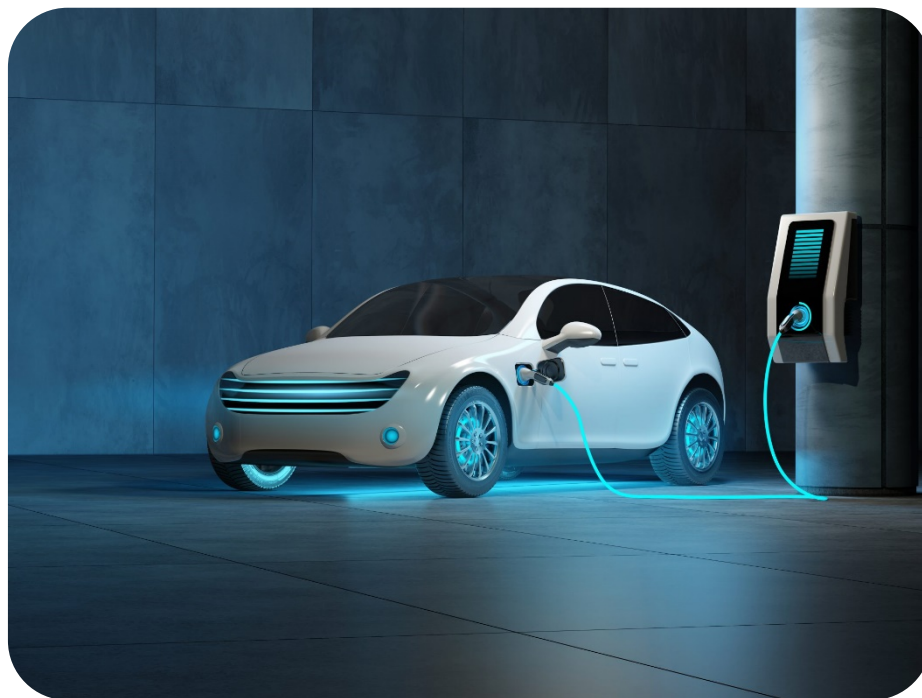


Electric Vehicle Charging Station (EVCS) Guidelines



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Introduction

In recent years, the global landscape has witnessed a remarkable surge in the interest and widespread adoption of Electric Vehicles (EVs), marking a pivotal shift towards more sustainable modes of transportation. This burgeoning enthusiasm for EVs is not merely a trend but an emblematic testament to our collective commitment to reducing carbon emissions and ushering in a cleaner, greener future. As we embark on this electrifying journey towards sustainability, it is imperative that we, as healthcare institutions, respond to the evolving needs of our communities and embrace our role as catalysts for change.

In the province of British Columbia, the year 2023 has brought with it an astonishing milestone: a staggering 54,000 registered EVs now dot the roads and highways, silently but resolutely paving the way towards a more ecoconscious society. These EV owners are not just statistics; they are integral members of our communities, individuals who share our values and aspirations for a healthier, more environmentally responsible world.

As hospitals, we stand at the forefront of healthcare, entrusted with the well-being of our patients, visitors, and staff. It is in this capacity that we recognize the urgent demand for providing a reliable means of charging EVs while individuals are on our premises. Our commitment to the health and welfare of our communities extends beyond medical care alone; it encompasses the broader endeavor of sustainability and environmental stewardship.

This guideline is more than a mere document; it is a testament to our dedication to meeting the needs of EV drivers who come to our healthcare facilities. It is a roadmap that will empower us to serve our communities better and to take a resolute stand in favor of sustainability. By embracing the challenge of providing effective charging solutions, we contribute to not only the convenience and satisfaction of our patients, visitors, and staff but also to the broader cause of forging a cleaner, more sustainable future for generations yet to come.

Join us as we embark on this electrifying journey towards a brighter, more sustainable tomorrow—a journey guided by this comprehensive Electric Vehicle Charging Guideline, tailored to our unique needs and aspirations as healthcare providers and stewards of the environment. Together, we shall illuminate the path to a greener, cleaner, and healthier world. This document will be primarily used by TDMCS, Facilities Maintenance & Operations (FMO), Energy & Environmental Sustainability (EES) and Project and Planning teams.

Administration

Technical Information & Maintenance Contacts:

Electrum 1-866-898-3873

For all other inquiries including fees, violation tickets etc.

Please contact Commuter Services commuterservices@fraserhealth.ca 604-587-4420

Administrative Access:

- Commuter Services will have full administrative access to the EV portal for monitoring and reporting purposes.
- The parking vendor will have access to view a section of the EV dashboard for patrol & enforcement purposes.
- Facilities maintenance (FMO) can request electrical consumption data at anytime from commuter services or also be given view only access to the EV portal.
- The Energy and Environmental Sustainability (EES) team can request electrical consumption data from commuter services for year-end carbon credit reporting purposes or be given view only access to the EV portal.

