

DOCKETED

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TASK XX OPERATIONS AND MAINTENANCE

The goal of this task is to ensure that the chargers installed in the project are operational at least 97 percent of a charging site's standard hours of operation for five years after commissioning.

Task XX.1 Operations

The Recipient shall:

- Operate the installed charging stations during the term of this agreement.
- Ensure that the chargers installed in the project are operational at least 97 percent of a charging site's standard hours of operation for five years after commissioning. 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 operability for five 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 XX.2 Maintenance

The Recipient shall:

- Perform regular preventive maintenance, including visual inspection, performance testing, functional validation, and reporting.
- Monitor network performance.
- Dispatch maintenance technicians in a timely manner and address malfunctions and repairs within 48 hours of initial notice.
- Provide charging station users with 24/7 call center service that will assist users with any technical issues encountered at the stations.
- Prepare a *Stations Operations Report* for each project site sent quarterly to the CAM after station commissioning through the term of this agreement. The report will include a summary of uptime measures, calculation of uptime, and number of dispatch events needed during the quarter.

Product:

- Stations Operations Reports delivered with the Quarterly Progress Reports described in Task 1.5

Task XX.3 Recordkeeping and Reporting

The Recipient shall:

- Keep and maintain a record of the standard hours of operation for each site, including any changes over the operational period.
- Keep and maintain detailed records of maintenance and repairs. Records shall include:
 - Whether the maintenance was scheduled preventive maintenance or response to an identified issue
 - Date and time the need for corrective maintenance was reported, if applicable
 - Date and time maintenance began
 - Date and time maintenance was completed
 - Narrative describing nature of maintenance required
 - Any component failures / replacements
- Keep and maintain a record of the operative status of each connector from the time the equipment is commissioned until the end of the operational period defined by this agreement.
 - The record shall include any time the Recipient knows or is notified that a connector is incapable of delivering a charge, for example by observation, by

- receipt of a service call, by notice of power outage or telecommunications outage, or other means.
- For any networked chargers, Recipient shall record the time and the operative status of each connector every 15 minutes.
 - For example, a central system using OCPP 1.6 could send TriggerMessage.req, 'requestedMessage' = 'StatusNotification' and record both the TriggerMessage.conf and StatusNotification.req sent by the charge point in response.
- Excluded downtime shall be recorded, including any supporting documentation from an independent party, e.g., notice from an electric utility of a power outage or police report of vandalism. The record shall include an explanation of the cause of the downtime, why it should be considered excluded downtime, and the efforts made to minimize the downtime.
- Make these records available, in a standard electronic format of the CEC's choosing, to the CEC within 10 business days of a written request by the CEC.
- 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, the requirements for recordkeeping and reporting under this Task shall remain in effect for five years after commissioning and 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.
- The requirements for recordkeeping and reporting under this Task are in addition to requirements specified in this Agreement's Terms and Conditions, section 18.b, Retention of Records, and any other applicable Terms and Conditions.

Products:

- Record of standard hours of operation
- Record of the operative status of each connector
- Records of maintenance and repairs

Task XX.4 Definitions

- a) Central System: The central system that communicates with one or more chargers, for example, to authorize users, monitor charger status, and/or collect, transmit, record, and manage other information.
- b) Connector: A connector is what is plugged into a vehicle to charge it.
- c) Charging Site: A physical location with one or more chargers.
- d) Charger: A device that safely supplies electrical power to an electric vehicle through connectors. Where a device has multiple connectors or can serve multiple parking spaces, the number of chargers is equal to the number of vehicles that can be simultaneously charged.
- e) Downtime: Any period of time within the standard hours of operation in which a charger is not operational.

For networked chargers, a period in which the charge point's response to the central system's request for notification of operative status indicates that the connector or charge point is in an inoperative state is downtime.

- For example, in OCPP 1.6 intervals when **StatusNotification.req** protocol data unit **Status Field** = 'Unavailable' or 'Faulted' **OR errorCode Field** = 'ConnectorLockFailure', 'GroundFailure', 'HighTemperature', 'InternalError', 'OverCurrentFailure', 'OverVoltage',

'PowerMeterFailure', 'PowerSwitchFailure', 'ReaderFailure', 'ResetFailure', or 'UnderVoltage' are "downtime."

f) Excluded downtime: A period of downtime, within the standard hours of operation, caused by any of the following:

- **Electric Grid Power Loss:** Power supplied by the electric utility for a site is not supplied at levels required to for minimum function of chargers / station. This may include, but is not limited to, service outages due to utility equipment malfunction or public safety power shut-offs.
- **Accident, Vandalism or Theft:** Physical damage to the charger for events such as vehicle collision with a charger, theft of charging cables, damage to connectors from mishandling, and damage to screens. Excluded downtime is limited to a maximum of 5 days for each event.
- **Telecommunication Network Outages:** Loss of communication between a charger and a central system due to cellular or internet service provider system outages that are beyond the control of the Recipient.
- **Planned Outage for Maintenance or Upgrade:** Any planned maintenance indicated in the funding Recipient's Operations and Maintenance Plan, submitted with application for funding, or an updated Plan approved by the CAM in advance of the planned outage.
- **Extraordinary Events:** Unforeseeable events that would have been impossible to plan for using commercially reasonable methods.

g) Operational: A charging port is considered operational when its hardware and software are both online and available for use, or in use, and the charging port successfully dispenses electricity as expected.

h) Uptime: Uptime is calculated as:

$$\text{Uptime} = \frac{\text{Total Standard Hours of Operation} - \text{Downtime} + \text{Excluded Downtime}}{\text{Total Standard Hours of Operation}} * 100\%$$