



California
ENERGY COMMISSION



**California Energy Commission
August 17, 2026 Business Meeting
Backup Materials for The Regents of the University of California, on behalf of its
Davis Campus**

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

CALIFORNIA ENERGY COMMISSION

PROPOSED RESOLUTION: The Regents of the University of California, on behalf of its Davis Campus

RESOLUTION NO: 26-0817-XX

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

RESOLVED, that the CEC approves Agreement EPC-26-007 with The Regents of the University of California, on behalf of its Davis Campus for a \$4,499,922 grant. The project will design, install, and demonstrate a DC-coupled microgrid integrating solar generation, battery storage, and fleet EV charging at the Oakland Municipal Service Center, and evaluate its performance under PG&E's Flex Connect Pilot. The project will measure technical, economic, and ratepayer benefits and provide guidance for replicating similar systems across California; and

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

APPROVED AND ADOPTED this 17 day of August 2026, by the following vote:

AYE:

NAY:

ABSENT:

ABSTAIN:

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 approved and adopted by affirmative vote of the CEC at a meeting held on August 17, 2026.

Kim Todd
Secretariat



GRANT REQUEST FORM (GRF)

A. New Agreement Number

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

New Agreement Number: EPC-26-007

B. Division Information

1. Division Name: ERDD
2. Agreement Manager: Sean Dory
3. MS-:None
4. Phone Number: 916-244-9821

C. Recipient's Information

1. Recipient's Legal Name: The Regents of the University California, on behalf of its Davis campus

D. Title of Project

Title of project: Distributed, Resilient Infrastructure for Vehicle–Energy Networks (DRIVEN)

E. Term and Amount

1. Start Date: 8/31/2026
2. End Date: 8/30/2030
3. Amount: \$4,499,922.00

F. Business Meeting Information

1. Are the ARFVTP agreements \$75K and under delegated to Executive Director? No
2. The Proposed Business Meeting Date: 08/17/2026
3. Consent or Discussion? Consent
4. Business Meeting Presenter Name: Sean Dory
5. Time Needed for Business Meeting: N/A
6. The email subscription topic is: Electric Program Investment Charge

Project Description:

The Regents of The University of the California, on Behalf of its Davis campus. Proposed resolution approving agreement EPC-26-007 with The Regents of the University of California, on behalf of its Davis campus for a \$4,499,922 grant, and approving staff's recommendation that this action is exempt from CEQA. The project will design, install, and demonstrate a DC-coupled microgrid integrating solar generation, battery storage, and fleet EV charging at the Oakland Municipal Service Center, and evaluate its performance under PG&E's Flex Connect pilot. The project will measure technical, economic, and ratepayer benefits and provide guidance for replicating similar systems across California. (Electric Program Investment Charge funding) Contact: Sean Dory

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":

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:

CCR section number: Cal. Code Regs., tit. 14, §15301; Cal. Code Regs., tit. 14, §15303 ; Cal. Code Regs., tit. 14, §15304

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:

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.

The categorical exemption under Cal. Code Regs., tit. 14, section 15301 applies to the minor alteration, operation, or repair of existing public or private facilities with negligible or no expansion of existing use at the time of the lead agency's determination. It is often used for utility-related upgrades or additions that support current operations without expanding capacity. The DRIVEN project will install new solar panels, battery storage, and DC chargers at the existing Oakland Municipal Service Center fleet site. These installations support the existing function, EV charging for an existing fleet, and are sized to fit within current operations. There is no increase in existing use beyond the site's intended purpose, and expansions are contained within original service context. The design, installation, and demonstration of the DC-coupled microgrid will result in only minor alteration of the existing structure and facilities at the site. These modifications will not result in any expansion of capacity. For these reasons, the proposed work will not have any significant effect on the environment and falls under Section 15301.

The categorical exemption under Cal. Code Regs., tit. 14, section 15303 covers small-scale construction or installation of accessory utility structures, including equipment and utilities such as electrical or gas lines, provided they are modest in scale. The project includes installation of small-scale equipment: solar canopy, BESS columns, six DC-input chargers, and an 80kW inverter. These are accessory structures or utility extensions (e.g., electrical/solar installation) that are small in scale and intended to serve existing site needs. No large commercial buildings or substantial hazardous substances are involved. For these



reasons, the project falls within section 15303 and will not have a significant effect on the environment.

The categorical exemption under Cal. Code Regs., tit. 14, section 15304 provides that projects which consist of minor public or private alterations in the condition of land, water, and/or vegetation which do not involve removal of healthy, mature, scenic trees except for forestry and agricultural purposes are categorically exempt from the provisions of CEQA. This project involves only minor land alterations such as grading, trenching, and utility connections that have minimal environmental impact. Site preparation involves standard trenching/backfilling for utility conduit and row-level grading for equipment placement. These actions are routine, with restoration planned and utilities integrated beneath surface level. No tree removal, habitat disruption, or work in sensitive zones are anticipated. Therefore, the project falls within section 15304 and will not have a significant effect on the environment.

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

For these reasons, the proposed work will not have any significant effect on the environment and falls under sections 15301, 15303, and 15304.

