California Energy Commission
December 13, 2023 Business Meeting
Backup Materials for Agenda Item No 07c:
The Mobility House, LLC

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

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

RESOLUTION NO: 23-1213-07c

STATE OF CALIFORNIA

STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION: **The Mobility House, LLC**

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

RESOLVED, that the CEC approves agreement ZVI-23-007 with The Mobility House, LLC for a $2,924,042 grant to install at least 12 single port bi-directional chargers across four parking lot sites owned by three California school districts (Napa Valley Unified School District (USD), Pittsburg USD, and Fremont USD. The Mobility House, LLC and its project partners will also develop a vehicle-to-grid and vehicle-to-building blueprint as a replicable, scalable approach to help other school bus fleets transition to zero-emission buses and bi-directional charging infrastructure; 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 December 13, 2023.

AYE:
NAY:
ABSENT:
ABSTAIN:

Dated:

_____
Kristine Banaag
Secretariat

GRANT REQUEST FORM (GRF)

A. New Agreement Number

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

New Agreement Number: ZVI-23-007

B. Division Information

1. Division Name: Fuels and Transportation
2. Agreement Manager: Elizabeth Menchaca-Guhl
3. MS-: Not Applicable
4. Phone Number: (916) 664-6448

C. Recipient's Information

1. Recipient's Legal Name: The Mobility House, LLC
2. Federal ID Number: 61-1751984

D. Title of Project

Title of project: Implementing Bidirectional School Bus Charging Using Open Standards to Create a Statewide Blueprint for School Districts

E. Term and Amount

1. Start Date: 12/13/2023.
2. End Date: 03/31/2026
3. Amount: $2,924,042

F. Business Meeting Information

1. Are the ARFVTP agreements $75K and under delegated to Executive Director? No
2. The Proposed Business Meeting Date: 12/13/2023
3. Consent or Discussion? Discussion
4. Business Meeting Presenter Name: Lauren Jensen
5. Time Needed for Business Meeting: 5 minutes.
6. The email subscription topic is: Clean Transportation Program, V2G Equipment, Vehicle-Grid Integration

Agenda Item Subject and Description:

The Mobility House, LLC. Proposed resolution approving agreement ZVI-23-007 with The Mobility House, LLC for a $2,924,042 grant to install at least 12 single port bi-directional chargers across four parking lot sites owned by three California school districts (Napa Valley Unified School District (USD), Pittsburg USD, and Fremont USD), and adopting staff's determination that this action is exempt from CEQA. The Mobility House, LLC and its project partners will also develop a vehicle-to-grid and vehicle-to-building blueprint as a replicable, scalable approach to help other school bus fleets transition to zero-emission buses and bi-directional charging infrastructure.

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:

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

a) Agreement **IS** exempt?

Yes

Statutory Exemption?

No

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

PRC section number: None
CCR section number: None

Categorical Exemption?

Yes

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

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

California Code Regs., Tit. 14, Section 15301 provides that projects which consist of the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, and which involve negligible or no expansion of existing or former use, are categorically exempt from the provisions of the California Environmental Quality Act. This project will involve the installation of at least 12 single port bidirectional chargers across four parking lot sites owned by three school districts in Northern California (Fremont USD, Pittsburgh USD, and Napa Valley USD). The installations will result in minor alterations to existing facilities with no expansion beyond the existing facilities and will not have a significant effect on the environment. This project therefore falls under categorical exemption listed in CEQA Guidelines Section 15301(c) Class 1 Existing Facilities.

California 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 the removal of healthy, mature, scenic trees except for forestry and agricultural purposes, are categorically exempt from the provisions of the California Environmental Quality Act. The charger installations across the existing facilities will require minor trenching of concrete where the single port bi-directional chargers will be placed and backfilling where the surface is restored. Each site is used as a parking lot, which does not have vegetation. There will be no removal of healthy nature or scenic nature. Therefore, the project

falls under the categorical exemption of CEQA Guidelines Section 15304 (f) Class 4 Minor Alterations to Land.

California Code Regs., Tit. 14, Section 15303 provides that projects which consist of construction and location of limited numbers of new, small facilities or structures; installation of small new equipment and facilities in small structures; and the conversion of existing small structures from one use to another where only minor modifications are made in the exterior of the structure, are categorically exempt from the provisions of CEQA. This project consists of installation of equipment to sites with existing, paved parking lots. Therefore, the project falls within Section 15303 and will not have a significant effect on the environment.

This project will not impact an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies; does not involve any cumulative impacts of successive projects of the same type in the same place that might be considered significant; does not involve unusual circumstances that might have a significant effect on the environment; will not result in damage to scenic resources within a highway officially designated as a state scenic highway; the project site is not included on any list compiled pursuant to Government Code Section 65962.5; and the project will not cause a substantial adverse change in the significance of a historical resource. Therefore, none of the exceptions to categorical exemptions listed in CEQA Guidelines Section 15300.2 apply to this project, and this project will not have a significant effect on the environment.

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

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.

Not applicable

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. 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
World Resources Institute	$ 511,341	$49,243
Center for Transportation and the Environment, Inc.	$ 271,750	$0
Polara USA Inc.	$807,908	$15,706

I. 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
Installer (TBD Based on Competitive Bid) – Pittsburg USD Site 1	$27,896	$0
Installer (TBD Based on Competitive Bid) – Pittsburg USD Site 2	$135,854	$0
Installer (TBD Based on Competitive Bid) – Fremont USD	$104,917	$0
Installer (TBD Based on Competitive Bid) – Napa USD	$172,232	$0

J. 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
Fremont Unified School District
Pittsburgh Unified School District
Napa Valley Unified School District

K. 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
General Fund	FY 21/22	601.129ZEV	$ 2,924,042

TOTAL Amount: $2,924,042

R&D Program Area: Not applicable

Explanation for "Other" selection: Not applicable

Reimbursement Contract #: Not applicable

Federal Agreement #: Not applicable

L. Recipient's Contact Information

1. Recipient's Administrator/Officer

Name: Sarah Woogen

Address: 545 Harbor Blvd

City, State, Zip: Belmont, CA 94002

Phone: 650-232-4209

E-Mail: sarah.woogen@mobilityhouse.com

2. Recipient's Project Manager

Name: Sam Hill-Cristol

Address: 545 Harbor Blvd

City, State, Zip: Belmont, CA 94002

Phone: 650-629-4263

E-Mail: sam.hill@mobilityhouse.com

M. Selection Process Used

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

Selection Process	Additional Information
Competitive Solicitation #	GFO-22-612
First Come First Served Solicitation #	Not applicable
Other	Not applicable

