





California Energy Commission September 10, 2025 Business Meeting Backup Materials for San Diego Community Power

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

RESOLUTION NO: 25-0910-XX

STATE OF CALIFORNIA

STATE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION: San Diego Community Power

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-25-015 with San Diego Community Power for a \$693,611 grant. This project will assess the impact of managed charging strategies on bulk grid and distribution grid operations by leveraging an ongoing EV managed charging pilot in San Diego; 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 September 10, 2025.

AYE: NAY: ABSENT: ABSTAIN:		
	Dated:	
	Kim Todd Secretariat	



STATE OF CALIFORNIA CALIFORNIA ENERGY COMMISSION

GRANT REQUEST FORM (GRF)

A. New Agreement Number

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

New Agreement Number: EPC-25-015

B. Division Information

1. Division Name: ERDD

2. Agreement Manager: Emily Ou

3. MS-:51

4. Phone Number: 916-232-6334

C. Recipient's Information

1. Recipient's Legal Name: San Diego Community Power

2. Federal ID Number: 85-0824464

D. Title of Project

Title of project: Charging Harmonization and Analysis for Resilient, Grid-Efficient Utilization and Planning (CHARGE UP)

E. Term and Amount

Start Date: 09/22/2025
 End Date: 8/31/2027
 Amount: \$693.611.00

F. Business Meeting Information

- Are the ARFVTP agreements \$75K and under delegated to Executive Director? No
- 2. The Proposed Business Meeting Date: 9/10/2025.
- 3. Consent or Discussion? Discussion
- 4. Business Meeting Presenter Name: Antonio Gomez
- 5. Time Needed for Business Meeting: 10 minutes.
- 6. The email subscription topic is: Electric Program Investment Charge

Agenda Item Subject and Description:

San Diego Community Power. Proposed resolution approving agreement EPC-25-015 with San Diego Community Power for a \$693,611 grant and adopting staff's recommendation that this action is exempt from CEQA. This project will assess the impact of managed charging strategies on bulk grid and distribution grid operations by leveraging an ongoing EV managed charging pilot in San Diego.

G. California Environmental Quality Act (CEQA) Compliance

1. Is Agreement considered a "Project" under CEQA?

Yes

If yes, skip to question 2.

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



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

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

a) Agreement IS exempt?

Yes

Statutory Exemption?

Nο

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

PRC section number: None CCR section number: None Categorical Exemption?

Yes

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

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

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

No

Cal. Code Regs, tit. 14, sec. 15306 provides that projects which consist of basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource are categorically exempt from the provisions of CEQA. This project involves collecting data from an ongoing unidirectional electric vehicle managed charging (V1G) pilot and utilizing object-oriented visual modeling to develop an analytical framework. The approved activities only consist of paper study that will conduct quantitative economic analysis, statistical modeling, policy analysis, and assessment of existing field experiments to develop a comprehensive analytical framework, and will not cause a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment. For these reasons, the proposed project will have no significant effect on the environment and is categorically exempt under CEQA under section 15306.

This project does not involve impacts on any particularly sensitive environment; will not impact an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies; 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 sites are 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.

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
United States Department of Energy (DOE) - Pacific Northwest National Laboratory (PNNL)	\$ 620,000	\$ 0

J. Vendors and Sellers for Equipment and Materials/Miscellaneous

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

Vendor/Seller Legal Company Name	CEC Funds	Match Funds
No vendors to report	\$0	\$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	



CALIFORNIA ENERGY COMMISSION

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	24-25	301.001L	\$ 693,611

TOTAL Amount: \$ 693,611

R&D Program Area: ESB: Transportation

Explanation for "Other" selection Not applicable

Reimbursement Contract #: Not applicable

Federal Agreement #: N/A

M. Recipient's Contact Information

1. Recipient's Administrator/Officer

Name: Rachel Zook

Address: 815 E St Ste 12716 Suite 12716 City, State, Zip: San Diego, CA 92101-6426

Phone: 619-895-8664

E-Mail: rzook@sdcommunitypower.org

2. Recipient's Project Manager

Name: Rachel Zook

Address: 815 E St Ste 12716 Suite 12716 City, State, Zip: San Diego, CA 92101-6426

