This overall advancement will specifically include advancements and breakthroughs in integration, LDES and microgrid modeling, LDES use case development, LDES private financing, LDES performance insurance and warranty backstops, interconnection strategies and techniques, LDES implementation phasing, LDES and microgrid infrastructure design, startup, and enhanced commissioning. The hybrid LDES technology approach will serve Independent System Operator reliability services in the area by providing resilience and value through multiple battery technologies working in unison. The unique value proposition of a hybrid approach to LDES implementation will be assessed to find the maximum value by the technologies. This will aid in both technologies value proposition and market offerings and will provide an installation guide to test this scaling technique out with others.

Agreement Objectives

The objectives of this Agreement are to:

- Demonstrate various LDES technologies in stand alone and Hybrid Module Storage System configurations.
- Provide integration knowledge for future projects in the State of California
- Identify all final barriers to scaling and implementation of large-scale LDES.
- Provide a clear path for rapid proliferation of large-scale LDES solutions through California.

Exhibit A

Scope of Work

III. TASK 1 GENERAL PROJECT TASKS

PRODUCTS

Subtask 1.1 Products

The goal of this subtask is to establish the requirements for submitting project products (e.g., reports, summaries, plans, and presentation materials). Unless otherwise specified by the Commission Agreement Manager (CAM), the Recipient must deliver products as required below by the dates listed in the **Project Schedule (Part V)**. All products submitted which will be viewed by the public, must comply with the accessibility requirements of Section 508 of the federal Rehabilitation Act of 1973, as amended (29 U.S.C. Sec. 794d), and regulations implementing that act as set forth in Part 1194 of Title 36 of the Federal Code of Regulations. All technical tasks should include product(s). Products that require a draft version are indicated by marking “**(draft and final)**” after the product name in the “Products” section of the task/subtask. If “(draft and final)” does not appear after the product name, only a final version of the product is required. With respect to due dates within this Scope of Work, “**days**” means working days.

The Recipient shall:

For products that require a draft version, including the Final Report Outline and Final Report

- Submit all draft products to the CAM for review and comment in accordance with the Project Schedule (Part V). The CAM will provide written comments to the Recipient on the draft product within 15 days of receipt, unless otherwise specified in the task/subtask for which the product is required.
- Consider incorporating all CAM comments into the final product. If the Recipient disagrees with any comment, provide a written response explaining why the comment was not incorporated into the final product.
- Submit the revised product and responses to comments within 30 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.

Exhibit A Scope of Work

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 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 CEC'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 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);
- CPR meetings (subtask 1.3);
- Match fund documentation (subtask 1.7);
- Permit documentation (subtask 1.8);

Exhibit A Scope of Work

- 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 meetings (subtasks 1.10 and 1.11); and
 - Any other relevant topics.
- Provide *Kick-off Meeting Presentation* to include but not limited to:
 - Project overview (i.e. project description, goals and objectives, technical tasks, expected benefits, etc.)
 - Project schedule that identifies milestones
 - List of potential risk factors and hurdles, and mitigation strategy
 - Provide an *Updated Project Schedule, Match Funds Status Letter, and Permit Status Letter*, as needed to reflect any changes in the documents.

The CAM shall:

- Designate the date and location of the meeting.
- Send the Recipient a *Kick-off Meeting Agenda*.

Recipient Products:

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

CAM Product:

- Kick-off Meeting Agenda

Subtask 1.3 Critical Project Review (CPR) Meetings

The goal of this subtask is to determine if the project should continue to receive CEC funding, and if so whether any modifications must be made to the tasks, products, schedule, or budget. CPR meetings provide the opportunity for frank discussions between the CEC and the Recipient. As determined by the CAM, discussions may include project status, challenges, successes, advisory group findings and recommendations, final report preparation, and progress on technical transfer and production readiness activities (if applicable). Participants 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

Exhibit A Scope of Work

place at another location, or may be conducted via electronic conferencing (e.g., WebEx) as determined by the CAM.