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
World4Solar Inc.	\$ 2,095,575	\$0
Microgrid Labs Inc.	\$ 350,191	\$38,163
California Energy, Power, and Innovation Collaborative (Cal EPIC)	\$ 99,900	\$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
Isuzu Motors Ltd.	\$0	\$230,831
Mack Trucks, Inc.	\$0	\$528,773
Elgin Industries, Inc.	\$0	\$2,848,127
The Regents of the University California, on behalf of its Davis campus	\$80,045	\$0
TBD	\$14,500	\$0
Underwriter's Laboratories Inc.	\$0	\$10,000
TBD Cybersecurity Consultants	\$0	\$15,000
World4Solar Inc.	\$1,040,000	\$0
Entelligent Inc.	\$48,600	\$0
Schneider Electric	\$160,000	\$0
TBD	\$10,000	\$0

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
EPIC	25-26	301.001M	\$ 4,499,922

TOTAL Amount: \$ 4,499,922

R&D Program Area: ESB: Renewables

Explanation for "Other" selection Not applicable

Reimbursement Contract #: Not applicable

Federal Agreement #: Not applicable

M. Recipient's Contact Information

1. Recipient's Administrator/Officer

Name: Alan Jenn

Address: 633 Pena Dr

City, State, Zip: Davis, CA 95618-6570

Phone:

E-Mail: ajenn@ucdavis.edu

2. Recipient's Project Manager

Name: Alan Jenn

Address: 633 Pena Dr

City, State, Zip: Davis, CA 95618-6570

Phone:

E-Mail: ajenn@ucdavis.edu

N. Selection Process Used

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

Selection Process	Additional Information
Competitive Solicitation #	GFO-25-301
First Come First Served Solicitation #	Not applicable
Other	Not applicable



O. Attached Items

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

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

Approved By

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

Agreement Manager: Sean Dory

Approval Date: 6/29/2026

Branch Manager: Kevin Uy

Approval Date: 7/2/2026

Director: Jonah Steinbuck (*delegated to Manager*)

Approval Date: N/A

Exhibit A
Scope of Work
The Regents of the University of California, on behalf of its Davis campus

I. TASK AND ACRONYM/TERM LISTS

A. Task List

Task #	CPR ¹	Task Name
1		General Project Tasks
2		Pre-analysis and System Design Studies
3	X	Power Control System Development and Simulation
4	X	Site Preparation and System Installation
5		Measurement, Verification, and Metrics Calculation
6		Community Outreach and Workforce Training
7		Evaluation of Project Benefits
8		Technology/Knowledge Transfer Activities

B. Acronym/Term List

Acronym/Term	Meaning
API	Application Planning Interface
BESS	Battery Energy Storage System
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CPR	Critical Project Review
DAC	Disadvantaged Community
DER	Distributed Energy Resources
IEEE	Institute of Electrical and Electronics Engineers
EVSE	Electric Vehicle Supply Equipment
GHG	Greenhouse Gases
IOU	Investor-Owned Utility
LCOE	Levelized Cost of Energy
M&V	Measurement and Verification
O&M	Operations and Maintenance
OMSC	Oakland Municipal Service Center
PCS	Power Control System
PG&E	Pacific Gas & Electric
PV	Photovoltaic
TAC	Technical Advisory Committee
UL	Underwriters Laboratory

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.

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

A. Purpose of Agreement

The purpose of this Agreement is to fund the design, installation, and demonstration of a DC-coupled microgrid integrating solar generation, battery storage, and fleet electric vehicle (EV) charging at the Oakland Municipal Service Center, and to evaluate its performance under PG&E's Flex Connect program. The project will measure technical, economic, and ratepayer benefits and provide guidance for replicating similar systems across California.

B. Problem/ Solution Statement

Problem

Many California fleet depots face growing electric-vehicle charging loads that exceed the available distribution capacity at their sites. Traditional utility service upgrades such as transformer replacements or feeder enhancements can take years to complete and require significant ratepayer investment. At the same time, energization timelines remain a major barrier to timely deployment of charging infrastructure, particularly for public agencies operating in disadvantaged communities. As a result, fleets experience delays, higher infrastructure costs, and limited ability to participate in utility load-management programs such as PG&E's Flex Connect program.

Solution

This project demonstrates a viable alternative to conventional grid-upgrade pathways by integrating solar photovoltaic (PV), battery storage, and EV charging through a DC-coupled microgrid and UL-3141 certified power control system at the Oakland Municipal Service Center. The system will operate within PG&E's Flex Connect load limits while increasing the amount of vehicle charging that can be supported without additional distribution upgrades. By coordinating distributed energy resources (DER) dispatch with fleet charging needs, the project will test whether sites with limited grid capacity can meet operational requirements while reducing peak demand, lowering energy costs, and improving reliability. The demonstration will generate validated performance data, a measurement and verification (M&V) framework, and reproducible design and control guidelines that PG&E and other Investor-Owned Utility (IOU) customers can use to streamline future fleet electrification projects.

C. Goals and Objectives of the Agreement

Agreement Goals

The goals of this Agreement are to:

- Demonstrate a DC-coupled microgrid that integrates solar PV, battery storage, and fleet EV charging at the Oakland Municipal Service Center using commercially available UL-listed equipment.
- Evaluate the technical and economic performance of the system under PG&E's Flex Connect program, including its ability to operate within load limits while enabling additional charging capacity.

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- Assess whether behind-the-meter DER coordination can reduce or defer utility distribution upgrades, shorten energization timelines, and improve charging reliability for fleet depots.
- Develop validated data, design guidelines, and control strategies that can be used to replicate similar DER-integrated charging systems across California, particularly at sites with limited grid capacity.
- Engage the local community through outreach and workforce training to build capacity for maintaining and operating advanced EV charging and microgrid systems in disadvantaged communities.