Phone: 619-895-8664

E-Mail: rzook@sdcommunitypower.org

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-24-302
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	Yes
5	Awardee CEQA Documentation	Yes

Approved By

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

Agreement Manager: Emily Ou

Approval Date: 7/29/2025

Branch Manager: Reynaldo Gonzalez

Approval Date: 7/30/2025

Director: Jonah Steinbuck (Delegated to Branch Manager)

Approval Date: 7/30/2025

I. TASK ACRONYM/TERM LISTS

A. Task List

Task #	CPR ¹	Task Name
1		General Project Tasks
2		Research Design
3	Χ	Preliminary Analysis
4		Field Data Assessment
5		Capstone Evaluation
6		Evaluation of Project Benefits
7		Technology/Knowledge Transfer Activities

B. Acronym/Term List

Acronym/Term	Meaning
CAM	Commission Agreement Manager
CCA	Community Choice Aggregator
CEC	California Energy Commission
CPR	Critical Project Review
EV	Electric Vehicle
IOU	Investor-Owned Utility
LSE	Load Serving Entity
RA	Resource Adequacy
Recipient	San Diego Community Power
SOD	Slice of Day
TAC	Technical Advisory Committee
V1G	Unidirectional Electric Vehicle managed charging
UML	Unified Modeling Language

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

A. Purpose of Agreement

The purpose of this Agreement is to fund research that will analyze and quantify the bulk system and distribution operations value of unidirectional electric vehicle (EV) managed charging (V1G), using data from an ongoing Community Choice Aggregator (CCA) V1G pilot. The analysis will help load serving entities (LSE) understand how V1G can reduce the costs associated with capacity procurement under the slice of day (SOD) resource adequacy (RA) framework and assist distribution operators in optimizing electricity infrastructure investments.

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.

B. Problem/ Solution Statement

Problem

Managed charging of EVs is critical to limiting peak load growth and helping to "right size" infrastructure investments. Simple managed charging strategies, like time-of use rates, are effective at shifting load, but can result in night-time and localized peaks, creating negative effects at both bulk system and distribution level. Active managed charging strategies (or V1G), which use vehicle telematics to shape EV load around bulk system and localized grid needs, can deliver the same benefits while limiting these downsides; however, a thorough evaluation of these novel use cases has not been completed.

<u>Solutio</u>n

San Diego Community Power (the Recipient) has developed a plan to granularly assess and document the value of advanced V1G strategies. The research will use data from an ongoing pilot to assess the impact of vehicle charge management strategies on SOD RA and distribution operations, by utilizing system engineering principles and object-oriented visual modeling to support the economic analysis of how value is exchanged and accumulated between actors within the electricity system. This analysis will support the optimal integration of EVs into LSE and distribution utility operations resulting in increased value for this critical class of distributed energy resource and avoided unnecessary capital expenditures.

C. Goals and Objectives of the Agreement

Agreement Goals

The goals of this Agreement are to:

- Evaluate V1G use cases for bulk system and distribution operations, assessing their value under various customer adoption and grid conditions.
- Document the opportunities and limitations of co-optimizing bulk system and distribution use cases where there is widespread customer unbundling.
- Assess how customer behavior and vehicle use patterns impact V1G value, with a
 particular focus on impacts resulting from the unique characteristics of drivers in
 disadvantaged and/or low-income communities.

Ratepayer Benefits: This Agreement will result in the ratepayer benefits of greater electricity reliability and lower costs. Greater electricity reliability will be achieved by shifting load away from on-peak demand periods, while minimizing secondary peaks and potential stress and/or overloading of distribution equipment. In addition to the direct reliability benefit, these load shifting strategies will lower costs by reducing overall RA procurement requirements and avoiding expensive upgrades to the distribution system resulting from unmanaged EV load.

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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).

<u>Technological Advancement and Breakthroughs</u>: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 allowing for the integration of managed charging programs into LSEs and distribution operations. This outcome will support the continued growth and cost-effective integration of new EV load and inform evolution of managed charging programs, supporting the state's broader transportation electrification, electric affordability and decarbonization goals.

