California Energy Commission
May 8, 2025 Business Meeting
Backup Materials for Form Energy, Inc.

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

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

[PROPOSED]

RESOLUTION NO: 25-0508-03c

STATE OF CALIFORNIA

STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION: Form Energy, Inc.

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

RESOLVED, that the CEC approves amendment 2 to agreement LDS-22-004 with Form Energy, Inc. to reduce the energy storage system size from 5 megawatt (MW)/500 megawatt hours (MWh) to 1.5MW/150MWh; decrease CEC funding from $30,000,000 to $25,000,000; increase match share from $6,000,000 to $25,000,000; and adopting staff's recommendation that this action will not result in additional environmental impacts beyond those already considered in the December 13, 2023 adoption of the CEC Initial Study (IS) and Mitigated Negative Declaration (MND). This agreement will demonstrate a long-duration energy storage system at PG&E's Mendocino Substation to support grid reliability, resilience and decarbonization; 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, 2025.

AYE:
NAY:
ABSENT:
ABSTAIN:

Dated:

_____
Kristine Banaag
Secretariat

STATE OF CALIFORNIA

GRANT AMENDMENT REQUEST FORM (GARF)

CEC-277 (Revised 01/2024) CALIFORNIA ENERGY COMMISSION

Original Agreement # LDS-22-004 Amendment # 2

Division	Agreement Manager:	MS-	Phone
ERDD	Yahui Yang		916-352-0414

Recipient's Legal Name	Federal ID #
Form Energy, Inc.	82-2266384

Revisions: (check all that apply)	Additional Requirements
☐ Term Extension New End Date: 6/30/2029	Include revised schedule and complete items A, B, C, & F below.
☒ Budget Augmentation Amendment Amount: $ -5,000,000	Include revised budget and complete items A, B, C, D, & F below.
☐ Budget Reallocation	Include revised budget and complete items A, B, C, & F below.
☒ Scope of Work Revision	Include revised scope of work and complete items A, B, C, E, & F below.
☐ Change in Project Location or Demonstration Site	Include revised scope of work and complete items A, B, C, E, & F below.
☐ Novation/Name Change of Prime Recipient	Include novation documentation and complete items A, B, C, & F below.
☐ Terms and Conditions Modification	Include applicable exhibits with bold/underline/ strikeout and complete items A, B, C, & F below.

A) Business Meeting Information

Business Meeting approval is not required for the following types of Agreements:

☐ Minor amendments delegated to Executive Director per December 2013 Resolution

Proposed Business Meeting Date Not applicable ☒ Consent ☐ Discussion

Business Meeting Presenter N/A Time Needed: 0 minutes

Please select one list serve. Long Duration Energy Storage (LDES)

Agenda Item Subject and Description:

Form Energy, Inc.

Proposed resolution approving amendment 2 to agreement LDS-22-004 with Form Energy, Inc. to reduce the energy storage system size from 5 megawatt (MW)/500 megawatt hours (MWh) to 1.5MW/150MWh; decrease CEC funding from $30,000,000 to $25,000,000; increase match share from $6,000,000 to $25,000,000; and adopting staff's recommendation that this action will not result in additional environmental impacts beyond those already considered in the December 13, 2023 adoption of the CEC Initial Study (IS) and Mitigated Negative Declaration (MND). This agreement will demonstrate a long-duration energy storage system at PG&E's Mendocino Substation to support grid reliability, resilience and decarbonization. (LDES funding) Contact: Yahui Yang

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

Legal Company Name:	Budget
Pacific Gas and Electric Company	$ 0
Mendocino Energy Storage LLC	$ 23,731,260
ARCADIS U.S., INC.	$ 373,615
Construction Contractor (TBD)	$ 5,611,051

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

Legal Company Name:

D) Budget Information (only include amendment amount information)

Funding Source	Funding Year of Appropriation	Budget List Number	Amount
GGRF	23-24	303.201	$-5,000,000
			$

R&D Program Area: ICMB TOTAL: $ -5,000,000

Explanation for “Other” selection

Federal Agreement #:

E) California Environmental Quality Act (CEQA) Compliance

1. Is Agreement considered a “Project” under CEQA?
   - ☒ Yes (skip to question 2)
   - ☐ No (complete the following (PRC 21065 and 14 CCR 15378)):

   Explain why Agreement is not considered a “Project”:

2. If Agreement is considered a “Project” under CEQA:
   a) ☐ Agreement **IS** exempt.
      - ☐ Statutory Exemption. List PRC and/or CCR section number:
      - ☐ Categorical Exemption. List CCR section number:
      - ☐ Common Sense Exemption. 14 CCR 15061 (b) (3)

      Explain reason why Agreement is exempt under the above section:

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

      Check all that apply
      - ☒ Initial Study
      - ☐ Negative Declaration
      - ☒ Mitigated Negative Declaration
      - ☐ Environmental Impact Report
      - ☐ Statement of Overriding Considerations

On December 13, 2023, the CEC adopted a October 2023 IS/MND for this project, which is available at 23-ERDD-07. Pursuant to Cal. Code Regs., tit. 14, §15162(a) when a negative declaration is adopted for a project, no subsequent IS and MND shall be prepared absent substantial changes to the environment or new information. This amendment reduces the energy storage system size from 5MW/500MWh to 1.5MW/150MWh, and does not require substantial changes to the environmental. Consequently, a subsequent IS/MND or amendment thereto is not necessary under Cal. Code Regs., tit. 14, §15162(a).