Ratepayer Benefits:² This Agreement will result in the ratepayer benefits of greater electricity reliability and lower costs by demonstrating how coordinated use of on-site solar generation, battery storage, and managed EV charging can reduce stress on local distribution infrastructure. The project will test whether advanced power controls can enable additional charging capacity without triggering transformer or feeder upgrades that would otherwise be funded by ratepayers.

The project will also assess opportunities to reduce operating costs at fleet charging sites through peak-load management, improved power-conversion efficiency, and increased use of behind-the-meter renewable energy. These operational gains can lower long-term infrastructure and energy costs for public agencies and commercial customers, ultimately reducing systemwide investments borne by IOU ratepayers. In addition, the demonstration will generate high-quality performance data, validated cost-benefit analyses, and replicable design guidance that can streamline future interconnections and support more predictable planning for utility distribution systems. These insights can help utilities and customers manage transportation-electrification load growth more efficiently, improving reliability and reducing overall ratepayer exposure to grid-upgrade costs.

Technological Advancement and Breakthroughs:³ This Agreement will lead to technological advancement and breakthroughs to overcome barriers to the achievement of the State of California's statutory energy goals by demonstrating a commercially viable DC-coupled microgrid that integrates solar, storage, and fleet EV charging under PG&E's Flex Connect program. The project will show how advanced power controls can keep site demand within utility limits while supporting additional charging capacity, offering a practical alternative to costly and slow distribution-system upgrades.

The demonstration will also advance the state of practice by coordinating fleet-charging management with DER-level control, producing validated data on efficiency, load flexibility, and operational reliability. These results will inform interconnection processes, support broader adoption of managed charging and DER-integrated depots, and provide replicable design

² California Public Resources Code, Section 25711.5(a) requires projects funded by the Electric Program Investment Charge (EPIC) to result in ratepayer benefits. The California Public Utilities Commission, which established the EPIC in 2011, defines ratepayer benefits as greater reliability, lower costs, and increased safety (See CPUC "Phase 2" Decision 12-05-037 at page 19, May 24, 2012, http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/167664.PDF).

³ California Public Resources Code, Section 25711.5(a) also requires EPIC-funded projects to lead to technological advancement and breakthroughs to overcome barriers that prevent the achievement of the state's statutory and energy goals.

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guidance that helps utilities and customers accelerate transportation electrification in a reliable and cost-effective manner.

Agreement Objectives

The objectives of this Agreement are to:

- Design and install a UL-listed, DC-coupled microgrid integrating solar PV, battery storage, and multiple EV chargers at the Oakland Municipal Service Center.
- Demonstrate operation of the system under PG&E's Flex Connect program, maintaining site demand within load limits while supporting increased vehicle charging throughput.
- Quantify system performance across required metrics, including energization time, ratepayer investment avoidance, efficiency improvements, peak-load reduction, electricity-cost impacts, and electric vehicle supply equipment (EVSE) availability.
- Evaluate additional benefits such as greenhouse-gas and criteria-pollutant reductions, resiliency performance, and workforce-development outcomes.
- Develop replicable design guidance, integration procedures, and validated M&V datasets that enable utilities, fleet operators, and technology providers to deploy similar DER-integrated charging systems statewide.

I. 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.

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- Submit the revised product and responses to comments within 10 days of notice by the CAM, unless the CAM specifies a longer time period, or approves a request for additional time.

For products that require a final version only

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

For all products

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

Instructions for Submitting Electronic Files and Developing Software:

○ **Electronic File Format**

- Submit all data and documents required as products under this Agreement in an electronic file format that is fully editable and compatible with the California Energy Commission's (CEC) software and Microsoft (MS)-operating computing platforms, or with any other format approved by the CAM. Deliver an electronic copy of the full text of any Agreement data and documents in a format specified by the CAM, such as memory stick.

The following describes the accepted formats for electronic data and documents provided to the CEC as products under this Agreement, and establishes the software versions that will be required to review and approve all software products:

- Data sets will be in MS Access or MS Excel file format (version 2007 or later), or any other format approved by the CAM.
- Text documents will be in MS Word file format, version 2007 or later.
- Project management documents will be in 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.

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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, and other CEC staff relevant to the Agreement. The Recipient’s Project Manager and any other individuals deemed necessary by the CAM or the Project Manager shall participate in 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., Teams, Zoom), with approval of the CAM.

The Kick-off meeting will include discussion of the following:

- The CAM’s expectations for accomplishing tasks described in the Scope of Work;
 - An updated Project Schedule;
 - Terms and conditions of the Agreement;
 - Invoicing and auditing procedures;
 - Travel;
 - Equipment purchases;
 - Administrative and Technical products (subtask 1.1);
 - CPR meetings (subtask 1.3);
 - Monthly Calls (subtask 1.5)
 - Quarterly Progress reports (subtask 1.6)
 - Final Report (subtask 1.7)
 - Match funds (subtask 1.8);
 - Permit documentation (subtask 1.9);
 - Subawards(subtask 1.10);
 - Technical Advisory Committee meetings (subtasks 1.11 and 1.12);
 - Agreement changes;
 - Performance Evaluations; 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*.