Agreement Objectives

The objectives of this Agreement are to:

- Develop a comprehensive analytical framework to assess V1G value under the SOD RA structure, focusing on management of evening and secondary overnight charging peaks.
- Develop an analytical framework that categorizes and characterizes the distribution-level impacts of V1G, with emphasis on identifying scenarios where distribution benefits are significant.
- Develop an analytical framework that identifies and characterizes how EV charging patterns in disadvantaged and/or low-income communities affect the grid value of V1G implementation.

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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.

III. TASK 1 GENERAL PROJECT TASKS

PRODUCTS

Subtask 1.1 Products

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

The Recipient shall:

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

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

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.

Recipient Products:

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

CAM Product:

Kick-off Meeting Agenda

Subtask 1.3 Critical Project Review (CPR) Meetings

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

CPR meetings generally take place at key, predetermined points in the Agreement, as determined by the CAM and as shown in the Task List on page 1 of this Exhibit.

However, the CAM may schedule additional CPR meetings as necessary. The budget may 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., Teams) as determined by the CAM.

The Recipient shall:

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

The CAM shall:

- Determine the location, date, and time of each CPR meeting with the Recipient's input.
- Send the Recipient a CPR Agenda with a list of expected CPR participants in advance of the CPR meeting. If applicable, the agenda may include a discussion of match funding and permits.
- Conduct and make a record of each CPR meeting. Provide the Recipient with a schedule for providing a Progress Determination on continuation of the project.
- Determine whether to continue the project, and if so whether modifications are needed
 to the tasks, schedule, products, or budget for the remainder of the Agreement. A
 determination of unsatisfactory progress may result in project delays, including a
 potential Stop Work Order, while the CEC determines whether the project should
 continue.
- 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., Teams), 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.

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. 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:
 - o Comments the Recipient proposes to incorporate.
 - o Comments the Recipient does propose to incorporate and an explanation for why.
- Submit a draft of the report to the CAM for review and comment. The CAM will provide written comments to the Recipient on the draft product within 15 days of receipt.
- Incorporate all CAM comments into the *Final Report*. If the Recipient disagrees with any comment, provide a *Written Responses to Comments* explaining why the comments were not incorporated into the final product.
- Submit the revised Final Report electronically with any Written Responses to Comments within 10 days of receipt of CAM's Written Comments on the Draft Final Report, unless the CAM specifies a longer time period or approves a request for additional time.

Products:

- Summary of TAC Comments on Draft Final Report
- Draft Final Report

- Written Responses to Comments (if applicable)
- Final Report

CAM Product:

Written Comments on the Draft Final Report

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.
- 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.
 - o 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 1.10 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.

- Execute and manage subawards and coordinate subrecipients activities in accordance with the requirements of this Agreement.
- 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
 - 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
- 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.

- 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 1.13 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.

- 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 SummaryProject Performance Metrics Results

IV. TECHNICAL TASKS

TASK 2 RESEARCH DESIGN

The goal of this task is to develop the analysis framework to study the impacts of V1G managed charging. This task will utilize existing analysis frameworks from previous studies of the electric system and incorporate the CCA and distribution system specific aspects as well as the SOD RA considerations. During this task a visual model of the analysis will be developed, as well as formulas to quantify value exchanges and data requirements inventory.

Subtask 2.1 Project Team Workshop

The goal of this subtask is to discuss and document key aspects of V1G programming to use in Subtask 2.2 model visualization activities. This workshop will also establish the scope of the analysis by identifying the stakeholders that will be represented as actors within the system and use cases.

The Recipient shall:

- Convene the project team to discuss V1G programming and market interactions.
- Document major aspects of the program and interactions with related systems, including:
 - Managed charging use cases,
 - o Market actors (e.g., LSE, investor-owned utility (IOU), program participant),
 - o Activities,
 - Regulatory requirements (e.g., SOD RA), and
 - Value exchanges
- Convene a workshop to establish the scope of the analysis and prepare a *Workshop Summary* that includes, but is not limited to:
 - o Agreed upon use cases,
 - o Actors,
 - o Activities,
 - Key value exchanges, and
 - Identified research questions

Products:

Workshop Summary

Subtask 2.2 Visual Modeling

The goal of this subtask is to develop a visual model of the V1G program analysis and associated systems. This visual model will utilize object oriented visual modeling such as the unified modeling language (UML) to clearly communicate and gain consensus on the exchanges and accrual of values within the system.