F) Is this project considered "Infrastructure"? No

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

1. Exhibit A, Scope of Work/Schedule	☐ N/A	☒ Attached
2. Exhibit B, Budget Detail	☐ N/A	☒ Attached
3. CEQA Documentation	☒ N/A	☐ Attached
4. Novation Documentation	☒ N/A	☐ Attached
5. CEC 105, Questionnaire for Identifying Conflicts		☒ Attached

Agreement Manager **Date**

Branch Manager **Date**

Director **Date**

Exhibit A
Scope of Work

I. TASK ACRONYM/TERM LISTS

A. Task List

Task #	CPR	Task Name
1		General Project Tasks
2		Use Case & Market Application Analytics
3	X	Site Evaluation
4		EPC Contractor Selection
5	X	EPC and Commissioning
6	X	Operation
7		Maintenance
8		Evaluation of Project Benefits
9		Technology/Knowledge Transfer Activities
10		**CAISO System-Level Impact Analysis**

B. Acronym/Term List

Acronym/Term	Meaning
AC	Alternating Current
BoP	Balance of Plant
CAISO	California Independent System Operator
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CPR	Critical Project Review
DC	Direct Current
EMS	Energy Management System
EPC	Engineering, Procurement, Construction
MDS	Multi-Day Storage
MM	Mitigation Measures
MMRP	Mitigation Monitoring and Reporting Program
MS	Microsoft
MW	Megawatt
MWh	Megawatt-hour
NRI	New Resource Implementation
Project host	Pacific Gas & Electric Company
Recipient	Form Energy, Inc.
RFI	Request for Information
RFQ	Request for Qualification

Acronym/Term	Meaning
RFP	Request for Proposal
SB 100	2021 Senate Bill 100
SB 100 Report	2021 Senate Bill 100 Joint Agency Report
SC	CAISO Scheduling Coordinator
SCADA	Supervisory Control and Data Acquisition
TAC	Technical Advisory Committee
WEAP	Worker Environmental Awareness Program

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

A. Purpose of Agreement

The purpose of this Agreement is to fund the first commercial deployment of Form Energy, Inc. (Recipient)'s 100-hour, iron-air, multi-day storage (MDS) system in California. The Recipient will be collaborating with Pacific Gas & Electric Company (Project host) to deploy a front-of-the-meter, ~~5~~ **1.5** megawatt (MW) / ~~500~~ **150** megawatt-hour (MWh) MDS system.

B. Problem/ Solution Statement

Problem
The 2021 Senate Bill 100 Joint Agency Report (SB 100 Report), found that achieving 2021 Senate Bill 100 (SB 100)'s 2045 goal of 100 percent renewable and zero-carbon electricity will increase the total annual electricity system costs by nearly $4.5 billion by 2045 relative to today. In order to achieve this goal, California would need to deploy solar, wind and short-duration storage at a pace of approximately 6 gigawatt per year in order to meet SB 100 decarbonization targets; in other words, solar and wind build rates would need to nearly triple and battery storage build rates would need to increase eightfold.[1] This high cost and massive build-out rate of solar, wind, and short-duration storage is driven in part by the lack of the affordable, zero-carbon, dispatchable resource options that help integrate variable renewable resources and support grid reliability. This absence results in inefficient integration of renewable generation and, by 2045, approximately 35,000 gigawatt-hour of curtailment annually.[2]

These results align with the California Energy Commission's (CEC) earlier finding that "achieving a 100 percent zero-carbon generation mix . . .appears cost-prohibitive without...new forms of low-cost, long-duration energy storage . . . ."[3] The importance of long-duration energy storage for firming renewables was again emphasized by the SB

[1] *See* 2021 SB 100 Joint Agency Report, SB 100 Core Scenario
[2] See 2021 SB 100 Joint Agency Report, Central Core and Study Scenario Results
[3] *See* CEC Deep Decarbonization in an High Renewables Future, p. 39

100 Report's Generic Zero-Carbon Firm Resources Scenario, which modeled firm zero-carbon technologies and found that the inclusion of such resources has the potential to significantly reduce needs for utility-scale solar and battery storage thus reducing the total resource cost by three percent (~$2 billion in 2016 dollars). However, existing options to store energy for the time scale necessary to firm renewable resources are limited by cost (Li-ion), site availability (pumped hydro), or scale (compressed air and mechanical systems, which also face cost limitations). No commercially available energy storage technologies can cost-effectively meet California's grid needs.

