**Attachment 2**

**Exhibit A**

**SCOPE OF WORK**

Please note: Added language appears in **bold underline**, and deleted language appears in [~~strikethrough~~] and within square brackets.

**TECHNICAL TASK LIST**

*<Insert the Task numbers and Task names for your Agreement. Applicants may leave the CPR column blank.>*

|  |  |  |
| --- | --- | --- |
| **Task #** | **CPR** | **Task Name**  |
| 1 |  | Administration |
| 2 |  | <Insert Task Name> |
| 3 |  | <Insert Task Name> |
| *<Etc.>* |  | <Insert Task Name> |
| *<Etc.>* |  | <Insert Task Name> |
| *<Third to Last Task>* |  | Operations and Reliability |
| *<Second to Last Task>* |  | Data Collection and Analysis |
| *<Last Task>* |  | Project Fact Sheet |

**KEY NAME LIST**

*<Insert the Task numbers and the Key names for each Task in your Project. Include Key names only if the value of the project would significantly change without those personnel, subcontractors, or partners. Add additional lines as needed. Alternatively, you may delete this table if there are no key names.>*

|  |  |  |  |
| --- | --- | --- | --- |
| **Task #** | **Key Personnel** | **Key Subcontractor(s)** | **Key Partner(s)** |
| 1 | <Name> | <Name> | <Name> |
| 2 | <Name> | <Name> | <Name> |
| 3 | <Name> | <Name> | <Name> |
| *<Etc.>* | <Name> | <Name> | <Name> |

**GLOSSARY**

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

|  |  |
| --- | --- |
| **Term/ Acronym** | **Definition** |
| 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 electric vehicle can be charged. A Charge Point has one or more connectors.  |
| Charger | Any connector that can independently provide charge **to an on-road electric vehicle (EV)** regardless of whether the other connectors associated with a Charge Point are simultaneously charging. |
| Charging Session | Part of a transaction during which the [~~electric vehicle (~~]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.  |
| 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 |
| ­­­Downtime | Downtime is any period of time that a charger is not operational.  |
| 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. |
| 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. |
| 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. |
| Recipient | An Applicant awarded a grant under a CEC solicitation. |
| 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”. |
|  | <Insert additional rows as needed.> |

*<Applicants* ***DO NOT*** *need to complete items listed under “Background.” This will be completed by the CAM during agreement development if proposal is recommended for funding.>*

**Background**

Assembly Bill (AB) 118 (Núñez, Chapter 750, Statutes of 2007), created the Clean Transportation Program. The statute authorizes the California Energy Commission (CEC) to develop and deploy alternative and renewable fuels and advanced transportation technologies to help attain the state’s climate change, clean air, and alternative energy policies. AB 8 (Perea, Chapter 401, Statutes of 2013) re-authorizes the Clean Transportation Program through January 1, 2024. The Clean Transportation Program has an annual budget of approximately $100 million and provides financial support for projects that:

* Reduce California’s use and dependence on petroleum transportation fuels and increase the use of alternative and renewable fuels and advanced vehicle technologies.
* Produce sustainable alternative and renewable low-carbon fuels in California.
* Expand alternative fueling infrastructure and fueling stations.
* Improve the efficiency, performance and market viability of alternative light-, medium-, and heavy-duty vehicle technologies.
* Retrofit medium- and heavy-duty on-road and non-road vehicle fleets to alternative technologies or fuel use.
* Expand the alternative fueling infrastructure available to existing fleets, public transit, and transportation corridors.
* Establish workforce training programs and conduct public outreach on the benefits of alternative transportation fuels and vehicle technologies.

On [***insert date***], the CEC released a Grant Funding Opportunity (GFO) entitled “Convenient, High-Visibility, Low-Cost Level 2 Charging.” This competitive grant solicitation was to enhance perception of Level 2 charging access and test and demonstrate business models for Level 2 charging through high-density Level 2 charger installations. In response to GFO-22-610, the Recipient submitted application #XX which was proposed for funding in the CEC’s Notice of Proposed Awards on [***insert date***]. GFO-22-610 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:**

*<see instructions>*

**Goals of the Agreement:**

The goal of this Agreement is to… <see instructions>

**Objectives of the Agreement:**

The objectives of this Agreement are to… <see instructions>

**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 with the CAM, 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 participants 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
* “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 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 draft of each subaward required to conduct the work under this Agreement to the CAM for review.
* If requested by the CAM, submit a final copy of the executed subaward.
* 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
* Draft subcontracts (if requested)
* Final subcontracts (if requested)

**TECHNICAL TASKS**

**TASK 2** *<insert task name using ALL CAPS>*

The goal of this task is ... *<Complete the sentence with a brief description of the goal(s)*. *Please be brief,* *two to three sentences maximum*. *See instructions.>*

**The Recipient shall:**

* *<Insert verb in active tense ... complete the sentence.>*
* *<Insert verb in active tense ... complete the sentence.>*
* *<Etc. See instructions>*

*<The following two tasks shall be included within each task that includes Electric Vehicle Charger installations>*

* 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.