The Recipient shall:

- Prepare and submit a *CPR Report* for each CPR meeting that: (1) discusses the progress of the Agreement toward achieving its goals and objectives; and (2) includes recommendations and conclusions regarding continued work on the project.
- Attend the CPR meeting.
- Present the CPR Report and any other required information at each CPR meeting.

The CAM shall:

- Determine the location, date, and time of each CPR meeting with the Recipient's input.
- Send the Recipient a *CPR Agenda* with a list of expected CPR participants in advance of the CPR meeting. If applicable, the agenda will include a discussion of match funding and permits.
- Conduct and make a record of each CPR meeting. Provide the Recipient with a schedule for providing a Progress Determination on continuation of the project.
- Determine whether to continue the project, and if so whether modifications are needed to the tasks, schedule, products, or budget for the remainder of the Agreement. If the CAM concludes that satisfactory progress is not being made, this conclusion will be referred to the Deputy Director of the Energy Research and Development Division.
- Provide the Recipient with a *Progress Determination* on continuation of the project, in accordance with the schedule. The Progress Determination may include a requirement that the Recipient revise one or more products.

Recipient Products:

- CPR Report(s)

CAM Products:

- CPR Agenda(s)
- Progress Determination

Subtask 1.4 Final Meeting

The goal of this subtask is to complete the closeout of this Agreement.

The Recipient shall:

- Meet with CEC staff to present project findings, conclusions, and recommendations. The final meeting must be completed during the closeout of this Agreement. This meeting will be attended by the Recipient and CAM, at a minimum. The meeting may occur in person or by electronic conferencing (e.g., WebEx), with approval of the CAM.

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.

Exhibit A Scope of Work

- The CEC's request for specific "generated" data (not already provided in Agreement products).
- Need to document the Recipient's disclosure of "subject inventions" developed under the Agreement.
- "Surviving" Agreement provisions such as repayment provisions and confidential products.
- Final invoicing and release of retention.
- Prepare a *Final Meeting Agreement Summary* that documents any agreement made between the Recipient and Commission staff during the meeting.
- Prepare a *Schedule for Completing Agreement Closeout Activities*.
- Provide copies of *All Final Products* on a USB memory stick, organized by the tasks in the Agreement.

Products:

- Final Meeting Agreement Summary (*if applicable*)
- Schedule for Completing Agreement Closeout Activities
- All Final Products

REPORTS AND INVOICES

Subtask 1.5 Progress Reports and Invoices

The goals of this subtask are to: (1) periodically verify that satisfactory and continued progress is made towards achieving the project objectives of this Agreement; and (2) ensure that invoices contain all required information and are submitted in the appropriate format.

The Recipient shall:

- Submit a monthly *Progress Report* to the CAM. Each progress report must:
 - Summarize progress made on all Agreement activities as specified in the scope of work for the preceding month, including accomplishments, problems, milestones, products, schedule, fiscal status, and an assessment of the ability to complete the Agreement within the current budget and any anticipated cost overruns. See the Progress Report Format Attachment for the recommended specifications.
- Submit a monthly or quarterly *Invoice* that follows the instructions in the "Payment of Funds" section of the terms and conditions, including a financial report on Match Funds and in-state expenditures.
- Provide a *Six-Month Employee Labor Projection* that details the hour projections every six months covering the subsequent six months for each individual working on this Agreement. The Recipient shall submit a monthly review of the previous labor spent by each employee for the previous month in a *Monthly Time Tracking Report* for written approval by the CAM.
- In no event shall any individual providing direct labor under this Agreement, and combined with any other active or future Agreement with the CEC, invoice more than 1800 hours of direct labor per year without prior CAM written approval, regardless of the maximum number of hours permitted within any Budget.

Products:

- Progress Reports
- Invoices
- Six-Month Employee Labor Projection
- Monthly Time Tracking Report

Exhibit A

Scope of Work

Subtask 1.6 Final Report

The goal of this subtask is to prepare a comprehensive Final Report that describes the original purpose, approach, results, and conclusions of the work performed under this Agreement.