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Recipient Products:

- Kick-off Meeting Presentation
- Updated Project Schedule (*if applicable*)
- Match Funds Status Letter (subtask 1.8) (*if applicable*)
- Permit Status Letter (subtask 1.9) (*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 should be made to the tasks, products, schedule, or budget. CPR meetings are a key opportunity for open and candid discussions between the CEC and the Recipient about project progress, challenges, and next steps. CPR meetings may also provide a forum for the Recipient to share project insights with interested CEC staff and CEC partners, at the CAM's discretion.

CPR meetings are typically scheduled at key inflection points in the project, as identified in the Task List on page 1 of this Exhibit. They should align with natural phase transitions, such as after design completion but before major procurement decisions, so that the CEC can make an informed Progress Determination based on project performance and risk. CPR meetings are generally conducted virtually but may be held at a project site, at the CEC, or another location, as determined by the CAM. Site visits are typical for demonstration projects or when in-person observation would enhance the CEC's understanding of project progress.

The CAM may schedule additional CPR meetings as needed to address emerging issues or concerns. The budget may be reallocated to cover the additional costs borne by the Recipient, but the overall Agreement amount will not increase.

The Recipient shall:

- Prepare and submit a *CPR Presentation* for each CPR meeting, structured to (1) report on progress with respect to the Scope of Work, budget, and schedule; identify any risks or needed changes to the Agreement; provide justification for continued funding; and (2) share project insights and progress towards achieving the Agreement's goals and objectives.

Attend the CPR meeting and deliver the *CPR Presentation* and any other requested material, as outlined in the *CPR Agenda* provided by the CAM.

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. The *CPR Agenda* will outline the structure and expectations for the *CPR Presentation*.
- Conduct each CPR meeting.
- Issue a *Progress Determination* summarizing the meeting, stating whether the project will continue, and identifying any potential modifications to the Agreement or its products. The *Progress Determination* may include conditions that the Recipient must meet for the project to continue to receive CEC funding.

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Recipient Products:

- CPR Presentation(s)

CAM Products:

- CPR Agenda(s)
- Progress Determination(s)

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

Products:

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

MONTHLY CALLS, REPORTS AND INVOICES

Subtask 1.5 Monthly Calls

The goal of this task is to have calls at least monthly between the CAM and Recipient to verify that satisfactory and continued progress is made towards achieving the objectives of this Agreement on time and within budget.

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The objectives of this task are to verbally summarize activities performed during the reporting period, to identify activities planned for the next reporting period, to identify issues that may affect performance and expenditures, to verify match funds are being proportionally spent concurrently or in advance of CEC funds or are being spent in accordance with an approved Match Funding Spending Plan, to form the basis for determining whether invoices are consistent with work performed, and to answer any other questions from the CAM. Monthly calls might not be held on those months when a quarterly progress report is submitted or the CAM determines that a monthly call is unnecessary.

The CAM shall:

- Schedule monthly calls.
- Provide questions to the Recipient prior to the monthly call.
- Provide call summary notes to Recipient of items discussed during call.

The Recipient shall:

- Review the questions provided by CAM prior to the monthly call
- Provide verbal answers to the CAM during the call.

Product:

- Email to CAM concurring with call summary notes.

Subtask 1.6 Quarterly 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 reporting period, 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. Progress reports are due to the CAM the 10th day of each January, April, July, and October. The Quarterly Progress Report template can be found on the ECAMS Resources webpage available at: <https://www.energy.ca.gov/media/4691>
- Submit a monthly or quarterly *Invoice* on the invoice template(s) provided by the CAM.

Recipient Products:

- Quarterly Progress Reports
- Invoices

CAM Product:

- Invoice template

Subtask 1.7 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.

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

Subtask 1.7.1 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 Products:

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

Subtask 1.7.2 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 (**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 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

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comment, provide a *Written Responses to Comments* explaining why the comments were not incorporated into the final product.

- Submit the revised *Final Report* electronically with any Written Responses to Comments within 10 days of receipt of CAM's Written Comments on the Draft Final Report, unless the CAM specifies a longer time period or approves a request for additional time.

Products:

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

CAM Product:

- Written Comments on the Draft Final Report

MATCH FUNDS, PERMITS, AND SUBAWARDS

Subtask 1.8 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. 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 application 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 application 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.

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- 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 1.9 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*)

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Subtask 1.10 Obtain and Execute Subawards and Agreements with Site Hosts

The goals of this subtask are to: (1) procure and execute subrecipients and site host agreements, as applicable, required to carry out the tasks under this Agreement; and (2) ensure that the subrecipients and site host agreements are consistent with the Agreement terms and conditions and the Recipient's own contracting policies and procedures.

The Recipient shall:

- Execute and manage subawards and coordinate subrecipients activities in accordance with the requirements of this Agreement.
- Execute and manage site host agreements and ensure the right to use the project site throughout the term of the Agreement, as applicable. A site host agreement is not required if the Recipient is the site host.
- Notify the CEC in writing immediately, but no later than five calendar days, if there is a reasonable likelihood the project site cannot be acquired or can no longer be used for the project.
- Incorporate this Agreement by reference into each subaward.
- Include any required Energy Commission flow-down provisions in each subaward, in addition to a statement that the terms of this Agreement will prevail if they conflict with the subaward terms.
- Submit a *Subaward and Site Letter* to the CAM describing the subawards and any site host agreement needed or stating that no subawards or site host agreements are required.
- If requested by the CAM, submit a draft of each *Subaward* and any *Site Host Agreement* required to conduct the work under this Agreement.
- If requested by the CAM, submit a final copy of each executed *Subaward* and any *Site Host Agreement*.
- Notify and receive written approval from the CAM prior to adding any new subrecipient (see the terms regarding subrecipient additions in the terms and conditions).