**Products:**

*<Products incorporate the knowledge and understanding gained by performing the activities, and are* ***submitted to the CEC*** *for review, comment and approval. Products include, but are not limited to, written reports that describe methods, test plans, results of testing, analysis of data, conclusions, and recommendations for future study, workshop agendas and summaries, description and photographs of equipment/product developed, summaries of advisory group meetings, computer software with written instructions for data input and use of the software, if intended for public or CEC use, and production prototypes. For each product there must be a bullet under “The Recipient Shall:” explaining it in more detail.>*

* *<Insert 1st product (name only) and include draft and final versions as necessary>*
* *<Insert 2nd product (name only) and include draft and final versions as necessary>*
* *<Etc. See instructions>*

**TASK 3 <insert task name using ALL CAPS>**

The goal of this task is to ... *<Complete the sentence with a brief description of the goal(s)*. *Please be brief,* *two to three sentences maximum*. *See instructions.>*

**The Recipient shall:**

* *<Insert verb in active tense ... complete the sentence.>*
* *<Insert verb in active tense ... complete the sentence.>*
* *<Etc. See instructions>*

**Products:**

* *<Insert 1st product (name only) and include draft and final versions as necessary>*
* *<Insert 2nd product (name only) and include draft and final versions as necessary>*
* *<Etc. See instructions>*

**<Add the appropriate number of tasks for the Agreement>**

**TASK *<Third to Last>* OPERATIONS AND RELIABILITY**

**Task *<Third to Last>*.1 Operations**

**The Recipient shall:**

* Operate the installed chargers during the term of this agreement.
* For any charging station of fewer than 40 chargers at which chargers are installed and operated under this agreement, ensure that the charger uptime for each charger installed in the project is at least 97 percent of each year for six years after the beginning of operation.
* For any charging station of 40 or more chargers at which chargers are installed and operated under this agreement, ensure that the charger uptime for each charger installed in the project is operational at least 80 percent of a charging site’s standard hours of operation of each year for six years after the beginning of operation, and ensure that station uptime is at least 97 percent.

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 commissioning 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 *<Third to Last>*.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 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 provided 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 Data**

1. Connector operative status and error codes on a 60-minute interval including charger identification number and date-time stamp.
	1. 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) StatusNotification.
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 Data**

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:
	1. Date and time of the maintenance event
	2. Whether maintenance was corrective or preventive in nature
	3. Whether and for how long the charger was in an inoperative state prior to maintenance.
	4. Whether the charger was in an operative state following maintenance

**Products:**

1. Remote Monitoring Records
2. Maintenance Records
3. Data Dictionary

**Task *<Third to Last>*.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 manufacturer-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 annual reliability report described in Task XX.4.

**Products:**

1. Maintenance section of annual report described in Task XX.4

**Task *<Third to Last>*.4 Reporting**

The goal of this task is to provide an annual report on charger reliability and maintenance.

**The Recipient shall:**

* Write and submit to the CEC an annual report on charger reliability and maintenance. The 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. Downtimeevents include:
1. 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.
2. The time that a charger is in an inoperative state or failing to deliver charge. This may be known by consumer notification, internal diagnostics, inspection, or other methods.
3. 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:
	1. **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.
	2. **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 CEC 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.
	3. **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 and free of charge.
	4. **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.
	5. **Force Majeure:** Downtime caused byunforeseen events, not described in (a) – (d) above, that are outside of the control of the 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 their annual report for the CEC to review and make a determination. The CEC has sole discretion in approving downtime in this category.
* A summary and calculation of uptime. Each report shall include the annual uptime percentage of each charger (Charger Uptime) as well as the annual uptime percentage for each charging station (Station Uptime) installed and operated as part of this agreement. The annual uptime percentage for each charger shall be reported for the year ending on the most recent anniversary of the beginning of operation of the charger. The annual uptime percentage for each station shall be reported for the year ending on the most recent anniversary of the beginning of operation of the first charger operated as part of this agreement that is part of the station. Charger and station uptime shall be calculated as:

|  |  |
| --- | --- |
| $$U\_{c}= \frac{T\_{c}-D\_{c}+E\_{c}}{T\_{c}}$$U­­c = Charger UptimeTc = Total charger operational hours in the reporting periodDc = Total charger downtime for the reporting period, in hours.Ec = Total charger excluded downtime in the reporting period, in hours. | $$U\_{s}= \frac{T\_{s}-D\_{s}+E\_{s}}{T\_{s}}$$Us = Station UptimeTs = Total operational hours for all chargers associated with the charging station for the the reporting period (Ts = ∑Tc).Ds = Total downtime for all chargers associated with the charging station for the reporting period (Ds = ∑Dc), in hours.Es = Total excluded downtime for all chargers associated with the chargingstation for the reporting period (Es = ∑Ec), in hours. |