- Develop a *Draft Visual Model* of recipient's V1G pilot using UML notation, that includes:
 - Regional and statewide actors
 - Key activities and platforms
 - Value exchanges between systems and actors, and
 - Graphical representation of the flow of activities within the system

 Present Draft Visual Model to the CAM for feedback and incorporate changes requested in the Final Visual Model.

Products:

Visual Model (draft and final)

Subtask 2.3 Valuation Analysis Development

The goal of this subtask is to develop a quantitative model for each value exchange identified in Subtask 2.2. Each value exchange within the visual model will be associated with a system actor and activity. The final visual model from Subtask 2.2 will be converted into an accounting table framework where each value exchange will be defined and assigned as an incoming or outgoing value to the relevant activity and actor. This provides the quantitative framework of the economic analysis.

The Recipient shall:

- Construct mathematical formulas within an economic model describing each value exchange identified in the visual model developed in Subtask 2.2.
- Generate Economic Accounting Tables which include the formula representation of each value exchange.

Products:

• Economic Accounting Tables

Subtask 2.4 Data Requirements Gathering

The goal of this subtask is to document data requirements for each formula produced in Subtask 2.3, including unit, timescale, source, owner, and availability.

The Recipient shall:

- Conduct an inventory of data requirements for each value exchange formula developed in Subtask 2.3 and organize into an Analysis Data Dictionary. The Analysis Data Dictionary should include for each data point the:
 - Source.
 - Ownership/responsibility,
 - o Controls
 - Update frequency,
 - o Granularity,
 - Unit, and
 - Temporal resolution

Products:

Analysis Data Dictionary

TASK 3 PRELIMINARY ANALYSIS

The goal of this task is to test the analysis framework and design from Task 2 with a subset of project data. This task includes gathering and processing data through the analysis framework to ensure that the requirements are met and that the analysis outputs sufficiently answer the research questions. During this task the framework and data dictionary is validated, and if necessary updated, in preparation for Task 4 Field Data Assessment.

Subtask 3.1 Data Collection and Processing

The goal of this subtask is to gather and process the necessary data to ensure the expected fields are aligned, usable and sufficient.

The Recipient shall:

- Collect all data identified in the Analysis Data Dictionary. Potential sources include IOU hosting capacity maps, managed charging program data, and RA data.
- Process collected data and ensure that the fields are aligned with the *Final Visual Model* and usable for the analysis.
- Compile collected and processed data into an Analysis Dataset.

Products:

Analysis Dataset

Subtask 3.2 Preliminary Analysis

The goal of this subtask is to compute preliminary analysis results to validate the analysis design and inform Subtask 3.3 Gap Analysis.

The Recipient shall:

- Determine research computing resources required to support the analysis.
- Compute the formulas developed in Subtask 2.3 using the *Analysis Dataset* developed in Subtask 3.1, generating a trial result for each calculation.
- Generate a *Preliminary Results Summary*, including but not limited to:
 - o Summary of computation method and iterations, if applicable
 - Trial results

Products:

Preliminary Results Summary

Subtask 3.3 Gap Analysis

The goal of this subtask is to identify any missing or misspecified data, non-compute errors, or/and deficiencies in the analysis plan.

The Recipient shall:

- Analyze the trail calculation results from Subtask 3.2 to identify data gaps and computational errors.
- Generate a *Gap Analysis Summary* which documents any missing elements from the data/analysis plan necessary to answer the research questions.

Products:

Gap Analysis Summary

Subtask 3.4 Updated Analysis Design

The goal of this subtask is to make any possible updates to the analysis plan based on Subtask 3.3 and verify the effectiveness of finalized formulas for use in Task 4 activities.

The Recipient shall:

- Implement changes to the analysis framework (formulas and datasets) based on Subtask 3.1-3.3.
- Rerun the analysis using updated methodology to verify effectiveness
- Create Change Log for any revisions or updates to Analysis Data Dictionary and/or valuation analysis formulas
- Prepare a CPR Report in accordance with Subtask 1.3 (CPR Meetings).
- Participate in a CPR meeting.