N. 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	Yes

Approved By

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

Agreement Manager: Elizabeth Menchaca-Guhl

Approval Date: 10/30/2023

Office Manager: Elizabeth John

Approval Date: 11/1/2023

Deputy Director: Melanie Vail

Approval Date: 11/6/2023

Exhibit A
SCOPE OF WORK

TECHNICAL TASK LIST

Task #	CPR	Task Name
1		Administration
2		Planning, Design and Engineering
3		Purchase Orders and Compatibility
4	X	Construction, Installation and Commissioning
5	X	Grid Integration and Bidirectionality
6		Blueprint
7		Operations and Reliability
8		Semi-Annual Electric Vehicle Charger Inventory Reports
9		Data Collection and Analysis
10		Project Fact Sheet

Task #	Key Personnel	Key Subcontractor(s)	Key Partner(s)
1	Sam Hill-Cristol, The Mobility House (TMH) Vehicle Grid Integration (VGI) Project Manager (PM)	Center for Transportation and the Environment (CTE)	
2	Sarah Woogen, TMH VGI PM	Polara	Napa, Pittsburg, Fremont Unified School District (USD)
3	TMH VGI PM	Polara	Napa, Pittsburg, Fremont USD
4	TMH VGI PM	Polara	Napa, Pittsburg, Fremont USD
5	TMH VGI PM, Jacqueline Piero, Sarag Woogen	Polara	Napa, Pittsburg, Fremont USD
6	TMH VGI PM	World Resources Institute (WRI)	
7	TMH VGI PM	CTE	
8	TMH VGI PM	CTE	
9	TMH VGI PM		
10	TMH VGI PM	WRI	

GLOSSARY

Specific terms and acronyms used throughout this scope of work are defined as follows:

Term/ Acronym	Definition
AC	A charger that operates on a circuit greater than 200 volts and transfers alternating-current (AC) electricity to a device in an electric vehicle (EV) that converts AC to direct current to charge an EV battery.
Bidirectional	Referring to the flow of electricity in a reverse manner from a vehicle battery, through a charging station and inverter, to the electrical grid. Commonly used to refer to the capability of a charging station to facilitate this flow of electricity following a command from a charging management software.
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer
CEC	California Energy Commission
Central System	Charge Point Management System: the central system that manages Charge Points and has the information for authorizing users for using its Charge Points
Charge Point	The Charge Point is the physical system where an EV can be charged. A Charge Point has one or more connectors.
Charger	Any connector that can independently provide charge regardless of whether the other connectors associated with a Charge Point are simultaneously charging.
Charging Session	Part of a transaction during which the EV is allowed to request energy.
Charging Station	A physical location with any number of Charge Point(s) and Connector(s) with a unique address. For a charger to be part of a charging station, it must not be further than 0.125 miles (660 feet) from any other charger that is also considered to be part of the same charging station.
Commissioning	A structured testing process for equipment to validate proper installation and function – used to refer to testing of both a charging station and a charge management system.

Term/ Acronym	Definition
Connector	The term "Connector", as used in this specification, refers to an independently operated and managed electrical outlet on a Charge Point. This usually corresponds to a single physical connector, but in some cases a single outlet may have multiple physical socket types and/or tethered cable/connector arrangements to facilitate different vehicle types (e.g. four-wheeled EVs and electric scooters).
Corrective Maintenance	Maintenance which is carried out after failure detection and is aimed at restoring an asset to a condition in which it can perform its intended function.
CTP	Clean Transportation Program
CPR	Critical Project Review
Depot	Type of "home base" behind-the-fence location where a vehicle is typically kept when not in use (usually parked on a nightly basis).
DCFC	Direct current fast charger. A charger that enables rapid charging by delivering direct-current (DC) electricity directly to an EV's battery.
DSGS	Demand Side Grid Support
Downtime	Downtime is any period of time that a charger is not operational.
ELRP	Emergency Load Reduction Program
EVSE	Electric Vehicle Supply Equipment
Excluded Downtime	Excluded Downtime is downtime that is caused by events outside of the control of the funding recipient and is subtracted from total downtime when calculating uptime percentages.
FTD	Fuels and Transportation Division
Hardware	The machines, wiring, and other physical components of an electronic system including onboard computers and controllers.
ICA Maps	Interconnection Capacity Assessment Maps, publicly available tool used to assess the additional load and export capacity of utility distribution in California.
Installed	Attached or placed at a location and available for use in a charging session.

Term/ Acronym	Definition
Interoperability	Successful communication between the software controlling charging on the EV and the software controlling the charger. Interoperability failures are communication failures between the EV and charger that occur while the software of each device is operating as designed.
IOU	Investor-Owned Utilities
Maintenance Event	Any instance in which preventive or corrective maintenance is carried out on equipment.
Operational	A charging port is considered operational or "up" when its hardware and software are both online and available for use, or in use, and the charging port successfully dispenses electricity as expected.
Operative	A state indicating the charger is operational and available to charge or currently charging.
Operative Status	A status reported by the charger's onboard software indicating whether the charger is in an operative state. The status may directly report 'Operative' or some other status that indirectly indicates the charger is in an operative state. Conversely, the charger may report 'Inoperative' or some other status indicating that it is in not in an operative state.
Preventive Maintenance	Maintenance that is regularly and routinely performed on physical assets to reduce the chances of equipment failure and unplanned machine downtime.
Private	Charging ports located at parking space(s) that are privately owned and operated, often dedicated to a specific driver or vehicle (for example, a charging port installed in a garage of a single-family home).
PSPS	Public Safety Power Shutoff
Public	Charging ports located at parking space(s) designated by the property owner or lessee to be available to and accessible by the public.
Recipient	The Mobility House LLC
Shared Private	Charging ports located at parking space(s) designated by a property owner or lessee to be available to, and accessible by, employees, tenants, visitors, and residents. Examples include workplaces and shared parking at multifamily residences.
SLD	Single Line Diagram, diagram detailing the proposed electrical design

Term/ Acronym	Definition
Software	A set of instructions, data or programs used to operate computers and execute specific tasks.
Uptime	A charging port is considered "up" when its hardware and software are both online and available for use, or in use, and the charging port successfully dispenses electricity in accordance with requirements for minimum power level. Uptime is the percentage of time a charging port is "up".
USD	Unified School District
VGI	Vehicle Grid Integration
V2B	Vehicle-to-Building, referring to exporting electricity from a vehicle battery to serve building load, usually to provide back-up power during an electrical outage
V2G	Vehicle-to-Grid, referring to exporting electricity from a vehicle battery back to the grid to provide a specific service

Background

The Budget Act of 2021 (Assembly Bill 128, Ting, Chapter 21, Statutes of 2021, as amended by Senate Bill (SB) 129, Skinner, Chapter 69, Statutes of 2021 and SB 170, Skinner, Chapter 240, Statutes of 2021) appropriated $785,000,000 from the General Fund to support infrastructure deployments and manufacturing projects for zero-emission light-duty and medium- and heavy-duty vehicles.

