SECTION 26 01 30
ELECTRIC VEHICLE MANAGEMENT SYSTEM
SOFTWARE-AS-A-SERVICE (SaaS)

PART 1 - GENERAL

1.1. SCOPE

A. The requirements of the Contract relate to the Electric vehicle management system software as a service (SaaS) solution which shall be included as part of the electric vehicle charging equipment (EVSE) package, as Specified and as shown on the contract drawings.

1.2 ***[RELATED DOCUMENTS***

A. ***Related Sections include the following:***
1. ***[Section 26 33 43 – Electric Vehicle Supply Equipment – Level 2 AC]***
2. ***[Section 26 33 43 – Electric Vehicle Supply Equipment – Level 3 50kW DCFC]***
3. ***[Section 26 24 13 – Switchboards]***
4. ***[Section 26 24 16 – Panelboards]***

1.3 SUBMITTALS

A. For review:
1. The following information shall be submitted to the Engineer:
   a. Product data sheets
   b. Installation manuals

B. For construction:
1. The following information shall be submitted for record purposes:
   a. General layout of the network architecture
   b. Standard web site screen pictures
   c. List of connected chargers and point list
   d. Standard report examples
   e. Demand control setup screens
   f. Billing setup screens

C. Detailed Comply (C), Deviate (D) and Exception (E) shall be provided for each line.

1.4 RELATED STANDARDS

A. The Cloud based software as a service shall be designed and tested in accordance with the latest version of the following standards:
1. Environment shall be ISO27001 certified
2. Data encryption from chargers to backend via SSL and TLS
3. Communications by HTTPS and VPN
4. Browser standards supported: Google Chrome and Internet Explorer
5. Open Charge Point Protocol (OCPP) v1.6J from Charger to Back-end

1.5 QUALITY ASSURANCE

A. The manufacturer shall have been supplying SaaS cloud-based solutions within the transportation electrification market for at least two years.

B. The manufacture shall have the ability to provide billing services with a nationally recognized billing transaction company to provide a complete billing solution.

C. The SaaS supplier shall manufacture EV chargers and “Make Ready” electrical infrastructure equipment to power and protect the charging equipment and provide an integrated EVSE solution.

D. The manufacture shall have a dedicated service offering to maintain and service the SaaS solution.

PART 2 - PRODUCT

2.1 MANUFACTURERS

A. ***The Electric Vehicle SaaS cloud-based solution shall be Siemens eMobility or pre-approved equal. Approved manufacturers are as follows:***
   1. ***SIEMENS eMobility E-Car OC***
   2. ***.]***

B. Manufacturers listed above shall meet all specifications in their entirety. Products in compliance with the specification and manufactured by others not named shall be considered only if pre-approved by the Engineer ten (10) days prior to bid date.

2.2 OPEN STANDARDS

A. The SaaS shall support other manufacturers charging equipment through OCPP (open charge point protocol) communications as standard.

B. The following minimum manufacturers shall be supported as standard:
   1. Siemens,
   2. Tritium
   3. ENEL,
   4. EFACEC,
   5. KEBA,
   6. Mennekes,
   7. ABB
   8. Ensto

2.3 SECURITY AUTHENTICATION

A. Access to the software shall be through a secure logon with username and password.

B. Users shall be setup by the SaaS Administrator.

C. Password rules shall be enforced by the system: a minimum of 8 characters long, not match the previous five passwords, not contain two consecutive characters, and contain the following: uppercase, lowercase, number and special character.

D. The user language shall be settable to English, Spanish or Italian.

2.4 SaaS GENERAL FUNCTIONALITY

The SaaS systems will need to supply the following functionality as standard:

A. Setting up and managing individual and groups of charging stations

B. Setting up and managing individual and groups of operators / distribution system operator (DSO)

C. Setting up and managing individual and groups of drivers

D. Ability to display real-time data for charging stations

E. Ability to display the event data for charging stations

F. Reporting on energy usage, events, and operations

G. Controlling remote charger functionality

H. Billing functionality built into SaaS as standard

I. Max Load management built into SaaS as standard

J. Demand control built into SaaS as standard

2.5 MAIN LANDING PAGE

A. The SaaS shall have a start page showing a map of charging stations, a table of recent charging events (recharges), and a toolbar to navigate to further functions/tools within the software.