Products:

- Change Log
- CPR Report

TASK 4 FIELD DATA ASSESSMENT

The goal of this task is to analyze and report on the value of V1G dispatch strategies using field data and the valuation framework developed in previous Tasks. During this task reporting templates will be developed to support an iterative analysis and program refinement cycle.

Subtask 4.1 V1G Program Results Template Development

The goal of this subtask is to develop an analysis reporting template that can be used by the project team regularly report out on the impact of pilot program operations, to enable iteration on managed charging strategy.

The Recipient shall:

- Develop a *Draft Program Results Template* to support ongoing reporting of use case valuation, including charts and tables of key performance metrics on use case outcomes and overall project benefits.
- Present *Draft Program Results Template* to the CAM for feedback and incorporate changes requested in the *Final Program Results Template*.

Products:

Program Results Template (Draft and Final)

Subtask 4.2 Ongoing V1G Program Analysis

The goal of this subtask is to analyze ongoing V1G program impacts. In this subtask a reoccurring stream of data will be collected, processed, analyzed and reported on using the Program Results Template developed in Subtask 4.1. This will result in a reoccurring process of analysis and managed charging optimization refinement, repeating the process throughout the duration of this task.

- Refresh Analysis Dataset and analyze in accordance with the Updated Analysis Design.
- Generate findings using the Program Results Template and document in Report Catalog.
- Review findings with project team and incorporate insights into managed charging optimization.
- Repeat process multiple times over a duration of 6 months.

Products:

Report Catalog

TASK 5 CAPSTONE EVALUATION

The goal of this task is to finalize the V1G Program valuation analysis. This task will include a complete assessment of bulk system and distribution operations impacts, as well as trends, program design, customer behavior, and seasonal impacts. This analysis will feed into the technical reports, presentations, and other knowledge transfer activities.

The Recipient shall:

- Compile results from Subtask 4.2 Ongoing V1G Program Analysis.
- Examine results and explore trends in measured values against factors, including but not limited to:
 - Changes in optimization strategy
 - o Customer composition
 - Seasonal effects
- Generate a Summary of Key Findings, including, but not limited to:
 - Analytic products such as a waterfall chart highlighting economic tradeoffs between use cases and a system cost impact assessment highlighting impacts on rates
 - Presentation and/or written materials (e.g., workshops, technical reports, conference papers, journal articles) prepared to transfer knowledge to specific audiences

Products:

Summary of Key Findings

TASK 6: EVALUATION OF PROJECT BENEFITS

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

- 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 7 TECHNOLOGY/KNOWLEDGE TRANSFER ACTIVITIES

The goal of this task is to ensure the scientific and techno-economic analysis and tools developed under this agreement are utilized in the energy policy and/or planning decisions at the state and/or local levels, academic community and/or commercial sector.

- Develop and submit a Knowledge Transfer Plan that identifies the proposed activities the recipient will conduct to meet the goal of the task. The Knowledge Transfer Plan should include at a minimum:
 - Specific policy and planning efforts this project is expected to inform.
 - o Specific stakeholder groups and energy policy and planning practitioners who will utilize the results of this project.
 - Proposed activities the Recipient will conduct to ensure the tools and results from this project will be utilized and adopted by the groups identified above.
- Present the *Draft Knowledge Transfer Plan* to the TAC for feedback and comments.
- Develop and submit a Summary of TAC Comments that summarizes comments received from the TAC members on the Draft Knowledge Transfer Plan. This document will identify:
 - TAC comments the Recipient proposes to incorporate into the Final Knowledge Transfer Plan.
 - TAC comments the Recipient does not propose to incorporate with and explanation why.
- Submit the *Final Knowledge Transfer Plan* to the CAM for approval.
- Implement the activities as described in the Final Knowledge Transfer Plan.
- Develop a Knowledge Transfer Summary Report that includes high level summaries of the activities, results, and lessons learned of tasks performed relating to implementing the Final Technology Transfer Plan. This report should not include any proprietary information.

- When directed by the CAM, develop presentation materials for an 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:

- Knowledge Transfer Plan (draft and final)
- Summary of TAC Comments
- Technology Transfer Summary Report (draft and final)
- High Quality Digital Photographs

V. PROJECT SCHEDULE

Please see the attached Excel spreadsheet.