On April 3, 2023, the California Energy Commission (CEC) released a Grant Funding Opportunity (GFO) entitled "Electric School Bus Bi-Directional Infrastructure." This competitive grant solicitation was to fund projects that support the ability to enable managed charging and bi-directional power flow for electric school buses and their associated infrastructure. In response to GFO-22-612, the Recipient submitted application #08 which was proposed for funding in the CEC's Notice of Proposed Awards on September 27, 2023. GFO-22-612 and Recipient's application are hereby incorporated by reference into this Agreement in their entirety.

In the event of any conflict or inconsistency between the terms of the Solicitation and the terms of the Recipient's Application, the Solicitation shall control. In the event of any conflict or inconsistency between the Recipient's Application and the terms of CEC's Award, CEC's Award shall control. Similarly, in the event of any conflict or inconsistency between the terms of this Agreement and the Recipient's Application, the terms of this Agreement shall control.

Problem Statement:

Bidirectional operation of electric vehicle charging infrastructure, specifically vehicle-to-building (V2B) and vehicle-to-grid (V2G), have the potential to provide critical services to California's grid amidst extreme weather and increased energy demand while also providing financial value to vehicle owners. The State of California has opened the way for V2G electric school buses to provide back-up power during Public Safety Power Shutoff (PSPS) events and export to enhance grid reliability via Emergency Load Reduction Program (ELRP) and Demand Side Grid Support (DSGS) events. That said, participation has thus far been limited as hardware remains prohibitively expensive and utility procedures for interconnection are still nascent.

Of the three Investor-Owned Utilities (IOU), only San Diego Gas & Electric (SDG&E) has completed any school bus-related interconnections, and all of those have been with a single private company. Electric vehicle supply equipment (EVSE) manufacturers remain slow to enter the V2G market despite various regulatory exemptions and incentives to ease their way. Utilities are now questioning whether ELRP should include V2G. Developers and contractors lack experience and confidence to execute installations and interconnections. In this environment, school districts are unlikely to invest in and operate school bus based V2G systems on their own.

Goals of the Agreement:

The goal of this Agreement is to demonstrate a replicable approach to deploying bidirectional charging infrastructure for electric school bus fleets that can be used to scale bidirectional charging infrastructure to benefit California. This will be achieved by leveraging technology based on open standards, deep knowledge of utility processes, and an innovative community engagement and knowledge sharing approach.

This project specifically seeks to work with school districts in the IOU territory, Pacific Gas and Electric (PG&E), that has not completed a V2G interconnection. Prior to operation, this project will provide all stakeholders with opportunities to work through the planning, procurement, installation, and interconnection of V2G systems, giving needed experience on both the industry and utility sides to better prepare all parties for future V2G work. The common understanding of processes and requirements will provide much needed streamlining of V2G implementation for all parties. Further, the entry of these resources into the ELRP and DSGS mechanisms will build the dataset of V2G school bus participation that both industry and utility stakeholders need to see to build confidence in the proposition and bring new entrants into the market.

Objectives of the Agreement:

The objectives of this Agreement are to:

1) Deploy at least 12 total single port bidirectional chargers to perform V2G, and at least one V2B application, across four sites owned by school districts in PG&E territory
2) Operate the deployed chargers reliably with a charger uptime of at least 97 percent of each year for six years

3) Enroll in appropriate utility programs (at minimum ELRP) to earn revenue for the participating districts via managed and bidirectional charging
4) Create a stakeholder informed Blueprint that will assist other school districts in planning for installation of bi-directional charging infrastructure

TASK 1 ADMINISTRATION

Task 1.1 Attend Kick-off Meeting

The goal of this task is to establish the lines of communication and procedures for implementing this Agreement. The Commission Agreement Manager (CAM) shall designate the date and location of this meeting and provide an agenda to the Recipient prior to the meeting.

The Recipient shall:

- Attend a "Kick-Off" meeting that includes the CAM and may include the Commission Agreement Officer (CAO), and a representative of the CEC Accounting Office. The Recipient shall bring their Project Manager, Agreement Administrator, Accounting Officer, and any others determined necessary by the Recipient or specifically requested by the CAM to this meeting.
- Provide a written statement of project activities that have occurred after the notice of proposed awards but prior to the execution of the agreement using match funds. If none, provide a statement that no work has been completed using match funds prior to the execution of the agreement. All pre-execution match expenditures must conform to the requirements in the Terms and Conditions of this Agreement.
- Discuss the following administrative and technical aspects of this Agreement:
    - Agreement Terms and Conditions
    - Critical Project Review (Task 1.2)
    - Match fund documentation (Task 1.7) No reimbursable work may be done until this documentation is in place.
    - Permit documentation (Task 1.8)
    - Subawards needed to carry out project (Task 1.9)
    - The CAM's expectations for accomplishing tasks described in the Scope of Work
    - An updated Schedule of Products and Due Dates
    - Monthly Calls (Task 1.4)
    - Quarterly Progress Reports (Task 1.5)

- Technical Products (Product Guidelines located in Section 5 of the Terms and Conditions)
- Final Report (Task 1.6)

Recipient Products:

- Updated Schedule of Products
- Updated List of Match Funds
- Updated List of Permits
- Written Statement of Match Share Activities

Commission Agreement Manager Product:

- Kick-Off Meeting Agenda

Task 1.2 Critical Project Review (CPR) Meetings

CPRs provide the opportunity for frank discussions between the CEC and the Recipient. The goal of this task is to determine if the project should continue to receive CEC funding to complete this Agreement and to identify any needed modifications to the tasks, products, schedule or budget.

The CAM may schedule CPR meetings as necessary, and meeting costs will be borne by the Recipient.

Meeting participants include the CAM and the Recipient and may include the CAO, the Fuels and Transportation Division (FTD) program lead, other CEC staff and Management as well as other individuals selected by the CAM to provide support to the CEC.

The CAM shall:

- Determine the location, date, and time of each CPR meeting with the Recipient. These meetings generally take place at the CEC, but they may take place at another location or remotely.
- Send the Recipient the agenda and a list of expected participant*s* in advance of each CPR. If applicable, the agenda shall include a discussion on both match funding and permits.
- Conduct and make a record of each CPR meeting. Prepare a schedule for providing the written determination described below.

- Determine whether to continue the project, and if continuing, whether or not modifications are needed to the tasks, schedule, products, and/or budget for the remainder of the Agreement. Modifications to the Agreement may require a formal amendment (please see section 8 of the Terms and Conditions). If the CAM concludes that satisfactory progress is not being made, this conclusion will be referred to the Lead Commissioner for Transportation for his or her concurrence.
- Provide the Recipient with a written determination in accordance with the schedule. The written response may include a requirement for the Recipient to revise one or more product(s) that were included in the CPR.