* A summary of charge data, including:
1. Total number of attempts to charge
2. Total number of failed attempts to charge
3. Failed attempts to charge by the following categories:
4. Number of charge attempts that failed due to payment system failures
5. Number of charge attempts that failed due to interoperability failures
6. Number of charge attempts that failed due to charger hardware or software failures
7. Number of charge attempts that failed due to other reasons
8. A summary and explanation of “other reasons” for charge attempt failures
9. 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 ofall excluded downtime and a narrative description of events that caused the excluded downtime.

**Products:**

* Annual Report on Charger Reliability and Maintenance, delivered with the first or second Quarterly Progress Report, described in Task 1.5, of each calendar year

**TASK *<Second to Last>* 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 grant 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 grant agreement. Once regulations are final, they will apply to work under this grant agreement irrespective of when finalized. Any updates to regulations may also be applicable to work under this grant 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.
* Once each charger begins operation, collect and provide the following information in the next Quarterly Progress Report:
	+ 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.
	+ Expected air emissions reduction, for example:
		- Non-methane hydrocarbons
		- Oxides of nitrogen
		- Particulate Matter
		- Formaldehyde
* Collect and submit to the CAM, in a standard electronic file format determined by the CAM, 12 months of throughput, usage, and operations data from the project including, but not limited to, for each session:

|  |  |  |
| --- | --- | --- |
| **Category** | **Field** | **Desired Data Type** |
| Sites | Site ID | Hash key |
| Sites | Site Name | Varchar |
| Sites | Site Type | Varchar |
| Sites | EVSP | Varchar |
| Sites | Street Address | Varchar |
| Sites | City | Varchar |
| Sites | State | Varchar |
| Sites | Zip | Varchar |
| Sites | Latitude | Decimal |
| Sites | Longitude | Decimal |
| Sites | Number of EVSEs | Varchar |
| Sites | Number of Ports | Varchar |
| EVSE | EVSE ID | Hash key |
| EVSE | EVSE Manufacturer | Varchar |
| EVSE | EVSE Model Number | Varchar |
| EVSE | EVSE Maximum kW | Integer |
| EVSE | EVSE Number of Ports | Integer |
| EVSE | EVSE Power Level | Varchar |
| Ports | Port ID | Hash key |
| Ports | Port Maximum kW | Integer |
| Ports | Connector Type | Varchar |
| Sessions | Session ID | Hash key |
| Sessions | Charge Duration | Varchar (HH:MM:SS) |
| Sessions | Charge Session Start Date | Date |
| Sessions | Charge Session Start Time | Time |
| Sessions | Charge Session End Date | Date |
| Sessions | Charge Session End Time | Time |
| Sessions | Disconnect Reason | String |
| Sessions | Connection Duration | Varchar (HH:MM:SS) |
| Sessions | Idle Duration | Varchar (HH:MM:SS) |
| Sessions | Energy Consumed | Decimal |
| Sessions | Charge Peak Demand | Decimal |
| Sessions | Charge Average Demand | Decimal |
| Sessions | Total Transacted Amount (Driver) | Currency |
| Sessions | Payment method | Character |
| Sessions | Driver ID | Hash key |
| Sessions | Vehicle Make, if known | Varchar |
| Sessions | Vehicle Model, if known | Varchar |
| Sessions | Vehicle Year, if known | Integer |
| Sessions | Vehicle Type, if known | Character |

* After 12 months of data collection, analyze and summarize the data and provide a *Data Analysis Summary* including, but not limited to:
	+ Number of charging sessions
	+ Average session duration
	+ Average charger downtime
	+ Average kWh dispensed
	+ Gallons of gasoline and/or diesel fuel displaced (with associated mileage information)
	+ Energy delivered back to grid or facility if a bidirectional charging use case (kWh)
	+ Compare any project performance and expectations in the proposal to CEC with actual performance and accomplishments

**Products:**

* Charger and station information, submitted electronically in Quarterly Progress Reports as described in Task 1.5
* 12 months of throughput, usage and operations data
* Data Analysis Summary
* **TASK *<Last>*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 Sheet 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