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

Subtask 1.6.1 Final Report Outline

The Recipient shall:

- Prepare a *Final Report Outline* in accordance with the *Energy Commission Style Manual* provided by the CAM.

Recipient Products:

- Final Report Outline (draft and final)

CAM Product:

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

Subtask 1.6.2 Final Report

The Recipient shall:

- Prepare a *Final Report* for this Agreement in accordance with the approved Final Report Outline, Energy Commission Style Manual, and Final Report Template provided by the CAM with the following considerations:
 - Ensure that the report includes the following items, in the following order:
 - Cover page (**required**)
 - Credits page on the reverse side of cover with legal disclaimer (**required**)
 - Acknowledgements page (optional)
 - Preface (**required**)
 - Abstract, keywords, and citation page (**required**)
 - Table of Contents (**required**, followed by List of Figures and List of Tables, if needed)
 - Executive summary (**required**)
 - Body of the report/Summary table that includes the following information, but not limited to (**required**):
 - Recipient name;
 - Project description;
 - Project location(s);
 - Census tract;
 - Dates: project selected and completed;
 - GGRF dollars allocated;
 - Leveraged and/or match funds;
 - Estimated/actual total project GHG emission reductions;
 - Estimated/actual energy saved (kWh, therms, or other fuels) for energy efficiency projects;

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- 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 30 days of receipt of CAM's *Written Comments on the Draft Final Report*, unless the CAM specifies a longer time period or approves a request for additional time.

Products:

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

CAM Product:

- Written Comments on the Draft Final Report

MATCH FUNDS, PERMITS, AND SUBCONTRACTS

Subtask 1.7 Match Funds

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

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

The Recipient shall:

- Prepare a *Match Funds Status Letter* that documents the match funds committed to this

Exhibit A Scope of Work

Agreement. If no match funds were part of the proposal that led to the CEC awarding this Agreement and none have been identified at the time this Agreement starts, then state this in the letter.

If match funds were a part of the proposal that led to the CEC awarding this Agreement, then provide in the letter:

- A list of the match funds that identifies:
 - The amount of cash match funds, their source(s) (including a contact name, address, and telephone number), and the task(s) to which the match funds will be applied.
 - The amount of each in-kind contribution, a description of the contribution type (e.g., property, services), the documented market or book value, the source (including a contact name, address, and telephone number), and the task(s) to which the match funds will be applied. If the in-kind contribution is equipment or other tangible or real property, the Recipient must identify its owner and provide a contact name, address, telephone number, and the address where the property is located.
 - If different from the solicitation application, provide a letter of commitment from an authorized representative of each source of match funding that the funds or contributions have been secured.
- At the Kick-off meeting, discuss match funds and the impact on the project if they are significantly reduced or not obtained as committed. If applicable, match funds will be included as a line item in the progress reports and will be a topic at CPR meetings.
- Provide a *Supplemental Match Funds Notification Letter* to the CAM of receipt of additional match funds.
- Provide a *Match Funds Reduction Notification Letter* to the CAM if existing match funds are reduced during the course of the Agreement. Reduction of match funds may trigger a CPR meeting.

Products:

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

Subtask 1.8 Permits

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

The Recipient shall:

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

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The list of permits and the schedule for obtaining them will be discussed at the Kick-off meeting (subtask 1.2), and a timetable for submitting the updated list, schedule, and copies of the permits will be developed. The impact on the project if the permits are not obtained in a timely fashion or are denied will also be discussed. If applicable, permits will be included as a line item in progress reports and will be a topic at CPR meetings.

- If during the course of the Agreement additional permits become necessary, then provide the CAM with an *Updated List of Permits* (including the appropriate information on each permit) and an *Updated Schedule for Acquiring Permits*.
- Send the CAM a *Copy of Each Approved Permit*.
- If during the course of the Agreement permits are not obtained on time or are denied, notify the CAM within 5 days. Either of these events may trigger a CPR meeting.