B. The Toolbar or Navigation Menu shall be a tree structure with clicking on topics opening sub-topics.

C. A quick search tool shall allow finding a charger or contract directly. Typing in the first few characters should bring up 15 possible matches which the user can select. Navigation takes the user to the detail page for that charger or contract.

D. An Alarm Bell indicator/icon shall be provided to indicate the number of active alarms. The user shall be able to click on the icon for viewing and acknowledging alarms.

E. A user icon shall be provided to navigate to the Help menu, language selection, demo mode, and user profile settings.

2.6 NAVIGATION MENU

A. The software shall have a quick access navigation menu [tree style] that is always accessible from any screen or sub-screen being displayed.

B. The sections/tools provided are: Assets, Contracts, Recharges, Tickets, Load Management, Dashboard, Stakeholders, Administration, and System

2.7 ASSETS PAGE

A. The Assets section manages the charging stations in the system. The tool shall allow the user to perform the following:
1. Add a new charger (charger unit - CU) – add a new charger to the system
2. CU list – shows a full page to search and navigate to a charger
3. Master charger/Slave charger history – displays the history of the association between master and slave charging units.
4. Add new group – creates a new group of chargers
5. Group list – displays the list of groups
6. Archived groups – displays the history of associations of groups with chargers
7. Events list – displays the search for events on the system
8. Updates history – displays the software (firmware) updates made to the chargers
9. Alarms list – shows the alarms page including unacquired, persisting and historic alarms
10. Meter reading – displays all metering readings for each charger
11. CU models list – displays all the types [manufacturer and model] of chargers available on the system.
12. Details screen for a charger displays the options available: basic charger data management, control, reboot, open a ticket, unlock, remote recharge, etc.

2.8 CONTRACT PAGE

A. The Contracts section manages RFID cards, their association with service providers (operators), and connect contracts to users in the system. This tool shall allow the user to perform the following:
1. Create RFID cards lot – creates new RFID cards in the system
2. RFID cards association – allows the user to associate cards to a specific operator
3. RFID cards list – displays RFID cards searched
4. Add new contract – creates a new contract on the system
5. Contracts list – displays contracts searched
6. Add new user – creates a new user (driver/company) on the system
7. User list – displays users with at least one contract

2.9 RECHARGE PAGE

A. The Recharges section shows all the charging session information carried out by the system. The user shall be able to perform the following:
   1. Recharge list – displays the searched on-going and completed recharges [charge sessions]
   2. Authorizations list – displays the searched authorizations for charging sessions
   3. WL jobs list – displays the page of white lists, the list of authorized cards even if a charger is not communicating with the software
   4. Reservation list – displays the searched reservations for charging sessions

2.10 MAINTENANCE TICKET FEATURE

A. The software shall have a maintenance ticket system as part of the management of the charging system - hardware, software. The Ticket tool shall allow the user to perform the following:
   1. New Ticket – Creates a new ticket on the system
   2. Ticket list – displays the searched tickets on the system

2.11 LOAD MANAGEMENT FEATURE

A. Load Management shall provide tools to manage the power loading of a single or group of chargers connected to the software. The software shall provide the following load management methods: singular charger curtailment during active charge session, maximum power load value for a group of chargers, and follow a load curve for a group of chargers.
   1. The user shall be able to curtail a single charger down to the minimum power, allowed by the charger, during an active session.
   2. The software shall support defining a maximum power level [Modulation Request] for a selected group of chargers [Load Area] and the software will control the charger output power at or below the maximum defined power level.
   3. Once activated the Modulation of power shall stay active till the group is deactivated.
   4. Software shall allow full power charging if less than all chargers are actively charging, and the power is below the Modulation Request.
   5. Software will decrease the power, as required, down to the lowest level, allowed by the charger, if all chargers are actively charging so they can meet the Modulation Request.
   6. If the lowest level is set on all chargers within the group and the maximum power value cannot be met, the software shall turnoff charging stations in round-robin fashion, so the Modulation Request is not exceeded.
   7. Software shall allow defining of a load curve [Modulation Values table] for the maximum power level for each 15-minute period for a group of chargers [Load Area]. This load curve shall/can be used to meet customer/utility demand response requirements.
   8. Software shall follow the load curve as defined in the Modulation Values table.
   9. Curtailment or no charging will be allowable in the Modulation Values table.
   10. Software shall pause/stop a charging session if entering a lower power level period. Software will stop any new charging sessions during a lower or no power period.
   11. A Load Area (LA) List shall be provided to allow the user to set a group of charging stations/units for which a maximum deliverable power has been defined.
   12. The LA List shall allow the user to create s results table for viewing showing the ID, Load Area, DSO, Created, Updated, Charging Units (CU) in an area, and Load Modulation Requests
   13. User shall be able to search for a Load Area of chargers by the Load Area name, Distribution System Operator (DSO) name [operator/owner of the charging stations], created date/time, and updated date/time.