Products:

- Subaward and Site Letter
- Draft Subawards (*if requested by the CAM*)
- Draft Site Host Agreement (*if requested by the CAM*)
- Final Subawards (*if requested by the CAM*)
- Final Site Host Agreement (*if requested by the CAM*)

TECHNICAL ADVISORY COMMITTEE

Subtask 1.11 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

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- 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 1.12.
- 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

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- List of TAC Members
- Documentation of TAC Member Commitment

Subtask 1.12 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* for each TAC Meeting 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 1.13 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

*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: PRE-ANALYSIS AND SYSTEM DESIGN STUDIES

The goal of this task is to perform the analytical groundwork and system design studies necessary to define the technical and economic parameters of the demonstration microgrid system. This includes evaluating alternative microgrid topologies and asset capacities, identifying cost and performance trade-offs, and establishing design guidelines that will inform subsequent hardware deployment and software integration.

The Recipient shall:

Subtask 2.1 – Baseline Characterization and Data Collection

- Collect and compile baseline data for the Oakland Municipal Service Center (OMSC), including:
 - Electrical service characteristics (voltage, feeder configuration, transformer ratings).
 - Historical load profiles and demand patterns.
 - Comparison of OMSC to baseline load expectations of similar facilities.
 - Fleet composition, charging duty cycles, EVSE power rating, and daily energy requirements.

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- Site characteristics relevant to solar PV siting, stationary storage, and chargers, including (but not limited to):
 - Specific location within site for installation.
 - Insolation and expected hourly/daily generation.
 - Proximity of other buildings and facilities, considering both sun exposure and fire safety concerns.
 - Any projected impacts on facility workflow, both during and after construction.
- Coordinate with City of Oakland facilities staff and PG&E to obtain data on feeder capacity and flexible-service interconnection limits.
- Develop a preliminary site map and single-line diagram identifying candidate locations for generation, storage, and charging infrastructure.
- Prepare the *Baseline Site Characterization Memo* which summarizes the work in this subtask.

Subtask 2.2 – Comparative Assessment of Microgrid Topologies

- Conduct analytical cost-benefit and performance studies of alternative system configurations, including:
 - Baseline grid connection without flexible load management.
 - Baseline grid connection with AC-based flexible load management.
 - Microgrid configurations including:
 - AC-coupled vs. DC-coupled architectures.
 - Different charger ratings and port configurations.
- Evaluate competing approaches in terms of efficiency, installation cost, maintainability, reliability, and compatibility with PG&E Flex Connect requirements.
- Quantify potential ratepayer benefits, such as reduced energization timelines and deferred grid-capacity upgrades.
- Prepare the *Comparative Topology and Cost Memo* which summarizes the work in this subtask.

Subtask 2.3 – Optimal Asset Sizing and Design Guidelines

- Using load and cost analyses from Subtasks 2.1–2.2, determine optimal sizes for solar PV, energy-storage systems, and charging equipment to balance operational reliability and cost.
- Identify preliminary performance targets for efficiency, grid-import limitation, and solar self-consumption.
- Produce design guidelines suitable for replication at similar DAC municipal fleet sites as the *System Sizing and Design Guidelines Memo*.

Subtask 2.4 – Value Assessment of DC Microgrids for Capacity-Constrained Sites

- Conduct a techno-economic assessment of behind-the-meter DC microgrids as a strategy for alleviating distribution-capacity constraints under IOU flexible-service agreements.

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- Develop guidelines on sizing behind-the-meter DC microgrids to serve connected loads throughout the year. Provide an open-source simulation platform that analysts can easily apply to their own sites.
- Evaluate scenarios of partial grid supply, backfeed, and load shifting, identifying benefits for ratepayers and host sites.
- Develop use-case summaries (e.g., depot charging, mixed fleet/public access) to illustrate potential statewide applications.
- Prepare the *Value Assessment of Behind-the-Meter DC Microgrids Memo* which summarizes the techno-economic analysis and scenario evaluation in this subtask.

Products:

- Baseline Site Characterization Memo
- Comparative Topology and Cost Memo
- System Sizing and Design Guidelines Memo
- Value Assessment of Behind-the-Meter DC Microgrids Memo

TASK 3: POWER CONTROL SYSTEM DEVELOPMENT AND SIMULATION

The goal of this task is to develop, configure, and validate the Power Control System and associated energy-management software that will coordinate the distributed energy resources (DERs) and electric-vehicle charging infrastructure at the Oakland Municipal Service Center. Activities include hardware–software integration, communication with the IOU flexible-service platform (PG&E Flex Connect), UL 3141 certification support, and pre-deployment simulation of microgrid operation under multiple use cases.

The Recipient shall:

Subtask 3.1 – System Architecture and Control Design

- Define the control architecture for the DC-coupled microgrid, including communication pathways among DC-DC converters, battery-energy-storage systems, chargers, and grid interface equipment.
- Outline the hardware and power electronics in the full system via single-line diagrams. Detail the voltage, current, and power specifications and requirements.
- Specify sensing, metering, and protection requirements necessary for system-level coordination and compliance with applicable codes and standards.
- Define the communication standards and Application Planning Interfaces (APIs) to be used as appropriate.
- Prepare a Power Control System (PCS) *System Architecture and Control Design Memo* that summarizes the system design work in this subtask.