Products:

- Permit Status Letter
- Updated List of Permits (*if applicable*)
- Updated Schedule for Acquiring Permits (*if applicable*)
- Copy of Each Approved Permit (*if applicable*)

Subtask 1.9 Subcontracts

The goals of this subtask are to: (1) procure subcontracts required to carry out the tasks under this Agreement; and (2) ensure that the subcontracts are consistent with the terms and conditions of this Agreement.

The Recipient shall:

- Manage and coordinate subcontractor activities in accordance with the requirements of this Agreement.
- Incorporate this Agreement by reference into each subcontract.
- Include any required Energy Commission flow-down provisions in each subcontract, in addition to a statement that the terms of this Agreement will prevail if they conflict with the subcontract terms.
- If required by the CAM, submit a draft of each *Subcontract* required to conduct the work under this Agreement.
- Submit a final copy of each executed subcontract.
- Notify and receive written approval from the CAM prior to adding any new subcontractors (see the discussion of subcontractor additions in the terms and conditions).

Products:

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

TECHNICAL ADVISORY COMMITTEE

Subtask 1.10 Technical Advisory Committee (TAC)

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

- Provide guidance in project direction. The guidance may include scope and methodologies, timing, and coordination with other projects. The guidance may be based on:

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- 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:

Exhibit A Scope of Work

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

Subtask 1.11 TAC Meetings

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

The Recipient shall:

- Discuss the TAC meeting schedule with the CAM at the Kick-off meeting. Determine the number and location of meetings (in-person and via teleconference) in consultation with the CAM.
- Prepare a *TAC Meeting Schedule* that will be presented to the TAC members during recruiting. Revise the schedule after the first TAC meeting to incorporate meeting comments.
- Prepare a *TAC Meeting Agenda* and *TAC Meeting Back-up Materials* for each TAC meeting.
- Organize and lead TAC meetings in accordance with the TAC Meeting Schedule. Changes to the schedule must be pre-approved in writing by the CAM.
- Prepare *TAC Meeting Summaries* that include any recommended resolutions of major TAC issues.

The TAC shall:

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

Products:

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

Subtask 1.12 Project Performance Metrics

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

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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

TASK 2: DEVELOP DESIGN INTEGRATING LDES TECHNOLOGIES

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

The Recipient shall:

- Develop and submit *Issued for Construction Drawings* for review that include but are not limited to the following.
 - Hardware design and specifications for the LDES technologies and microgrid components
 - Anticipated construction and interconnection timelines
 - All necessary permits filed for building, interconnection, and back up generation
- Conduct TAC Meeting #1 per subtask 1.10
 - Document, submit, and discuss these tasks and lessons learned during the TAC meeting with the TAC and the CAM
- Prepare a *Design Report* that includes but is not limited to the following.
 - Summary of all planned operational use cases for the LDES and microgrid over the course of the project
 - Schematics and integration details
 - Electrical design
 - Definition of schematic symbols and data entry types
 - Documentation of the capabilities of the battery management system(s)
 - System documentation

Exhibit A Scope of Work

- Obtain approval and provide a *Copy of Notice to Proceed* from the authorities having jurisdiction (AHJ)
- Prepare a *Design Report Presentation (PowerPoint)* which will include the design plans and summarize and highlight the *Design Report* and present at a Design Report meeting.
- Prepare a *CPR Report #1* and participate in CPR Meeting, per subtask 1.3

Products:

- Issued for Construction Drawings
- Design Report (draft and final)
- Design Report Presentation (PowerPoint)
- Copy of Notice to Proceed
- CPR Report #1

TASK 3: PROCURE EQUIPMENT AND MATERIALS FOR LDES SYSTEM

The goal of this task is to procure, track and manage logistics for delivery of the LDES technologies to the demonstration site.