Solution

Public Resources Code section 2541 provides that the CEC:

> Shall establish and implement the Long-Duration Energy Storage Program to provide financial incentives for eligible projects,[4] located at eligible storage facilities,[5] that have power ratings of at least one MW and are capable of reaching a target of at least eight hours of continuous discharge of electricity at that power rating in order to deploy innovative energy storage systems to the electrical grid for purposes of providing critical capacity and grid services.[6]

The Recipient 's 100-hour, iron-air battery system has a low-cost entitlement battery chemistry and is designed to help California address reliability, resilience, decarbonization, and energy affordability challenges.

This project will be a commercial-scale demonstration of a new form of low-cost, long-duration energy storage that will, per unit energy, have a total installed cost that is less than 1/10th that of lithium-ion battery technologies and will be able to both support the integration of intermittent renewable resources and provide multiple days of continuous, zero-carbon power to the grid when called upon. The project will use breakthrough battery materials that are safe, abundant, ultra-low-cost, and globally scalable from existing supply chains.

The success of the project will demonstrate a pathway for California to achieve a zero-carbon grid faster and at lower cost than currently planned while addressing critical near-term grid reliability services during multi-day periods of energy scarcity, extreme weather, wildfires, renewable energy lulls, regional fuel shortages, transmission constraints, and grid infrastructure outages. In addition, the project will yield operational

[4] Under Public Resources Code section 25642, an "eligible project" shall include, but not be limited to, an eligible storage facility that includes any of the following: (i) Compressed air or liquid air technologies; (ii) Flow batteries, advanced chemistry batteries, or mechanical energy storage; (iii) Thermal storage or aqueous battery systems; or (iv) A hydrogen demonstration project. "Eligible project" shall not include a pumped storage project or lithium-ion-based storage technology. Cal. Pub. Res. Code § 25642 (b)(2)(A).

[5] Eligible storage facility" shall include, but not be limited to, an energy storage system that is interconnected to the electrical grid in California or to a California balancing authority. Cal. Pub. Res. Code § 25642.

[6] Cal. Pub. Res. Code § 25641.

data that will allow utilities, regulators, and grid operators to identify optimal deployment of one of California's most needed asset classes: firm zero-carbon energy resources that can cost-effectively manage the intermittency of renewable resources and ensure grid reliability, without the need for legacy thermal generation, even during extreme weather conditions and other grid contingencies.

C. Goals and Objectives of the Agreement

Agreement Goals

The goals of this Agreement are to:

- Conduct a use case and market analytics assessment for a MDS
- Evaluate sites that may house the MDS
- Deploy ~~5~~ **1.5** MW / ~~500~~ **150** MWh of the Recipient's MDS system to participate in the California Independent System Operator (CAISO) market.
- Demonstrate the performance of the Recipient's MDS storage system in the first California commercial project.
- Increase industry knowledge about how the Recipient's technology can provide a cost-effective zero-carbon energy storage solution to the challenges of:
    - Providing firm, dispatchable, zero-carbon capacity to avoid the need for natural gas plants to maintain grid reliability
    - Enabling firm renewable energy during any weather condition
    - Optimizing the utilization of transmission assets
    - Enabling electric resilience during multiple days of extreme weather or other grid emergencies
- Identify barriers to the efficient participation of MDS in CAISO markets.

First, as indicated by the modeling results included in the SB 100 Report, the commercialization of firm, zero-carbon resources has the potential to significantly reduce the ratepayer cost impacts of achieving California's electric decarbonization goals. A large portion of these cost savings will be achieved by reducing the need for solar and other resources, and a reduction of land-use impacts associated with building a zero-carbon electric grid.

This project will preliminarily assess a technology that can provide power to the grid even during multi-day events, which will support reliability at a system level. In addition, the Recipient's iron-air battery is well-suited for resiliency applications and will be able to provide back-up power during black-outs and Public Safety Power Shutoff events. Hence, this project can demonstrate and enable a pathway to simultaneously support both reliability and resilience needs without the need for fossil fuels.

In addition, modeling conducted by the Recipient and Energy and Environmental Economics, Inc. as part of a CEC-funded project indicates that, if sufficient long-duration storage resources are available, California can, by 2045, decarbonize its electric grid beyond established SB 100 goals, achieve fully zero-carbon in-state generation, and greatly reduce the need for in-state thermal generation at near cost parity with SB 100 status quo. By greatly reducing the need for in-state thermal generation, the Recipient's

iron-air MDS technology will improve the health and safety of Californians by both reducing local air pollution and enabling additional reductions in greenhouse gas emissions.

This Agreement is intended to lead to technological advancement and breakthroughs to overcome barriers to achieve the State of California's statutory energy goals by advancing the commercialization of the Recipients ultra-low-cost, MDS technology made from safe, globally abundant materials. If successful, this new class of energy storage would help achieve California's goals to cost-effectively and reliably integrate a 100% renewable and zero-carbon grid by 2045, and to support zero-carbon microgrid configurations and customer energy resiliency in the event of grid outages.