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Subtask 3.2 – PCS Software Development and Integration

- Finalize communication pathways between the PCS, solar array, battery systems, EVSEs, fleet-management systems, and PG&E Flex Connect.
- Develop or update PCS control functions that balance PV, storage, and site-import constraints while adhering to Flex Connect load limits.
- Integrate fleet charging schedules, vehicle state-of-charge data, route constraints, and charger availability through an API between the fleet management system and the PCS.
- Validate priority rules and optimization logic so that fleet-side charging needs are met while maintaining DER-side power limits.
- Ensure compatibility with standard communication protocols where applicable.
- Prepare a *PCS Software Integration Memo* which summarizes the work in this subtask.

Subtask 3.3 – UL 3141 Certification and Compliance Verification

- Identify all applicable UL and IEEE standards relevant to the PCS and DC microgrid operation (including UL 3141, UL 1741, IEEE 1547, IEEE 2030.5, UL 2202, UL 2231).
- Coordinate with testing laboratories and certification bodies to obtain UL 3141 certification (or verification of equivalency if pre-certified).
- Document the certification process, test results, and safety validation procedures in the *UL3141 Certification and Compliance Memo*.

Subtask 3.4 – Simulation and Validation of Control Logic

- Build a detailed simulation model of the microgrid and control algorithms to validate performance under representative scenarios, including:
 - Normal operation within PG&E Flex Connect limits;
 - High-solar generation with battery charging;
 - Grid import curtailment and load shifting;
 - Backfeed to other on-site chargers and/or facility load as permitted by site electrical design;
 - Emergency or islanding conditions.
- Conduct sensitivity analyses on PV, storage, and load parameters to ensure control stability and safety margins.
- Use results to refine system settings, communication rates, and protection sequences prior to field installation.
- Prepare a *PCS Simulation and Validation Memo* summarizing work in this subtask.

Subtask 3.5 – Integration Readiness Review and Technical Advisory Committee (TAC) Briefing

- Present system design, software architecture, and simulation results to the project TAC and CAM for review prior to installation.
- Incorporate TAC and CAM feedback into final control design and implementation plan documents, including updated risk-management and commissioning readiness in the *Integration Readiness Presentation* and *TAC Summary*.
- Prepare *CPR Presentation #1 (Draft and Final)* in accordance with subtask 1.3 (CPR Meetings).

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Products:

- PCS System Architecture and Control Design Memo
- PCS Software Integration Memo
- UL 3141 Certification and Compliance Memo
- PCS Simulation and Validation Memo
- Integration Readiness Presentation and TAC Summary
- CPR Presentation #1 (Draft and Final)

TASK 4: SITE PREPARATION AND SYSTEM INSTALLATION

The goal of this task is to complete all physical preparation, procurement, and installation activities required to deploy the DC-coupled microgrid system at the Oakland Municipal Service Center (OMSC). Work includes coordinating permits and CEQA documentation, procuring and installing hardware, integrating communications and control systems, and verifying readiness for commissioning.

The Recipient shall:

Subtask 4.1 – Site Preparation, Permitting, and CEQA Documentation

- Coordinate with the City of Oakland as CEQA lead agency to document the applicable CEQA exemption. Prepare all electrical, structural, and construction permit applications required for solar PV, battery-energy-storage, charger, and microgrid installation.
- Confirm that the installation complies with local building, electrical, and fire codes, including California Building Standards Code Title 24.
- Develop a site plan and construction schedule that minimizes disruption to ongoing municipal operations.
- Produce *Permit and CEQA Compliance Documentation* detailing the site permitting plan, list of permits and permitting office contacts, and CEQA documentation.
- Submit and acquire electrical and mechanical permits for construction.
- Produce *Permit Acquisition Memo* after acquiring construction permits, summarizing key learnings of the permitting process.

Subtask 4.2 – Procurement and Logistics

- Finalize procurement specifications and purchase orders for the following major system components:
 - Solar PV array.
 - Battery-energy-storage systems.
 - DC fast chargers (4-6 × 30 kW units).
 - DC busbars, cabling, protective devices, and switchgear.
 - PCS hardware and communication interfaces.
- Verify all purchased components are UL-listed or equivalent NRTL certification and compliant with project requirements.
- Draft a bill of materials, documenting cost, vendors, and lead times.

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- Develop a material receiving and inventory plan to document delivery dates, storage conditions, and inspection results as the *Procurement and Logistics Memo*.

Subtask 4.3 – Equipment Installation and Electrical Integration

- Coordinate with installation contractor to install:
 - Solar PV modules and DC wiring to central combiner boxes.
 - Battery systems with isolation breakers and protective relays.
 - Chargers and associated cabling.
 - Power metering and communications equipment for integration with PCS.
- Connect the new EVSE to the site main panel and integrate with other EVSE and the site feeder power meter. Trench conduit and repave as necessary.
- Complete grounding, labeling, and protective-device verification.
- Prepare *Installation and Integration Memo* documenting any lessons learned in the construction process.

Subtask 4.4 – AB 841 Compliance / Electric Vehicle Infrastructure Training Program (EVITP) Certification

- Submit an *AB 841 Certification Summary Report* that certifies the project has complied with all AB 841 (2020) requirements specified in the Agreement Terms and Conditions or describes why the AB 841 requirements do not apply to the project. The certification shall be signed by Recipient's authorized representative.
- Submit *EVITP Certification Numbers* of each Electric Vehicle Infrastructure Training Program certified electrician that installed electric vehicle charging infrastructure or equipment. EVITP Certification Numbers are not required to be submitted if AB 841 requirements do not apply to the project.