The Recipient shall:

- Develop a detailed *Master List of Equipment and Materials* for the LDES technologies
- Receive Written Approval of Master List of Equipment and Materials from CAM before placing purchase order for LDES technologies
- Create purchase orders based on approved Master List of Equipment and Materials
- Coordinate logistics and track delivery of LDES technologies to the project demonstration site
- Transfer Electric Vehicles from U.C. San Diego for use in EV testing in LDES scenarios.
- Confirm and document receipt of the LDES technologies to California distribution yard and facility
- Develop and submit a *Payment Schedule* reflecting a milestone process for purchasing equipment, for example (with retention as shown in Exhibit C, Terms and Conditions):
 - Milestone 1: Invoice 25 percent of equipment upon subcontract execution.
 - Milestone 2: Invoice 25 percent of equipment 90 days before shipment and with confirmation of all supply orders are in process and on schedule per the Purchase Agreement schedule.
 - Milestone 3: Invoice 25 percent when over 75% of equipment has passed factory acceptance testing and following successful completion of manufacturer site visits.
 - Milestone 4: Invoice 15 percent following 100% of equipment delivery to the demonstration site and completion of a visit thereto.
 - Milestone 5: Invoice 5 percent of equipment at first commissioning test.
 - Milestone 6: Invoice 5 percent of equipment at final commissioning test or commercial operation date, whichever is earlier.
- Note that manufacturing visits shall occur no later than 120 days upon award.
- All equipment will be owned by the CEC and shall not be encumbered as set forth in Exhibit C, Terms and Conditions, until Milestone 4 above is completed.
- Provide *Equipment and Materials Purchase Orders*

Products:

- Master List of Equipment and Materials

Exhibit A Scope of Work

- Payment Schedule
- Equipment and Materials Purchase Orders

TASK 4: INSTALLATION OF LDES TECHNOLOGIES AND MICROGRID COMPONENTS

The goal of this task is to install the combined LDES technologies, on-site photovoltaic generation, and all microgrid and test systems.

The Recipient shall:

- Install all equipment at the demonstration site, including but not limited to the LDES technologies, solar photovoltaic generation, and microgrid infrastructure.
- Make appropriate electrical connections to utility distribution system
- Receive final approval for interconnection from the utility providing service
- Prepare an *Equipment Testing and Readiness Report* that includes but is not limited to the following.
 - Specific testing and evaluation performed on all components to confirm proper functionality
 - Results of testing performed for individual components
- Participate in final inspection and obtain *Final Installation Inspection Letter* from the AHJ or its representative, to document inspection completion
- Provide *Equipment and Materials Tracking Tickets and Delivery Receipts*

Products:

- Equipment Testing and Readiness Report
- Final Installation Inspection Letter
- Equipment and Materials Tracking Tickets and Delivery Receipts

TASK 5: TEST AND COMMISSION LDES SYSTEM

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

The Recipient shall:

- Develop a *Testing and Commissioning Plan*, prior to completion of installation, that includes but is not limited to the following.
 - Systems to be tested and details of testing plans
 - Sequence of testing and startup period
 - Goals and expected outcomes of each test and overall process
 - Definition of successful results
 - Roles and responsibilities of the parties
- Prepare a *Performance Test Result(s) Report(s)* that includes but is not limited to the following.
 - Test each system individually
 - Test inter-related system collectively
 - Administer subsystem verification tests
 - Administer a full system performance verification test
 - Administer a systems readiness test
- Provide a *Systems Readiness Certification*
- Achieve *Authority to Operate* by the AHJ and provide a copy of approval documentation.