Agreement Objectives

The objectives of this Agreement are to:

- Conduct use case and market application analytics to identify optimal MDS system operation and to maximize project value at potential project sites.
- Complete site selection through an evaluation process to determine the most optimal location for a ~~5~~ **1.5** MW installation with a Project host.
- Select an Engineering, Procurement, and Construction (EPC) Contractor through a Request for Qualification (RFQ) and Request for Proposal (RFP) process.
- Execute an EPC Contract, construct a MDS System, and commission a ~~5~~ **1.5** MW / ~~500~~ **150** MWh project.
- Operate the system to participate in the CAISO market.
- Maintain the system as necessary.

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.

Exhibit A
Scope of Work

The Recipient shall:

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

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

For products that require a final version only

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

For all products

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

Instructions for Submitting Electronic Files and Developing Software:

- **Electronic File Format**
  - Submit all data and documents required as products under this Agreement in an electronic file format that is fully editable and compatible with the CEC's software and Microsoft (MS)-operating computing platforms, or with any other format approved by the CAM.

  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.
  - Documents intended for public distribution will be in PDF file format.
  - The Recipient must also provide the native MS file format.
  - Project management documents will be in MS Project file format, version 2007 or later.

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);
  - Match fund documentation (subtask 1.7);
  - Subcontracts (subtask 1.8); 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);
  - 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 Match Funds 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)*

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 mutually by the CAM and the Recipient Project Manager.

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.
- 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*.

Products:
- Final Meeting Agreement Summary *(if applicable)*

- Schedule for Completing Agreement Closeout Activities

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 quarterly *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 quarterly *Invoice* that follows the instructions in the "Payment of Funds" section of the terms and conditions, including a financial report on Match Funds and in-state expenditures.

Products:

- Progress Reports
- Invoices

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 *CEC Style Manual* provided by the CAM.

Recipient Products:

- Final Report Outline (draft and final)

CAM Product:

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

- Draft Final Report
- Final Report

CAM Product:

- Written Comments on the Draft Final Report

MATCH FUNDS 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 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.
- 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 CEC 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 redacted 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, and final)*

TECHNICAL ADVISORY COMMITTEE

Subtask 1.10 Technical Advisory Committee (TAC)

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

- Provide guidance in project direction. The guidance may include scope and methodologies, timing, and coordination with other projects. The guidance may be based on:
    - Technical area expertise;
    - Knowledge of market applications; or
    - Linkages between the agreement work and other past, present, or future projects (both public and private sectors) that TAC members are aware of in a particular area.
- Review products and provide recommendations for needed product adjustments, refinements, or enhancements.
- Evaluate the tangible benefits of the project to the state of California, and provide recommendations as needed to enhance the benefits.
- 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 1.11 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.

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 an 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: USE CASE AND MARKET APPLICATION ANALYTICS

The goal of this task is to develop use case scenarios associated with the Recipient's MDS system and conduct a market application analysis to inform site evaluation and determine relevant use cases for the commercial demonstration.

Subtask 2.1: Create Relevant Load and Generation Profiles and Use Case Scenarios

The goal of this subtask is to determine relevant use cases that pertain to the commercial demonstration of the Recipient's MDS system.

The Recipient shall:
- Work with the Project host to determine how the commercial demonstration can be most valuable at the project and portfolio level in diverse front-of-meter grid applications. Applications considered could include: enabling firm renewable energy supply; delivering dispatchable zero carbon capacity to replace gas plants for reliability; enabling resilience; optimizing transmission or distribution equipment utilization (as applicable); risk hedging.
- Produce load, generation and MDS dispatch profiles optimized for a potential project site.
- Produce a *Use Case Scenario Report* that includes a summary of the assessment.

Product:
- Use Case Scenario Report (Draft and Final)

Subtask 2.2: Complete Market Application Analysis
The goal of this subtask is to determine how the commercial demonstration of the Recipient's MDS system is expected to perform in the CAISO market.

The Recipient shall:
- Identify barriers to MDS participation in CAISO markets.
- Produce a *CAISO Market Application Analysis Report* that includes a summary of the assessment.

Products:
- CAISO Market Application Analysis Report (Draft and Final)
    - This report should not disclose any confidential information.

TASK 3: SITE EVALUATION
The goal of this task is to evaluate and select a site in California that is within the CAISO balancing area authority and has existing interconnection capacity suitable to serve as the location of the commercial demonstration. As part of the site evaluation, a permit evaluation will be completed.

Subtask 3.1: Site Evaluation
The goal of this subtask is to evaluate and select a site for commercial demonstration of an MDS system.