Subtask 4.5 – Software–Hardware Integration

- Deploy the PCS software (developed in Task 3) on installed hardware.
- Validate communications between PCS, solar array, batteries, chargers, and PG&E Flex Connect portal.
- Configure data-logging and cybersecurity settings for behind-the-meter systems.
- Conduct integration tests to confirm correct signal flow between hardware and energy-management interfaces.
- Prepare *PCS Integration and Test Plan*.

Subtask 4.6 – System Commissioning

- Develop and execute a *Commissioning Plan* defining procedures, acceptance criteria, and safety checklists for:
 - Power-up sequence and synchronization with PG&E service.
 - Validation of load-limit adherence under Flex Connect signals.
 - Battery charge/discharge tests and solar PV performance verification.
 - Emergency shutdown and fault-response tests.

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- Conduct witness tests with LBNL, UC Davis, and CAM.
- Prepare and submit a *Commissioning Report* summarizing procedures, test results, and as-built documentation.
- Prepare *CPR Presentation #2 (Draft and Final)* in accordance with subtask 1.3 (CPR Meetings).

Products:

- Permit and CEQA Compliance Documentation
- Permit Acquisition Memo
- Procurement and Logistics Memo
- Installation and Integration Memo
- AB 841 Certification Summary Report
- EVITP Certification Numbers
- PCS Integration and Test Plan
- Commissioning Plan
- Commissioning Report
- CPR Presentation #2 (Draft and Final)

TASK 5: MEASUREMENT, VERIFICATION, AND METRICS CALCULATION

The goal of this task is to quantify the technical, economic, and environmental benefits of the DC-coupled microgrid demonstration relative to conventional EV-charging infrastructure. Evaluation will rely on field data collected during the M&V period and comparative modeling of required counterfactual scenarios. Results will establish the project's value to IOU ratepayers in terms of reliability, cost savings, and emissions reduction.

The Recipient shall:

Subtask 5.1 – Measurement and Verification Plan

- Develop a comprehensive *Measurement and Verification Plan* describing how performance will be measured, calculated, and verified. The plan shall address at a minimum, the following quantitative performance indicators:
 - Energization Time
 - Ratepayer Investment Avoidance
 - Additional Energy Use Enabled Through Flexible Service
 - DC Coupling Efficiency Improvements
 - Electricity Cost Reductions
 - Grid Consumption Reductions
 - Peak Load Reductions
 - EVSE Availability
 - Levelized Cost of Energy (LCOE)
- Include additional derived indicators relevant to ratepayer and community benefits, such as:
 - GHG and criteria-pollutant reductions (calculated using baseline factors from Attachment 12).

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- Resiliency performance (hours of autonomous operation during grid outage).
- Workforce participation metrics (from Cal EPIC Community Outreach and Workforce Training data in Task 6).
- Define:
 - Data granularity and sampling frequency (>15-minute intervals).
 - Data-storage and Quality Assurance/Quality Control procedures.
 - Roles and responsibilities for UC Davis, LBNL, and Cal EPIC.
- Establish data-storage, quality-assurance, and cybersecurity procedures.

Subtask 5.2 – Data Collection and Operational Monitoring

Maintain continuous communication with the CAM and TAC on data quality and interim results.

- Operate the fully commissioned microgrid for a minimum of 12 months to capture seasonal and operational variation.
- Collect high-resolution data (≥ 15 -minute intervals) from all DER and EVSE systems.
- Document system performance during representative events:
 - PG&E Flex Connect dispatches / load-limit signals.
 - Peak-demand and backfeed conditions.
 - Grid outages or islanding tests (if applicable).
- Prepare an *Interim M&V Data Report* documenting 6 months of data collection.

Subtask 5.3 – Counterfactual Scenario Analysis

- Evaluate three required comparison scenarios:
 - Baseline: Conventional AC-coupled charging without microgrid or PG&E Flex Connect.
 - PG&E Flex Connect Only (Benchmark): AC charging with load limitation through utility signals but without microgrid integration.
 - Proposed System: DC-coupled microgrid integrated with PG&E Flex Connect.
- Quantify and compare performance differences across all metrics in Attachment 10 (including but not limited to):
 - Energization timelines and avoided utility upgrade costs.
 - Energy efficiency and conversion losses.
 - Peak demand reduction and grid-import minimization.
 - Ratepayer cost impacts and reliability benefits.
 - Impacts on charging times and vehicle availability.
- Produce *Counterfactual Analysis Report* summarizing methods, results, and uncertainties.

Subtask 5.4 – Environmental and Equity Benefit Quantification

- Estimate energy-related emissions reductions using CEC-approved emission-factor methodology.
- Evaluate localized air-quality improvements and exposure reduction for disadvantaged communities (DACs).

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- Document workforce and economic impacts generated through Cal EPIC's participation (e.g., number of trainees and contractors from DACs).
- Produce an *Environmental and Equity Benefits Summary* which summarizes metrics evaluated in this subtask.