2.12 LOAD AREA DISPLAY PAGE

A. The Load Area details shall include the following sections and information for the user to view – Detail Information, Associated CU's, Modulation Requests, and Pre-Defined Peaks

B. Detailed Information – ID for Load Area, Name, DSO for the area, Creation Date, and Last Update

C. Associated Charging Units – Serial number, address, city, state, CU status, charging session status, number of charge, point of delivery, total kWh, type of CU, make/model, software version, and asset provider.

D. Modulation Requests – ID of the request, date/time of the request, start date/time of the modulation, duration, priority, and status/outcome of the request.

E. Pre-defined Peaks – List the maximum pre-defined peaks for each 15-minute period that must not be exceeded (for season, day, weekend, holiday).

2.13 DEMAND CONTROL FEATURE

A. The SaaS shall have as standard a Demand Control feature to allow the end user to reduce remote chargers available power and stop charging during predefined periods.

B. The demand control feature shall show the following information:

1. Request ID
2. Type of request
3. ID of DSO requesting
4. Priority
   Load area with link to details
5. Request date
6. Demand change start date
7. Demand change duration
8. Status of the request

C. Demand control feature shall provide a a graph with two curves. A blue curve showing the power value of the request and a red curve showing the energy delivered with real values from the equipment.

2.14 REPORTS

A. Reports shall be a standard feature of the SaaS offering providing for viewing statistics on the charging units and charging contracts. This tool shall allow the user to perform the following:

1. Charging Usage Report – displays reports about charging unit usage by model or time slot; bar, line and pie outputs shall be available
2. Asset Provider Report – displays active chargers grouped by asset provider; table and histogram outputs shall be available
3. Service Provider Report – displays contracts grouped by service provider, existing vs new; table, histogram and pie outputs shall be available
4. Recharge Report – display total recharges and total energy used grouped by charger type and month or grouped by charger and area; table, pie and histogram outputs shall be available
5. Charger Daily Report – display the reachable status of the chargers; table and line outputs shall be available

2.15 ADMINISTRATION FEATURE

A. The SaaS platform shall have an Administration tool that allows the user to enter, change and disable the operators entitled to access the system, and assign management roles to the various stakeholders.

1. Add new operator – adds a new operator to the system, add details and assign privileges
2. Operators List – displays the search of operators in the system
3. Operation Center (OC) Configuration – tools to administrate the system
4. Input File Batch – enters cards for RFID use within the system

PART 3 - EXECUTION

3.1 COMMISSIONING

A. Remote commissioning of the cloud SaaS platform for the project shall be included.

B. The commissioning of the cloud SaaS shall be done remotely by the manufacturer and not an agent of the manufacture.

C. The operating system shall reside in the cloud eliminating onsite [on premise] software and startup.

3.2 SERVICE

A. The cloud SaaS platform shall be available as a subscription-based model priced on a per charger per year service. Service plans of 1, 2, 3 and 5 years should be available from the manufacturer.

B. Onsite and Remote Services shall be offered by the SaaS manufacturer.

C. Technical support over a 1-800 number shall be offered 24x7 for Free

D. Onsite Services offered shall be offered by the manufacture for the following:

1. Startup assistance with other trades,
2. Custom programming or configuration to third party devices,
3. Communications setup for third party devices,
4. Preventative Maintenance programs
5. Emergency response

3.3 TRAINING

A. The SaaS provider shall offer training on the cloud SaaS web client.

B. Training shall be available for:

1. Operators,
2. Service Providers
3. Administrators.

C. Training shall be available either remotely or on-site.

END OF SECTION