The Recipient shall:
- Complete any necessary surveys required to evaluate potential sites (soil and geotechnical surveys, topographical surveys etc.).
- Generate a *Site Survey Report* that includes a summary of the survey report impacts to the project budget & schedule.
- Travel to the potential sites to gain an on-the-ground understanding of the implications of having an operational MDS system at that site.
- Develop a *Site Evaluation Report* that includes a completed evaluation matrix of the anticipated site.

Products:
- Site Survey Report
- Site Evaluation Report (Draft & Final)

Subtask 3.2: Permit Evaluation
The goal of this subtask is to evaluate what permits are required for a long-duration energy storage facility at the anticipated site location. No permits will be obtained under this Subtask.

The Recipient shall:

- Prepare a *Permit Evaluation Report* that includes:
    - List of construction permits necessary and associated authorities having jurisdiction
    - Schedule for acquiring the permits

Products:

- Permit Evaluation Report

TASK 4: EPC CONTRACTOR SELECTION

The goal of this task is to select an EPC contractor to execute the EPC phases of the project.

Subtask 4.1: Request for Qualification

The goal of this subtask is to develop a RFQ package to evaluate which EPCs should proceed to the RFP stage.

The Recipient shall:

- Develop a list of at least 6 available EPC candidates.
- Prepare a RFQ Package to be released to EPC candidates. The package should include an evaluation of:
    - Safety record
    - Geographic presence
    - Labor resourcing, inclusive of supplier diversity
    - Related project experience
    - Ability to meet insurance requirements
    - And should not include any confidential information
- Evaluate RFQ responses and provide Requests for Information (RFIs) to approximately 6 EPC contractors, if necessary.
- Include updates on the RFQ process in the Quarterly Progress Report without any confidential information.
- Generate an *RFQ Report* outlining the development and process for downselection without any confidential information.

Products:

- RFQ Report (draft and final)

Subtask 4.2: Request for Proposal

The goal of this subtask is to develop a RFP package, distribute to those selected during the RFQ stage, evaluate responses and select an EPC contractor.

The Recipient shall:

- Prepare a RFP Package to be released to EPC candidates that have advanced past the RFQ stage. The package should include:

  - Contract
  - Scope of Work
  - Technical Specifications
  - Property Requirements
  - Site Conditions
- Hold an information session, a site visit, and address questions related to RFP items if necessary.
- Ensure that the EPC candidate responses to RFP are in a format that include at a minimum: price, conceptual design, and project execution plans.
- Develop EPC evaluation criteria that shall include price, schedule, and technical competency.
- If necessary for evaluation, hold interviews or presentations with candidates prior to selection.
- Select the EPC contractor, ~~develop and sign~~**through** a contract that includes detailed budget and schedule.
- Include updates on the RFP process and EPC downselection in Quarterly Progress Reports (see subtask 1.5) without including any confidential
- information.
- Generate an *RFP Report* outlining the RFP development and process for downselection (draft and final) without including any confidential information.

Products:

- RFP Report (draft and final)

TASK 5: EPC AND COMMISSIONING

The goal of this task is to complete the EPC and commissioning of the project, including detailed engineering, supply, installation, construction, and commissioning of the ~~5~~ **1.5** MW / ~~500~~ **150** MWh MDS system. Specifically this task covers:

- Civil BoP, including site preparation, site grading, access road, foundations.
- Electrical BoP, including: direct current (DC) and alternating current (AC) electrical networks to connect the battery enclosures with the power conversion system and the AC electrical grid.
- The engineering, programming, supply, and commissioning of an Energy Management System (EMS) and Supervisory Control and Data Acquisition (SCADA) network.
- A water piping network.
- Installation of the MDS system and other supporting subsystems.

Subtask 5.1: Engineering Design

The goal of this subtask is to complete the engineering design for the systems noted above in Task 5, including engineering designs for the Civil BoP, electrical BoP, EMS,

SCADA, water piping network, and MDS system and other supporting subsystems installation.

The Recipient shall:

- Generate a *Design Report (draft and final)* that provides an overview of the engineering design process and tasks completed without including any confidential information.
- Receive a milestone payment of $4,365,411 for the MDS System Costs.

Products:

- Design Report (draft and final)

Subtask 5.2: Procurement
The goal of this subtask is to procure equipment for the MDS System.

The Recipient shall:

- Prepare and issue purchase orders (POs) to complete the procurements, including:
  - MDS Enclosures
  - Inverters and auxiliary transformers
  - Power path electrical connections and equipment from the inverter to the MDS battery enclosures
  - Auxiliary electrical connections and equipment from the auxiliary transformers or main auxiliary panel to the MDS battery enclosures
  - Water pipes, valves, storage, and pumps within the project site
  - Plant communication network, EMS, and SCADA system
- Manage the procurement process to ensure that items are being delivered as necessary to maintain the project schedule and provide progress updates on procurement in the Quarterly Progress Reports (see subtask 1.5) without including any confidential information.
- ~~Develop~~ **Receive** *Factory Acceptance Tests Report* (draft and final) providing an overview of steps completed to ensure quality control on MDS battery enclosures without including any confidential information.
- Receive a milestone payment of **$6,984,658** ~~$9,000,000, which is 40% of~~**for** the MDS System Costs.