The Recipient shall:

- Prepare a *CPR Report* for each CPR that discusses the progress of the Agreement toward achieving its goals and objectives. This report shall include recommendations and conclusions regarding continued work of the projects. This report shall be submitted along with any other products identified in this scope of work. The Recipient shall submit these documents to the CAM and any other designated reviewers at least 15 working days in advance of each CPR meeting.
- Present the required information at each CPR meeting and participate in a discussion about the Agreement.

CAM Products:

- Agenda and a list of expected participants
- Schedule for written determination
- Written determination

Recipient Product:

- CPR Report(s)

Task 1.3 Final Meeting

The goal of this task is to closeout this Agreement.

The Recipient shall:

- Meet with CEC staff to present the findings, conclusions, and recommendations. The final meeting must be completed during the closeout of this Agreement.

  This meeting will be attended by, at a minimum, the Recipient and the CAM. The technical and administrative aspects of Agreement closeout will be discussed at the meeting, which may be two separate meetings at the discretion of the CAM.

The technical portion of the meeting shall present an assessment of the degree to which project and task goals and objectives were achieved, findings, conclusions, recommended next steps (if any) for the Agreement, and recommendations for improvements. The CAM will determine the appropriate meeting participants.

The administrative portion of the meeting shall be a discussion with the CAM about the following Agreement closeout items:

- What to do with any equipment purchased with CEC funds (Options)
- CEC request for specific "generated" data (not already provided in Agreement products)
- Need to document Recipient's disclosure of "subject inventions" developed under the Agreement, if applicable
- "Surviving" Agreement provisions
- Final invoicing and release of retention

- Prepare a schedule for completing the closeout activities for this Agreement.

Products:

- Written documentation of meeting agreements
- Schedule for completing closeout activities

Task 1.4 Monthly Calls

The goal of this task is to have calls at least monthly between 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.

Task 1.5 Quarterly Progress Reports

The goal of this task is to periodically 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 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, and to form the basis for determining whether invoices are consistent with work performed.

The Recipient shall:

- Prepare a *Quarterly Progress Report* which summarizes all Agreement activities conducted by the Recipient for the reporting period, including 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.

Product:

- Quarterly Progress Reports

Task 1.6 Final Report

The goal of the Final Report is to assess the project's success in achieving the Agreement's goals and objectives, advancing science and technology, and providing energy-related and other benefits to California.

The objectives of the Final Report are to clearly and completely describe the project's purpose, approach, activities performed, results, and advancements in science and technology; to present a public assessment of the success of the project as measured by the degree to which goals and objectives were achieved; to make insightful observations based on results obtained; to draw conclusions; and to make recommendations for further projects and improvements to the FTD project management processes.

The Final Report shall be a public document and is limited to 25-pages. If the Recipient has obtained confidential status from the CEC and will be preparing a confidential version of the Final Report as well, the Recipient shall perform the following activities for both the public and confidential versions of the Final Report.

In addition to any other applicable requirements, the Final Report must comply with the Americans with Disabilities Act (ADA) of 1990 (42 U.S.C. 12101 et seq.), which prohibits discrimination on the basis of disability; all applicable regulations and guidelines issued pursuant to the ADA; Cal. Gov. Code sects. 7405 and 11135; and Web Content Accessibility Guidelines 2.0, or a subsequent version, as published by the Web Accessibility Initiative of the World Wide Web Consortium at a minimum Level AA success criteria.

The Recipient shall:

- Prepare an *Outline of the Final Report*, if requested by the CAM.
- Prepare a *Draft Final Report* complying with ADA requirements and following the latest version of the Final Report guidelines which will be provided by the CAM. The CAM shall provide written comments on the Draft Final Report within fifteen (15) working days of receipt. The Final Report must be completed at least 60 days before the end of the Agreement Term.
- Submit *Final Report* in Microsoft Word format or similar electronic format as approved by the CAM.

Products:

- Outline of the Final Report, if requested
- Draft Final Report
- Final Report

Task 1.7 Identify and Obtain Matching Funds

The goal of this task is to ensure that the match funds planned for this Agreement are obtained for and applied to this Agreement during the term of this Agreement.

The costs to obtain and document match fund commitments are not reimbursable through this Agreement. Although the CEC budget for this task will be zero dollars, the Recipient may utilize match funds for this task. Match funds must be identified in writing and the associated commitments obtained before the Recipient can incur any costs for which the Recipient will request reimbursement.

The Recipient shall:

- Prepare a letter documenting the match funding committed to this Agreement and submit it to the CAM at least 2 working days prior to the kick-off meeting. If no match funds were part of the proposal that led to the CEC awarding this Agreement and none have been identified at the time this Agreement starts, then state such in the letter. If match funds were a part of the proposal that led to the CEC awarding this Agreement, then provide in the letter a list of the match funds that identifies the:
    - Amount of each cash match fund, its source, including a contact name, address and telephone number and the task(s) to which the match funds will be applied.
    - Amount of each in-kind contribution, a description, documented market or book value, and its 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 shall identify its owner and provide a contact name, address and telephone number, and the address where the property is located.
- Provide a copy of the letter of commitment from an authorized representative of each source of cash match funding or in-kind contributions that these funds or contributions have been secured. For match funds provided by a grant a copy of the executed grant shall be submitted in place of a letter of commitment.
- Discuss match funds and the implications to the Agreement if they are reduced or not obtained as committed, at the kick-off meeting. If applicable, match funds will be included as a line item in the progress reports and will be a topic at CPR meetings.
- Provide the appropriate information to the CAM if during the course of the Agreement additional match funds are received.
- Notify the CAM within 10 days if during the course of the Agreement existing match funds are reduced. Reduction in match funds must be approved through a formal amendment to the Agreement and may trigger an additional CPR meeting.

Products:

- A letter regarding match funds or stating that no match funds are provided
- Copy(ies) of each match fund commitment letter(s) (if applicable)
- Letter(s) for new match funds (if applicable)

- Letter that match funds were reduced (if applicable)

Task 1.8 Identify and Obtain Required Permits

The goal of this task 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. Although the CEC budget for this task will be zero dollars, the Recipient may budget match funds for any expected expenditures associated with obtaining permits. Permits must be identified in writing and obtained before the Recipient can make any expenditure for which a permit is required.

The Recipient shall:

- Prepare a letter documenting the permits required to conduct this Agreement and submit it to the CAM at least 2 working days prior to the kick-off meeting. If there are no permits required at the start of this Agreement, then state such in the letter. If it is known at the beginning of the Agreement that permits will be required during the course of the Agreement, provide in the letter:
    - A list of the permits that identifies the:
        - Type of permit
        - Name, address and telephone number of the permitting jurisdictions or lead agencies
    - The schedule the Recipient will follow in applying for and obtaining these permits.
- Discuss the list of permits and the schedule for obtaining them at the kick-off meeting and develop a timetable for submitting the updated list, schedule and the copies of the permits. The implications to the Agreement 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 the Progress Reports and will be a topic at CPR meetings.
- If during the course of the Agreement additional permits become necessary, provide the appropriate information on each permit and an updated schedule to the CAM.
- As permits are obtained, send a copy of each approved permit to the CAM.
- If during the course of the Agreement permits are not obtained on time or are denied, notify the CAM within 5 working days. Either of these events may trigger an additional CPR.