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- Conduct TAC Meeting #2 per subtask 1.10
 - Document, submit, and discuss this tasks lessons learned during the TAC meeting with the TAC and the CAM.
- Prepare a *CPR Report #2* and participate in CPR Meeting, per subtask 1.3

Products:

- Testing and Commissioning Plan
- Performance Test Result(s) Report(s)
- Systems Readiness Certificate
- Authority to Operate Letter
- CPR Report #2

TASK 6: VALIDATE PERFORMANCE METRICS AND USE CASES WITH LDES SYSTEMS

The goal of this task is to operate LDES systems to demonstrate multiple use cases culminating in the ability for the LDES based microgrid to simulate how to seamlessly transition between island and non-island operation during a public safety power shut off (PSPS) or other outage utilizing 100 percent renewable generation for multiple days in a row.

The Recipient shall:

- Develop a *Use Case Testing Plan*, prior to completion of the installation that includes the following at a minimum:
 - Systems to be tested
 - Sequence of testing and startup period
 - Goals and expected outcomes of the process
 - Definition of successful results
 - Roles and responsibilities of the parties
- Test the LDES and microgrid under the following Use Cases (all Use Cases will be administered while grid connected and while islanded):
 - 50 kilowatt discharge for 10 hours.
 - 24-hour 100 percent renewable operation with on-site renewable generation
 - Simulate emergency load support during PSPS or other outage events or during times of peak electric grid demand
 - Track data and report on simulated participation in the Emergency Load Reduction pilot program and other Merchant Market Models.
- Prepare a *LDES Operations and Analysis Report* with the results of the Use Cases test
- Prepare a *LDES Performance Presentation* with the results of the Use Cases test
- Prepare a *CPR Report #3* and participate in CPR Meeting, per subtask 1.3

Products:

- Use Case Testing Plan
- LDES Operations and Market Analysis Report
- LDES Performance Presentation
- CPR Report #3

TASK 7: MEASUREMENT AND VERIFICATION

The team will measure and verify the performance of the microgrid and LDES technologies and compare to projected performance . The goal of this task is to report the benefits resulting from

Exhibit A Scope of Work

this project by performing measurement and verification (M&V) of GHG and energy consumption reduction.

The Recipient shall:

- Enter into an agreement with M&V subcontractor per Task 1.9 (if using an outside vendor)
- Coordinate site visits with the M&V subcontractor at the demonstration site(s)
 - Develop a *M&V protocol* for **pre-installation** measurement (and calculation) of Electric, natural gas and/or other fossil fuel consumption and GHG emissions of the equipment/process/system(s)/sub-system(s) that are to be upgraded and/or replaced and/or modified.
 - Ensure installation of sub-metering equipment and data loggers for pre/post data analysis.
- Prepare and provide a detailed *M&V Plan* for each project demonstration site to include but not be limited to:
 - A description of the monitoring equipment and instrumentation which will be used.
 - A description of the key input parameters and output metrics that will be measured.
 - A description of the M&V protocol, analysis, and collection methods to be employed.
 - A data collection schedule.
 - A description of the independent, third-party M&V services to be employed, if applicable.
- Perform three months (or a shorter period as approved in writing by the CAM) of preinstallation measurements (and calculations) based on the M&V protocol for preinstallation.
- Prepare and provide a *Pre-Installation M&V Findings Report* for each demonstration site that includes M&V protocol, pre-install measurements (and calculations), analysis, and results performed in this task.
- Develop M&V protocol for **post-installation** measurements (and calculations) of:
 - Electric, natural gas and/or other fossil fuel consumption and GHG emissions of the equipment/process/system(s)/sub-system(s) that will be upgraded and/or replaced and/or modified. Factors and metrics to be approved by the CAM.
- Perform at least 6 months or two seasons, for seasonal facilities, (or a shorter period as approved in writing by the CAM) of post-installation measurements based on M&V protocol for post-installation.
- Provide a summary of post-installation M&V progress in Progress Report(s) (see subtask 1.5) which shall include but not be limited to:
 - A narrative on operational highlights from the reporting period, including any stoppages in operation and why; and
 - A summary of M&V findings from the reporting period.
- Analyze post-installation electrical, natural gas and/or other fossil fuel consumption and GHG emissions.
- Prepare and provide a *Post-Installation M&V Findings Report* for each demonstration site that includes M&V protocol, pre and post-install measurements (and calculations), analysis, and results performed in this task. Results should at a minimum report on the reduction of electricity, natural gas and/or other fossil fuel usage and reductions of GHG emissions that directly result from this project.