Products:

- Factory Acceptance Tests Report (draft and final)

Subtask 5.3: Interconnection
The goal of this subtask is to complete the interconnection process and validate that the project has received CAISO interconnection approval.

The Recipient shall:

- Submit an existing facility interconnection modification request (if applicable) or gather interconnection application materials directly or through the Project host.
- Support any modification review and/or necessary systems impact and facilities study directly or through the Project host.
- Provide the required information and participate in the negotiation process towards signing an Interconnection Agreement directly or through the Project host.
- Prepare an *Interconnection Progress Certificate* validating the completion of the above interconnection activities, without including any confidential information.

Products:

- Interconnection Progress Certificate

Subtask 5.4: Mitigation Monitoring and Reporting

The goal of this task is to ensure compliance with the mitigation measures required by the MMRP in the Initial Study and Proposed Mitigated Negative Declaration under the CEQA review for this project.

The Recipient shall:

- Implement Worker Environmental Awareness Program (WEAP) for Biological Resources, and provide a *Copy of MM BIO-1 WEAP* for implementation approval as required by the MMRP.
- Conduct preconstruction wildlife surveys, provide the *Name and Qualifications of MM BIO-2 Biologists*, and prepare a *MM BIO-2 Survey Findings Report* as required by the MMRP.
- Conduct biological monitoring and reporting, provide the *Name and Qualifications of MM BIO-3 Biologist(s),* and provide *Copy of MM BIO-3 Biological Monitoring Reports* as required by the MMRP.
- Conduct Protocol Surveys for Western Bumble Bee and Implement Avoidance Measures if ground disturbance, construction, and demolition activities are scheduled during April 1 through September 30 (Western Bumble Bee colony active Period), provide *Name and qualifications of MM BIO-4 Entomologist*, and provide *Copy of MM BIO-4 Survey Findings* as required by the MMRP.
- Install and Maintain Wildlife Exclusion Fencing, and provide *Proof of MM BIO-5 Fencing Installation* as required by the MMRP.
- Conduct Preconstruction Surveys for Nesting Birds and Raptors and Implement Avoidance Measures if such activities are scheduled during February 1 to August 31 (the bird breeding season), provide Name and Qualifications of MM BIO-6 Ornithologist(s), and provide Copy of MM BIO-6 Survey Findings as required by the MMRP.
- Provide *Evidence of Absence of Waters of the State or Waters of the US* or copies of All MM BIO-7 Regulatory Waters Permits as required by the MMRP for the Evidence of Applicable Jurisdictional Waters Permits.

- Avoid oak woodland trees during ground disturbing activities within the dripline canopy of oak trees adjacent to Power Block 1 as required by the MMRP, and provide Proof of MM BIO-8 Oak Woodlands Avoidance.
- Implement WEAP for Cultural Resources and Cultural Tribal Resources, provide the Name and qualifications of MM CUL-1 archaeological specialist, and provide Copy of MM CUL-1 WEAP.
- Retain an archaeological specialist to prepare a MM CUL-2 report of findings documenting data recovery as required by the MMRP if archaeological resources are encountered during excavation or grading of the site.
- Notify the Mendocino County Coroner immediately if human remains are discovered during excavation or grading of the site or other construction activities as required by the MMRP, and provide *Cop(ies) of MM CUL-3 notification, if any*.
- Prepare a WEAP provide training for all onsite staff via a retained Paleontologist as required by the MMRP, provide *Name and credentials of PR-1 Paleontologist*, and provide *Copy of PR-1 WEAP*.
- Develop and implement a *Paleontological Resources Management Plan* via a retained paleontologist as required by the MMRP.
- Submit plans and specifications for the hydrogen detection and exhaust system the Mendocino County Planning and Building Department, provide *Copy of MM HAZ-1 Plans and Specifications for Hydrogen Detection and Exhaust System*, and provide a *MM HAZ-1 Letter of Confirmation* on the successful review of the hydrogen detection and exhaust system as required by the MMRP.
- Provide a *Copy of MM HAZ-2 UL9540A Test Method Criteria Letter* showing that the battery energy storage system meets UL9540A Test Method criteria as required by the MMRP.
- Prepared a *MM HAZ-3 Emergency Response and Emergency Action Plan* as required by the MMRP.
- Notify all residents within the designated area, establish a telephone number for use by the public to register complaints as required by the MMRP, and provide *Proof of MM NOISE-1 Noise Notification and Telephone Number.*
- Document, investigate, evaluate, and attempt to resolve all project- related noise complaints as required by the MMRP; provide *Copy of MM NOISE-2 Noise Complaint and Resolution Record.*
- Incorporate noise reduction measures into project design, Conduct a 24-hour community noise survey, Incorporate additional noise reduction measures, as necessary, as required by the MMRP; provide *Copies of MM NOISE-3 Noise Survey Results and Noise Reduction Measures.*
- Prepare a *MM TRANS-1 Construction and Demolition Traffic Control Plan* as required by the MMRP, and report to CEC the direction received, and any compliance requirements within 14 days.