Products:

- Letter documenting the permits or stating that no permits are required
- A copy of each approved permit (if applicable)
- Updated list of permits as they change during the term of the Agreement (if applicable)
- Updated schedule for acquiring permits as changes occur during the term of the Agreement (if applicable)
- A copy of each final approved permit (if applicable)

Task 1.9 Obtain and Execute Subawards

The goal of this task is to ensure quality products and to procure subrecipients required to carry out the tasks under this Agreement consistent with the Agreement Terms and Conditions and the Recipient's own procurement policies and procedures.

The Recipient shall:

- Manage and coordinate subrecipient activities.
- If requested by the CAM, submit a letter describing each subcontract required to conduct the work under this Agreement or stating that no subcontracts are required.
- If requested by the CAM, submit a draft copy of the pending subcontract.
- If requested by the CAM, submit a final copy of the executed subcontract.
- If Recipient intends to add new subrecipients or change subrecipients, then the Recipient shall notify the CAM.

Products:

- Letter describing the subawards needed, or stating that no subawards are required (if requested)
- Draft subcontracts (if requested)
- Final subcontracts (if requested)

TECHNICAL TASKS

TASK 2 PLANNING, DESIGN, AND ENGINEERING

The goal of this task is to coordinate with relevant stakeholders to prepare electrical designs, site layouts, and project schedules for the deployed bidirectional infrastructure at two sites owned by Pittsburg Unified School District (USD), one site owned by Napa Valley USD, and one site owned by Fremont USD.

The Recipient shall:

- Coordinate meetings with Pittsburg USD, Fremont USD, and Napa Valley USD staff to understand any changes in bus procurement plans, charging infrastructure plans, complementary grant applications, or other updates to the districts' fleet electrification process. Data gathered will be used to inform subsequent activities, including site design.
- Coordinate meetings with PG&E to understand any updates in V2G/V2B interconnection processes and technical requirements – such as implementation of smart inverter standards under UL 1741 SB, and Rule 21 and Rule 29 application timelines. Information gathered will be used to inform subsequent activities, including design and site-specific project schedules.
- Develop and provide *Site Specific Project Schedules* for all sites to the CAM. The project schedules shall include but are not limited to:
    - Milestones and intended meeting cadences with all relevant stakeholders
    - Defined objectives of each project site, including the desired outcomes, deliverables, and measurable success criteria

Prepare and provide an Engineering and Design Plan for each site to the CAM. The *Engineering and Design Plans* will include final engineering documents that include but will not be limited to:

- An assessment of Utility Integration Capacity Analysis (ICA) maps to understand if expected export capacity has shifted
- Technical specifications for bidirectional chargers
- Location of bidirectional chargers
- Wiring and conduit
- Signage as required by the National Electric Code (NEC) and Occupational Safety and Health Administration (OSHA)
- Power capacity and any additional power requirements that necessitate an upgrade
- Single line diagrams (SLDs), including existing site voltage and amperage
    - SLDs and infrastructure designs overall shall consider the fleet's entire electrification plan and, to the extent possible, electrical components that are future proofed to support subsequent expansion and additional electric buses
- Load calculations (existing + new = total load)
- Structural calculations, including potential for foundation and equipment anchoring drawings prepared by a civil engineer

- Coordinate the selection of appropriate electricians (or other vendors) to complete installation of the selected infrastructure and the completed site design using a competitive bidding process. Submit to CAM the *Bid Package for Competitive Bidding Process.*

Products:

- Site Specific Project Schedules
- Engineering and Design Plans
- Bid Package for Competitive Bidding Process

TASK 3 PURCHASE ORDERS AND COMPATIBILITY

The goal of this task is to purchase at least 12 single port bidirectional chargers that are compatible with at least 12 electric school buses located at the four sites owned by Pittsburg USD, Fremont USD, and Napa Valley USD.

The Recipient shall:

- Prepare and submit to the CAM an *Equipment List* that includes a list of all equipment and service agreements that will be purchased for the project. Any equipment listed must meet the Minimum Technical Requirements listed in the Eligibility Requirements section of GFO-22-612.
- Receive CAM written approval of Equipment List prior to purchasing equipment.
- Provide CAM with a *Written Statement of Charger and Bus Compatibility* signed by charger manufacturer and bus manufacturer confirming interoperability.

Products:

- Equipment List
- Written Statement of Charger and Bus Compatibility

TASK 4 CONSTRUCTION, INSTALLATION, AND COMMISSIONING

The goal of this task is to successfully install and commission all charging equipment purchased for the participating school districts under Task 3.

The Recipient shall:

- Prepare and provide a *Site Specific Construction and Installation Schedule* for all sites to the CAM. The schedule will include but is not limited to:
    - An outline of activities and anticipated dates from pre-construction to commissioning
    - The order of installations for each site
    - An update, as necessary, to milestones and timeline

- Take and provide at least (6) six *High Quality Digital Photographs of Pre-Construction* of each site to the CAM.
- Coordinate project progress for EVSE installation in alignment with site specific project schedules.
- Perform all work required per the Engineering and Design Plans in Task 2, Construction and Installation Schedule, and BorgWarner installation instructions, with approval from the authority having jurisdiction (AHJ).
- Take and provide at least (6) six *High Quality Digital Photographs of Completed Installation* of chargers at each site to the CAM.
- Submit an *AB 841 Certification* that certifies the project has complied with all AB 841 (2020) requirements specified in Exhibit C 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.
- Prepare and provide a *Commissioning Report* for each site, which will include but not be limited to:
    - A written notification of completion of commissioning
    - Testing results of actual equipment commissioned
    - Documentation of all aspects of the site that may become useful for troubleshooting or operational issues in the future
        - This includes asset information of all chargers onsite, which is stored in a secure site record, as well as site diagrams, relevant electrical and network schematics, and any other unique info that may prove useful in the future
- Obtain *Written Permission to Operate* from PG&E. Provide a copy to CAM.
- Provide *Proof of UL 1741 Supplement Compliance* for existing sites to the CAM.
- Provide *Proof of OCPP 2.0.1 or later Compliance* for newly installed EVSE to the CAM.
- Provide *Proof of ISO 15118-20 Hardware Ready* to the CAM.
- Provide appropriate training support to school district staff.

Products:

- Site Specific Construction and Installation Schedule
- High Quality Digital Photographs of Preconstruction

- High Quality Digital Photographs of Completed Installation
- AB 841 Certification
- EVITP Certification Numbers (if applicable)
- Commissioning Report
- Written Permission to Operate
- Proof of UL 1741 Supplement Compliance
- Proof of OCPP2.0.1 or later Compliance
- Proof of ISO 15118-20 Hardware Ready

[CPR WILL BE HELD IN THIS TASK. See task 1.2 for details.]