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- 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 the California Air Resources Board guidance.
- Remove the existing LDES technologies and additional testing of three (3) more vendors.
 - Redo Tasks 2 thru 6 with additional LDES and ancillary technologies.

Products:

- M&V Plan (*draft and final*)
- Pre-Installation M&V Findings Report (*draft and final*)
- Post-Installation M&V Findings Report(s) (*draft and final*)
- GGRF Benefits Report

TASK 8: EVALUATION OF PROJECT BENEFITS

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

The Recipient shall:

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

Products:

- Initial Project Benefits Questionnaire
- Annual Survey(s)

Exhibit A Scope of Work

- Final Project Benefits Questionnaire
- Documentation of Project Profile on EnergizeInnovation.fund
- Documentation of Organization Profile on EnergizeInnovation.fund

TASK 9: TECHNOLOGY/KNOWLEDGE TRANSFER ACTIVITIES

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

The Recipient Shall:

- Develop and submit a *Project Case Study Plan* that outlines how the Recipient will document the planning, construction, commissioning, and operation of the technology or system being demonstrated. The *Project Case Study Plan* should include:
 - An outline of the objectives, goals, and activities of the case study.
 - The organization that will be conducting the case study and the plan for conducting it.
 - A list of professions and practitioners involved in the technology's deployment.
 - Specific activities the Recipient will take to ensure the learning that results from the project is disseminated to those professions and practitioners.
 - Presentations/webinars/training events to disseminate the results of the case study.
- Present the draft *Project Case Study Plan* to the TAC for review and comment.
- Develop and submit a *Summary of TAC Comments* that summarizes comments received from the TAC members on the draft *Project Case Study Plan*. This document will identify:
 - TAC comments the Recipient proposes to incorporate into the final *Technology Transfer Plan*.
 - TAC comments the Recipient does not propose to incorporate with and explanation why.
- Submit the final *Project Case Study Plan* to the CAM for approval.
- Develop and submit a *Technology & Knowledge Transfer Plan* that outlines the value and knowledge gained from the project.
- Develop a *Safety Guidelines Report* with insights on safety measures and protocol for LDES equipment in collaboration with first responders and local authorities.
- Execute the final *Project Case Study Plan* and develop and submit a *Project Case Study*.
- Host and sponsor local events with Tribal, United States Marine Corps (USMC)/Navy, RICU Technology Partners and the CEC to highlight and showcase the progress made by the RICU and to raise public awareness about the LDES program and technology transfer/commercialization plans.
- Participate in the 2024 MCAS Miramar Air Show to demonstrate, display and promote LDES, LDES and the CEC/California goals, USMC/CEC partnership, and other stakeholder involvement and inclusion as determined by the CAM.
 - Provide *MCAS Miramar Air Show Pre-Brief and Post-Brief* documents to the CEC to showcase highlights from the event.

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- When directed by the CAM, develop presentation materials for a CEC sponsored conference/workshop(s) on the project.
- When directed by the CAM, participate in knowledge sharing event(s) sponsored by the California CEC.
- Submit the *Project Case Study* that outlines the project case study methodology and results.
- Provide at least (6) six *High Quality Digital Photographs* (minimum resolution of 1300x500 pixels in landscape ratio) of pre and post technology installation at the project sites or related project photographs.

Products:

- Project Case Study Plan (draft and final)
- Technology & Knowledge Transfer Plan (draft and final)
- Safety Guidelines Report
- MCAS Miramar Air Show Brief (pre and post)
- Summary of TAC Comments
- Project Case Study (draft and final)
- High Quality Digital Photographs

V. PROJECT SCHEDULE

Please see the attached Excel spreadsheet.