Products:

- Copy of MM BIO-1 WEAP

- Name and Qualifications of MM BIO-2 Biologists
- MM BIO-2 Survey Findings Report
- Name and Qualifications of MM BIO-3 Biologist(s)
- Copy of MM BIO-3 Biological Monitoring Reports
- Name and qualifications of MM BIO-4 Entomologist
- Copy of MM BIO-4 Survey Findings
- Proof of MM BIO-5 Fencing Installation
- Name and Qualifications of MM BIO-6 Ornithologist(s)
- Copy of MM BIO-6 Survey Findings
- Evidence of Absence of Waters of the State or Waters of the US or Copies of All MM BIO-7 Regulatory Waters Permits
- Proof of MM BIO-8 Oak Woodlands Avoidance
- Name and qualifications of MM CUL-1 archaeological specialist
- Copy of MM CUL-1 WEAP.
- MM CUL-2 Report
- Cop(ies) of MM CUL-3 notification, if any.
- Name and credentials of PR-1 Paleontologist
- Copy of PR-1 WEAP
- Paleontological Resources Management Plan
- Copy of MM HAZ-1 Plans and Specifications for Hydrogen Detection and Exhaust System
- MM HAZ-1 Letter of Confirmation
- Copy of MM HAZ-2 UL9540A Test Method Criteria Letter
- MM HAZ-3 Emergency Response and Emergency Action Plan
- Proof of MM NOISE-1 Noise Notification and Telephone Number
- Copy of MM NOISE-2 Noise Complaint and Resolution Record
- Copies of MM NOISE-3 Noise Survey Results and Noise Reduction Measures
- MM TRANS-1 Construction and Demolition Traffic Control Plan

Subtask 5.5: Construction
The goal of this subtask is to perform civil, electrical, mechanical, and communications work to achieve mechanical completion.

The Recipient shall:

- Complete MDS equipment delivery to project site, deliver a *Notification of MDS Equipment Delivery* to the CEC, and receive a milestone payment of **$4,365,411** ~~$5,625,000, which is 25% off~~**for** the MDS System Costs.
- Complete all necessary civil works, including grading, erosion control, foundations, etc.
- Complete facility work for interconnection.
- Complete all electrical work including DC and AC network installation, installation of electrical equipment, such as transformers, inverters, etc.
- Complete all necessary mechanical work inclusive of MDS enclosure installation and piping installation etc.

- Complete all communications work including installation of an EMS, SCADA Network and Data Historian etc.
- Integrate the MDS Enclosures fully with the site.
- Prepare a *Mechanical Completion Certificate* validating that the MDS system is mechanically, electrically and functionally completely installed and capable of achieving energization for commissioning activities, and construction work has concluded, without including any confidential information.

Products:
- Notification of MDS Equipment Delivery
- Mechanical Completion Certificate

Subtask 5.6: CAISO New Resource Implementation (NRI)
The goal of this subtask is to complete CAISO's NRI process, such that the MDS system initiates market participation activities.

The Recipient shall:
- Select a CAISO Scheduling Coordinator (SC).
- Prepare project information materials for CAISO review. This package will be prepared in conjunction with the Project host and should include:
    - Site conditions
    - Interconnection agreement and approvals
    - Electrical drawings as issued for construction
    - Metering and telemetry plans
    - Communications plan, including energy data points lists and gateway information
- Prepare request and obtain *Authorization to Initiate Trial Operations.*
- Prepare a *CAISO Commercial Operation Certificate* validating that the system has validated metering and telemetry of test generation data.

Products:
- Authorization to Initiate Trial Operations
- CAISO Commercial Operation Certificate

Subtask 5.7: Commissioning
The goal of this subtask is to complete the commissioning process of the MDS plant after proof of Mechanical Completion in Task 5.4.

The Recipient shall:
- Perform an Acceptance Test to check and verify that all equipment is installed according to code.
- Perform a functional test that includes system power on and verifies that subsystems and the full system perform according to the design.

- Prepare an *Acceptance Test Certificate* verifying that the Acceptance Test has been completed, without including any confidential information.

Products:
- Acceptance Test Certificate

Subtask 5.8: Completion of MDS System Validating Operational Readiness
The goal of this subtask is to validate the MDS System substantial completion, which means that the system has been energized, commissioned and is ready for operation, and final completion, and all the items of the MDS System have been completed by the contractor.

The Recipient shall:
- Prepare a *Substantial Completion Certificate* validating that substantial completion has concluded, without including any confidential information, and receive a milestone payment of **$1,746,165** ~~$2,250,000, which is 10% off~~**for** the MDS System Costs.
- Develop a checklist denoting tasks required to achieve final completion.
- Prepare a Final Completion Certificate validating that final completion has concluded, without including any confidential information.