TASK 5 GRID INTEGRATION AND BIDIRECTIONALITY

The goal of this task is to interconnect, register, and test all bidirectional chargers to enable export of energy to the grid or the building load, as relevant, as well as to track electricity savings and revenue generated by electricity export.

The Recipient shall:

- Following completion of site designs, submit applications to the utility and municipality to receive permissions required to build and operate. Applications will include:
    - A request for a new service under California Rule 29
    - Interconnection application (to gain permission to export to the grid)
- Create a V2G Testing Plan and a V2B Testing Plan. The plans will include:
    - V2G capability for each site
    - A schedule for at least three discharge events per site
    - A required duration of each test discharge event to verify export capabilities
    - A test for charger and bus permutation, conducted with stakeholders during commissioning by automatically dispatching a discharge event to represent a real event and confirm resulting operations
    - A test that confirms the facility power request does not exceed the export capabilities of the charger and that the system only exports power to the building and not to the grid
- Provide the *V2G Testing Plan and V2B Testing Plan* to the CAM for review and written approval.
- Upon CAM's written approval of V2G and V2B Testing Plans, demonstrate at least three successful V2G discharges at each project site. Required duration of successful events will be determined during creation of V2G Testing Plan.

- Demonstrate V2B application where a school bus can provide emergency loads while the grid is down.
- Complete *V2G and V2B Testing Reports* for respective sites and submit the completed reports to CAM for each site to confirm bidirectional functionality. In total, there will be 3 V2G Testing Reports and 1 V2B Testing Report.
- Register all V2G sites for participation under the Emergency Load Reduction Program (ELRP), respond to event signals issued by the utility, and track revenue earned on a per site basis. ELRP revenue is calculated by PG&E and issued to the registered entity (TMH) via check. Revenue per site will be tracked using internal accounting systems and issued back to the relevant school district for each site.
- Demonstrate standard smart charging cost saving mechanisms such as Time of Use optimization and Demand Charge Management and complete modeling to construct a "counterfactual" unmanaged scenario to validate savings.
- Provide CAM with a *V2G Participation Report* for each site that includes, but is not limited to:
    - Confirmation of ELRP registration
    - Operational data showing discharge in response to events
    - Revenue earned
    - Results of bill saving modeling and calculations to validate TOU optimization and demand charge mitigation
    - Data in the *V2G Participation Report* will be from 2025, or for 1 year after ELRP registration, whichever is sooner

Products:

- V2G Testing Plan and V2B Testing Plan
- V2G and V2B Testing Reports
- V2G Participation Reports

[CPR WILL BE HELD IN THIS TASK. See task 1.2 for details.]

TASK 6 BLUEPRINT

The goal of this task is to develop a bidirectional charging infrastructure Blueprint that serves the needs of other school districts to plan the installation of bidirectional charging infrastructure.

The Recipient shall:

- Prepare a *Blueprint Outline* that conveys the intended structure of the Blueprint and the intended goals and outcomes of major sections of the Blueprint. The Blueprint will:
  - Identify the actions and milestones needed for implementation of bidirectional charging infrastructure.
  - Identify the actions and milestones needed for implementation of bidirectional charging infrastructure, including but not limited to:
    - Optimal locations for bidirectional charging infrastructure deployment and the rationale for being considered optimal.
    - Electric school bus usage and driving patterns in order to maximize and optimize the type and placement of bidirectional charging infrastructure to support the buses and the grid.
  - Minimize the risks and uncertainties surrounding the design, permitting, planning, and financing of bidirectional charging infrastructure network through engagement, by completing the following:
    - Engage utilities to support grid delivery, reliability, and resiliency.
    - Address impacts of increased charging on utility rates.
    - Engage local jurisdictions and planning organizations to ensure they are involved in the planning and permitting of the infrastructure.
    - Engage regional workplaces, business owners, and operators in the planning process and education on the benefits of bidirectional charging infrastructure.
    - Engage regional community based organizations, community leaders, California Native American Tribes, and potentially affected local residents in the planning process and education on the benefits of zero-emission vehicle (ZEV) transportation. With regional organizations, determine if a community-needs assessment is warranted and develop an appropriate scope.
    - Engage financial institutions to ensure they are educated, involved, and committed to participate in the implementation of the bidirectional charging infrastructure blueprint.
  - Analyze the combination of technologies and systems that offer the best mix of economic, environmental, and technical performance specific to the project/region.
    - Explore innovative bidirectional charging infrastructure options to address potential infrastructure barriers. Technology options may include wireless charging, high-

powered charging, overhead catenary systems, solar chargers, robotic chargers, mobile chargers/refuelers, curbside, streetlamp, and intersection chargers, or autonomous garages.

- Include appropriate VGI standards and open standards-based network communications.
  - Include the ability to support emerging connectors and/or interfaces for heavy-duty vehicles, open standards-based network communications, the inclusion of appropriate VGI standards, and/or other methods for enhancing grid-reliability by providing data to utilities to predict charging behavior and associated impacts on the grid.
  - Include the use of interoperable medium- and heavy-duty (MDHD) charging connectors and/or charging interfaces compatible with MDHD vehicles sold by multiple original automotive equipment manufacturers for widespread use across California and North America.
  - Include other methods for enhancing grid-reliability by providing data to utilities to predict charging behavior and associated impacts on the grid.

- Document actions or steps adopted by the local jurisdiction and the impact of those actions or steps on the development of bidirectional charging infrastructure.
- Identify analytical tools, software applications, and data needed to improve future bidirectional charging infrastructure planning activities.
- Identify each task or area of responsibility required of the project partners and stakeholder groups to develop a replicable approach for other fleets transitioning to zero-emission and bidirectional charging infrastructure.
- Describe the outreach strategy necessary for local communities, supported by education and outreach materials appropriate for potentially affected residents, in the languages needed for those communities.
- Describe collaboration with community colleges, CBOs and community leaders to develop workforce development strategies that enable training, education, and readiness for the local community workforce to obtain the requisite knowledge, skills, and ability to develop, support, and maintain the MDHD ZEV fleets.
- Summarize the types of jobs that could be created for the local community.