Products:

- Measurement and Verification Plan (draft and final)
- Interim M&V Data Report
- Counterfactual Analysis Report (draft and final)
- Environmental and Equity Benefits Summary

TASK 6: COMMUNITY OUTREACH AND WORKFORCE TRAINING

The goal of this task is to ensure that the project delivers direct, measurable benefits to the surrounding community and contributes to a skilled, local workforce supporting EV infrastructure deployment. Cal EPIC will lead outreach, workforce training, and community-engagement activities in coordination with UC Davis, LBNL, and the City of Oakland. Cal EPIC will prioritize outreach to residents within DAC census tracts and coordinate with City of Oakland workforce programs.

The Recipient shall:

Subtask 6.1 – Community Engagement and Outreach Plan

- Develop a *Community Engagement and Outreach Plan* that identifies:
 - The target audience (e.g. City of Oakland staff, local workforce, residents, and small businesses).
 - Planned outreach events (e.g. public open houses, ride-and-drive demonstrations, informational sessions).
 - Communication materials (e.g. flyers, multilingual handouts, web content, and social-media outreach).
 - Metrics to measure engagement success (e.g. attendance, demographics, participant feedback).
- Coordinate with the City of Oakland and local organizations to ensure materials address community priorities such as air quality, job access, and resilience benefits.

Subtask 6.2 – Workforce Training Program Design

- Develop a *Workforce Training Plan* focusing on EV-charging infrastructure, microgrid maintenance, and safety procedures.
- Identify target participants from disadvantaged communities and coordinate with local training and apprenticeship programs.
- Define curriculum modules, duration, certification pathways, and evaluation criteria.
- Ensure training aligns with existing state workforce initiatives.

Subtask 6.3 – Training Delivery and Participant Tracking

- Conduct at least one in-person or hybrid training session at or near the Oakland Municipal Service Center.

Exhibit A
Scope of Work
The Regents of the University of California, on behalf of its Davis campus

- Prepare a *Training Session Report* following each training session.
- Provide hands-on instruction on:
 - Safe operation and maintenance of chargers and DC-coupled microgrid components.
 - Troubleshooting and minor repair of EVSE and energy-storage systems.
 - Fundamentals of load management and communication with grid operators.
- Prepare a *Participant Tracking Database* to track participation, demographics, and outcomes (e.g., certifications earned, employment placements).

Subtask 6.4 – Policy and Program Feedback

- Gather community and trainee feedback on barriers to municipal fleet electrification, permitting, and grid-connection processes.
- Synthesize lessons learned into policy recommendations relevant to:
 - PG&E Flex Connect program design and scalability.
 - Workforce development for municipal electrification.
 - Strategies for replicating microgrid-based charging in other disadvantaged communities.
- Present findings to UC Davis and LBNL for inclusion in Task 5's evaluation and Task 7's knowledge-transfer case study.
- Develop a *Policy and Program Feedback Report*.

Products:

- Community Engagement and Outreach Plan (draft and final)
- Workforce Training Plan
- Training Session Report(s)
- Participant Tracking Database
- Policy and Program Feedback Report

TASK 7: 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 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* if requested by the CAM. The survey covers, but is not limited to the following topics, as applicable to the project:
 - Changes in energy consumption, utility bills, and emissions
 - Public and private funding
 - Demonstration and deployment beyond the project Community engagement
 - Improvements in codes and standards
- Confirm and revise survey responses as directed by the CAM.
- 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.

Exhibit A
Scope of Work
The Regents of the University of California, on behalf of its Davis campus

- Respond to CAM questions regarding the benefits questionnaire drafts.
- Complete the project profile on the CEC's public online project on the [Energize Innovation website](http://www.energizeinnovation.fund) (www.energizeinnovation.fund), and provide *Documentation of Initial Project Profile on EnergizeInnovation.fund*, including the profile link, to the CAM.
- Address any edits or questions from the CAM regarding the Energize Innovation Project Profile content.
- If the 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](http://www.energizeinnovation.fund) (www.energizeinnovation.fund), and provide *Documentation of Organization Profile on EnergizeInnovation.fund*, including the profile link, to the CAM.
- If the Recipient's organizational profile is changed, update the organizational profile on the CEC's public online project and recipient directory on the [Energize Innovation website](http://www.energizeinnovation.fund) (www.energizeinnovation.fund), and provide an *Documentation of Updated Organization Profile on EnergizeInnovation.fund*, including the profile link, as needed.
- If the Recipient's project profile is changed, 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 Updated ([Year]) Project Profile on EnergizeInnovation.fund*, including the profile link, to the CAM.
- Address any edits or questions from the CAM regarding the Project Profile content.

Products:

- Initial Project Benefits Questionnaire
- Annual Survey(s)
- Final Project Benefits Questionnaire
- Documentation of Initial Project Profile on EnergizeInnovation.fund
- Documentation of Updated Organization Profile on EnergizeInnovation.fund (as needed)
- Documentation of Updated ([Year]) Project Profile on EnergizeInnovation.fund

TASK 8: 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.

Exhibit A Scope of Work

The Regents of the University of California, on behalf of its Davis campus

- Develop and submit a *Summary of TAC Comments* that summarizes comments received from the TAC members on the draft Project Case Study Plan. This document will identify:
- TAC comments the Recipient proposes to incorporate into the final *Technology Transfer Plan*.
- TAC comments the Recipient does not propose to incorporate with and explanation why.
- Submit the final Project Case Study Plan to the CAM for approval.
- Execute the final Project Case Study Plan and develop and submit a Project Case Study.
- When directed by the CAM, develop *Presentation Materials* for a CEC sponsored conference/workshop(s) on the project.
- When directed by the CAM, participate in annual EPIC symposium(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