Products:
- Substantial Completion Certificate
- Final Completion Certificate

Subtask 5.9: Warranty
The goal of this subtask is to work with vendors to execute applicable warranties during the operation period of the project. A warranty report will also be developed that includes details on warranties on major BoP components.

The Recipient shall:
- Prepare a *Warranty Report* that includes the following:
  - Details on the base warranty provided with listed major BoP components
  - Details on any software warranties
  - The warranty provider should also be listed alongside the major BoP components
  - Details on any applicable warranty extension options

Products:
- Warranty Report

TASK 6: OPERATION
The goal of this task is to operate, monitor, and manage the MDS plant performance.

Subtask 6.1: CAISO Market Participation
The goal of this subtask is to operate the MDS asset within the CAISO market.

The Recipient shall:

- Operate the system via the selected SC to provide energy in California and, if relevant, ancillary services.
- Compare market operations against assumptions and analysis highlighted in the Subtask 2.2 report (e.g. seasonal energy shifting, local reliability support, etc.).
- Compare pre-operation market behaviors to MDS understand market impact.
- Prepare a *Yearly Market Participation Report* each year that identifies market services and energy provided, including pertinent information such as usage metrics (e.g., a energy discharge summary) and system and nodal benefits (e.g., intra-day, multi-day, and seasonal energy shifting). This report should not include any confidential information.

Products:

- Yearly Market Participation Report

Subtask 6.2: Operational Data and Use Case Review
The goal of this subtask is to review operational data from the MDS asset to validate its commercial demonstration performance expectations and evaluate its ability to support CAISO market settlement and meet market participation requirements.

The Recipient shall:

- Review operational data of the installed MDS system to monitor functionality and performance.
- Prepare an *Annual Operational Data and Use Case Validation Report* on an annual basis that includes information CAISO may require for market settlement that aligns with standard reporting requirements from other storage resources.
    - *The Annual Operational Data and Use Case Validation Report* will include battery behavior such as average battery schedules, bidding behavior, and state of charge minimums, if applicable.
    - Data highlighted in this report will include pertinent information such as:
        - Duty cycle characteristics (e.g., average state of charge, charge & discharge frequency)
    - This report should not include any confidential information.
- Compare operational data against assumptions and analysis in Subtask 2.1, if relevant.
- Refresh Use Case assumptions if necessary.

Products:

- Annual Operational Data and Use Case Validation Report

TASK 7: MAINTENANCE AND REPAIRS

The goal of this task is to maintain proper operation of the MDS plant by completing necessary maintenance (quarterly) and repairs (if needed).

The Recipient shall:

- Conduct all necessary maintenance of the system including:
  - Water and air handling system component replacement and waste disposal.
  - Annual inspection of water, thermal management, and air handling systems.
  - Annual inspections of modules and enclosures for physical integrity.
  - Remote monitoring for plant DC and low voltage AC electrical, control, and water distribution systems.
  - Remote monitoring, preventative maintenance, & replacement for MV/HV plant electrical & control systems
  - Repair of other plant electrical, control, and water distribution systems
  - Perform diagnostics and complete any repairs necessary to maintain the functionality of the MDS plant for the duration of the project.
- Prepare an *Annual Maintenance and Repair Report* outlining maintenance and repair activities conducted during operation of the MDS system.

Products:

- Annual Maintenance and Repair 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), 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), and provide *Documentation of Organization Profile on EnergizeInnovation.fund*, including the profile link.

Products:

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

TASK 9: TECHNOLOGY/KNOWLEDGE TRANSFER ACTIVITIES

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

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 an explanation why.
- Submit the final *Project Case Study Plan* to the CAM for approval.
- Execute the final Project Case Study Plan and develop and submit a Project Case Study.

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

Products:

- Project Case Study Plan (draft and final)
- Summary of TAC Comments
- Project Case Study (draft and final)
- High Quality Digital Photographs

TASK 10: CAISO SYSTEM-LEVEL IMPACT ANALYSIS

The objective of this task is to assess and report the CAISO system-level benefits of the Project by analyzing avoided fossil-fueled power plant operations and improved renewable energy integration.

The Recipient shall:

- **Prepare a System-Level Impact Analysis Report that evaluates the Project's impact on the CAISO system. The report will include an analysis of hourly Project operations and CAISO system operations to quantify avoided fossil-fueled power plant operations (and the associated greenhouse gas emissions) and reductions in renewable energy curtailment. Additionally, the Report will include an assessment of the Project's contributions to CAISO-system level reliability improvements by comparing the hourly Project dispatch to electricity prices and weather conditions during periods of avoided fossil-fueled power plant operations. All key assumptions will be documented.**
- **Report GGRF benefits per the frequency and metrics listed in the terms and conditions.**

Products:

- ***System-Level Impact Analysis Report***

V. PROJECT SCHEDULE

- Please see the attached Excel spreadsheet.