    - Identify goals to reduce greenhouse gas (GHG) emissions, criteria air pollutants, and toxic air contaminants for the region, and the emitters at the local level that would need to be targeted,
    - Identify the benefits that would accrue to High Fire-Threat Districts, disadvantaged communities (DACs), low-income communities, priority populations, and/or tribal lands to the maximum extent possible. Address health and safety, access and education, financial benefits, economic development, and consumer protection.
- Complete *Draft Blueprint* and provide to the CAM.
- Incorporate feedback as provided by the CAM.
- Prepare *Final Blueprint* and provide to the CAM.
- Prepare accompanying *Products for Replicability* including, but not limited to:
    - Step-by-step guide
    - Template Generalized Activity Normalization Time Table (GANTT) chart
    - Companion resources to support other school districts
    - In-depth case study of each school site
    - Shareable photo and video content
    - FAQ documents

Products:

- Blueprint Outline
- Draft Blueprint
- Final Blueprint
- Products for Replicability

TASK 7 OPERATIONS AND RELIABILITY

Task 7.1 Operations

The Recipient shall:

- Operate the installed chargers during the term of this Agreement.
- Ensure that the charger uptime for each charger installed in the project is least 97 percent of each year for six years after the beginning of operation.

Without limitation to other rights and remedies which the CEC may have, including but not limited to survival provisions specified in the Terms and Conditions of this Agreement, this requirement to ensure operationality for six years after the beginning

of operation shall survive the completion or termination date of this Agreement. In addition to other requirements in the Terms and Conditions of this agreement, all CEC-reimbursable expenditures must be incurred within the agreement term.

Task 7.2 Recordkeeping

The goal of this task is to collect and maintain records of charger operation and reliability. The Recipient shall collect and retain the remote monitoring and maintenance records specified in this section. The Recipient shall collect and retain records for each charger installed and operated as part of this agreement. The Recipient shall retain records for each charger for 9 years from the date the charger begins operation.

The Recipient Shall:

- Collect and retain the *Remote Monitoring and Maintenance Records* data below from each charger installed and operated as part of this Agreement.
- Retain the data below for 9 years from the date the charger begins operation. Provide records to the CEC within 10 business days of request.
    1. Provide digital records in a comma separated values (CSV) file unless another file format is approved by the CEC for the request.
    2. Provide a clear and understandable *Data Dictionary* that describes each data element and any associated units with all digital records.

Remote Monitoring Records

1. Connector operative status and error codes on a 15-minute interval including charger identification number and date-time stamp.
    a. If the Recipient uses OCPP 1.6 to communicate between the charger and central system, the recipient shall collect the OCPP 1.6 Protocol Data Unit (PDU) Status Notification.
2. A record of each customer attempt to initiate a charge including charger identification number, transaction identification number, and date-time stamp.
3. A record of each failed attempt to charge including charger identification number, transaction identification number, and date-time stamps and reason for failure.

Maintenance Records

1. Reports of inoperative chargers or charger failures resulting in inability to charge, such as a customer complaint, internal diagnostics, or inspection.

2. Records of any maintenance conducted on chargers installed and operated as part of the agreement. Records should specify the following:
    a. Date and time of the maintenance event
    b. Whether maintenance was corrective or preventive in nature
    c. Whether and for how long the charger was in an inoperative state prior to maintenance.
    d. Whether the charger was in an operative state following maintenance

Products:

- Remote Monitoring Records
- Maintenance Records
- Data Dictionary

Task 7.3 Maintenance Requirements

The goal of this task is to increase reliability through timely and effective preventive and corrective maintenance. The Recipient shall conduct maintenance on each charger installed and operated as part of the Agreement as specified in this section.

The Recipient Shall:

- Conduct preventive maintenance, as specified by the charger manufacturer, on the charger hardware by a certified technician annually. The time interval between consecutive preventive maintenance visits to any charger shall be no more than 13 months.
- Complete corrective maintenance within 10 business days of the beginning of a time when the charger is inoperative or exhibiting failures that result in an inability to charge.
- Report on preventive and corrective maintenance in each Quarterly Report on Charger Reliability and Maintenance described in Task 7.4.

Products:

- Report on preventive and corrective maintenance in maintenance section of Quarterly Report on Charger Reliability and Maintenance Report described in Task 7.4.

Task 7.4 Reporting

The goal of this task is to provide reports on charger reliability and maintenance.

The Recipient shall:

- Write and submit to the CEC Quarterly Reports on Charger Reliability and Maintenance. Each report shall include:
    - A summary of charger downtime, including total downtime and the number and frequency of downtime events, the minimum, median, mean, and maximum duration, and the causes of downtime events. Downtime events include:
        a. The time that the status or error codes returned by a charger indicate that it is in a state other than an operative state (inoperative). The duration of time counted as downtime based on remote monitoring will be the interval between the time of the first charger status record that the charger is inoperative, or the failure of the charger to send operational status on specified interval, and the subsequent status record that the charger is operative.
        a. A charger is in an inoperative state or failing to deliver charge, which may be known by consumer notification, internal diagnostics, inspection, or other methods.
        b. In the event there is a conflict between the sections (a) and (b), the operative state of the charger shall be determined by (b).
    - A summary of Excluded Downtime, including total excluded downtime and the number and frequency of excluded downtime events, the minimum, median, mean, and maximum duration, and the causes of excluded downtime events. 'Excluded Downtime' includes:
        a. **Grid Power Loss:** Power supplied by third-party provider is not supplied at levels required to for minimum function of chargers. This may include, but is not limited to, service outages due to utility equipment malfunction or public safety power shut-offs. This does not include power generation or storage equipment installed to serve the station exclusively. Documentation from power provider detailing outage is required to claim this as excluded time.
        b. **Vandalism and/or Theft:** Any physical damage to the charger and / or station committed by a third-party. This may include, but is not limited to, theft of charging cables, damage to connectors from mishandling, damage to screens, etc. A maximum of 5 days may be claimed as excluded downtime for each event. The CAM may authorize additional excluded downtime for extenuating circumstances

on a case-by-case basis. A police report or similar third-party documentation is required to claim this as excluded time.

c. **Communication Network Outages:** Loss of communication due to cellular or internet service provider system outages can be claimed as excluded downtime provided the chargers revert to a free charge state during communication losses. A free charge state is when the charger is operational and dispenses energy free of charge.

d. **Planned Outage for Maintenance and/or Upgrade:** Any planned maintenance or upgrade work that takes the charger offline. This must be scheduled in advance of the charger being placed in an inoperative state. The maximum downtime that can be excluded for planned maintenance and/or upgrade is 24 hours for any 12-month period.

e. **Force Majeure:** Downtime caused by unforeseen events, not described in (a) – (d) above, that are outside of the control of the funding recipient may be treated as Excluded Downtime upon approval by the CEC. For such downtime to be considered, the Recipient shall include a narrative description of the event and why it was out of their control in the annual report for the CEC to review and make a determination. The CEC has sole discretion in approving downtime in this category.

f. **Operating Hours:** Hours in which the charger is in an operative state but are outside of the identified hours of operation of the charging station.

- A summary and calculation of uptime. Each report shall include, for the 12 months preceding the report, the monthly uptime percentage of each charger (Charger Uptime) installed and operated as part of this Agreement. Charger uptime shall be calculated as:

$$\boldsymbol{U_c = \frac{T_c - D_c + E_c}{T_c}}$$

U_c = Charger Uptime

T_c = Total charger minutes in the reporting period

D_c = Total charger downtime for the reporting period, in minutes.

E_c = Total charger excluded downtime in the reporting period, in minutes.

- A summary of charge data, including:
  a. Total number of attempts to charge
  b. Total number of failed attempts to charge
  c. Failed attempts to charge by the following categories:
     i. Number of charge attempts that failed due to payment system failures
     ii. Number of charge attempts that failed due to interoperability failures
     iii. Number of charge attempts that failed due to charger hardware or software failures
     iv. Number of charge attempts that failed due to other reasons
  d. A summary and explanation of "other reasons" for charge attempt failures
  e. A description of steps taken to reduce the number of failed charge attempts, and the success rate of those steps
- The total number of maintenance dispatch events that occurred since the last report, the number of days to complete each maintenance event reported, and a narrative description of significant maintenance issues. Details of all excluded downtime and a narrative description of events that caused the excluded downtime.

Products:

- Quarterly Report on Charger Reliability and Maintenance, delivered with each Quarterly Progress Report, described in Task 1.5.

TASK 8 SEMI-ANNUAL ELECTRIC VEHICLE CHARGER INVENTORY REPORTS

The goal of this task is to provide information on the number of chargers in the Recipient's charging network in California, including both public and shared private, serving all vehicle sectors (light-, medium-, and heavy duty) excluding any charger used solely for private use at a single-family residence or a multifamily housing unit with four or fewer units.

The Recipient shall:

- Prepare an *Electric Vehicle Charger Inventory Report,* in a format provided by the CAM, that includes:
    - For chargers serving light-duty electric vehicles:
        - Number of public AC charging ports aggregated at the county level by charging network provider
        - Number of shared private AC charging ports aggregated at the county level by charging network provider
        - Number of public DC fast charging ports aggregated at the county level by charging network provider
        - Number of shared private DC fast charging ports aggregated at the county level by charging network provider
- For chargers serving medium- and/or heavy-duty vehicles:
    - Number of public AC charging ports aggregated at the county level by charging network provider
    - Number of shared private AC charging ports aggregated at the county level by charging network provider
    - Number of public DC fast charging ports aggregated at the county level by charging network provider
    - Number of shared private DC fast charging ports aggregated at the county level by charging network provider
    - Number of other publicly available charging ports at the county level by charging network provider
    - Number of other depot charging ports by power output (less than 50 kilowatts (kW), between 50 – 150 kW, 150 kW – 350 kW, 350 kW and above) at the county level by charging network provider (if applicable)
- Submit the *Electric Vehicle Charger Inventory Report* to the CAM no later than 30 calendar days after the Agreement is executed and then each calendar half-year thereafter. Reports are due at the end of July and end of January.

Product:

- Electric Vehicle Charger Inventory Report

Task 9 DATA COLLECTION AND ANALYSIS

The goal of this task is to collect operational data from the project and to analyze that data for economic and environmental impacts.

The Recipient shall:

- For all electric vehicle chargers and charging stations installed on or after January 1, 2024:

- Comply with recordkeeping and reporting standards as described in CEC's regulations. These requirements are not applicable to those electric vehicle chargers and charging stations installed at residential real property containing four or fewer dwelling units.
- Comply with all industry best practices and charger technology capabilities that are demonstrated to increase reliability, as described in CEC's regulations.
- Without limitation to other requirements in this Agreement, Recipient shall comply with any other regulatory requirements, including but not limited to uptime requirements and operation and maintenance requirements. Such regulatory requirements may, but will not necessarily, be enacted after execution of this Agreement. Once regulations are final, they will apply to work under this Agreement irrespective of when finalized. Any updates to regulations may also be applicable to work under this Agreement.
- If the Recipient is an electric vehicle service provider or other third-party entity that is not the site host, the electric vehicle service provider or third-party entity shall provide a disclosure to the site host about the site host's right to designate the service provider or third-party as the entity to report the data on behalf of the site host. The Recipient shall verify receipt by signing the disclosure.

- Collect and provide the following data:
  - Number, type, date and location of chargers installed.
  - Nameplate capacity of the installed equipment, in kW for chargers.
  - Number and type of outlets per charger.
  - Location type, such as street, parking lot, hotel, restaurant or multi-unit housing.
  - Total cost per charger, the subsidy from the CEC per charger, federal subsidy per charger, utility subsidy per charger, and privately funded share per charger.
- Collect and provide 12 months of throughput, usage, and operations data from the project including, but not limited to:
  - Number of charging sessions
  - Average charger station downtime
  - Peak power delivered (kW)
  - Duration of active charging, hourly

- Duration of charging session, hourly (e.g., vehicle parked but not actively charging)
- Average session duration
- Energy delivered (kWh)
- Average kWh dispensed
- Types of vehicles using the charging equipment
- Applicable price for charging, including but not limited to: electric utility tariff, EVSP service contract, or public charger price.
- Payment method for public charging
- Energy delivered back to grid or facility if a bidirectional charging use case (kWh)
- Maximum capacity of the new fueling system
- Normal operating hours, up time, downtime, and explanations of variations
- Gallons of gasoline and/or diesel fuel displaced (with associated mileage information)
- Expected air emissions reduction, for example:
  - Non-methane hydrocarbons
  - Oxides of nitrogen
  - Particulate Matter
  - Formaldehyde
- Duty cycle of the current fleet and the expected duty cycle of future vehicle acquisitions

- Identify any current and planned use of renewable energy at the facility.
- Identify the source of the alternative fuel.
- Describe any energy efficiency measures used in the facility that may exceed Title 24 standards in Part 6 of the California Code Regulations.
- Provide data on potential job creation, economic development, and increased state revenue as a result of expected future expansion.
- Provide a quantified estimate of the project's carbon intensity values for life-cycle greenhouse gas emissions.
- Compare any project performance and expectations provided in the proposal to CEC with actual project performance and accomplishments.
- Submit the *Data* described above electronically in a quarterly progress report throughout the duration of the Agreement.

- Provide a *Data Collection and Information Analysis Report* that lists and analyzes all the data and information described above

Products:

- Data submitted with quarterly reports (Task 1.5)
- Data Collection and Information Analysis Report

TASK 10 PROJECT FACT SHEET

The goal of this task is to develop an initial and final project fact sheet that describes the CEC-funded project and the benefits resulting from the project for the public and key decision makers.

The Recipient shall:

- Prepare an *Initial Project Fact Sheet* at start of the project that describes the project and the expected benefits. Use the format provided by the CAM.
- Prepare a *Final Project Fact Shee*t at the project's conclusion that describes the project, the actual benefits resulting from the project, and lessons learned from implementing the project. Use the format provided by the CAM.
- 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:

- Initial Project Fact Sheet
- Final Project Fact Sheet
- High Quality Digital Photographs