Staff Resources:

- [Fraser Health Pulse](#)
- Future SharePoint EVCS site

Stakeholders & Responsibilities

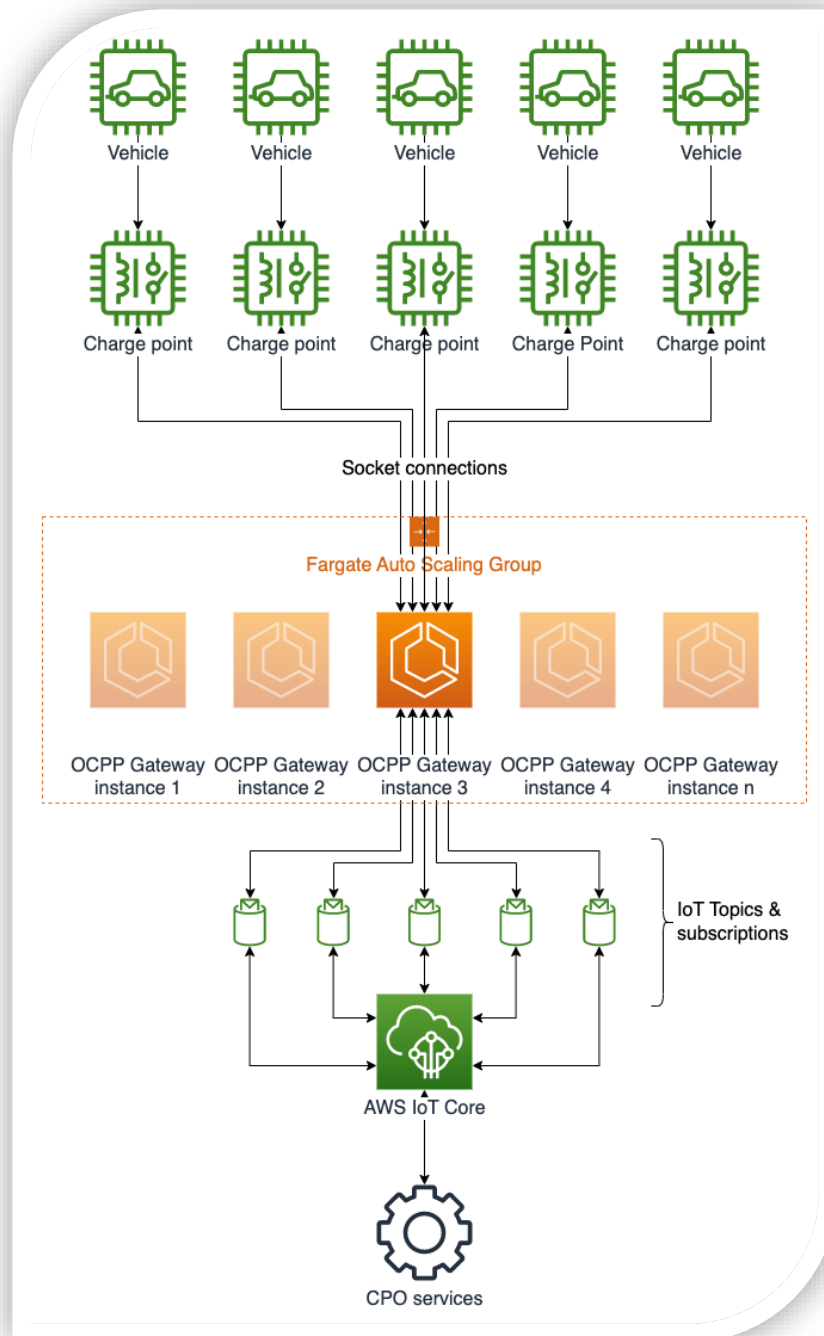
This section outlines tasks and responsibilities for each team in EV charging infrastructure implementation, promoting clear communication and efficient coordination amongst the teams.

- a. Energy and Environmental Sustainability Team (EES)
 - Secure funding for sustainable transportation through collaboration with Government entities.
 - Partner with relevant stakeholders to drive sustainable transportation initiatives.
 - Offer expertise on energy and environmental sustainability throughout the charging infrastructure implementation.
- b. Planning and Projects Teams
 - Work with TDMCS to identify EV charger needs and create installation plans.
 - Launch procurement for selecting a vendor meeting TDMCS specifications.
 - Coordinate with the EES team to align with energy and environmental sustainability goals.

- c. TDMCS Team
 - Manage daily operations and ensure compliance with service level agreements for EV chargers.
 - Establish and maintain service level agreements with vendors, overseeing prompt issue resolution.
 - Record charger usage, energy consumption, and user feedback.
 - Provide user support, troubleshoot issues, and update signage as necessary.
 - Collaborate with EES and Planning teams to assess and propose improvements to the charging infrastructure.
- d. Legal Team
 - Collaborate with TDMCS to ensure compliance with PHSA/FHA legal and regulatory requirements for EV charging station signage.
 - Review and approve signage design and content to meet legal standards.
 - Offer guidance on legal considerations, including disclaimers, liability, and intellectual property rights.
- e. Communications Team
 - Collaborate with EES, Planning, and TDMCS to create a comprehensive communication strategy.
 - Finalize and approve signage with Commuter Services.
 - Ensure consistent branding and messaging across all channels.
 - Develop internal communications to inform employees about EV charger installation, locations, and operational guidelines.

Open Charge Point Protocol (OCPP):

All electric vehicle charging stations must be OCPP compliant. The goal for Open Charge Point Protocol is to offer a uniform solution for the method of communication between charge point and central system. With this protocol it is possible to connect any central system with any charge point, regardless of the vendor. OCPP also makes it easier to create a large-scale, visible network that uses a range of different charging stations since there is a requirement for only one operating system.

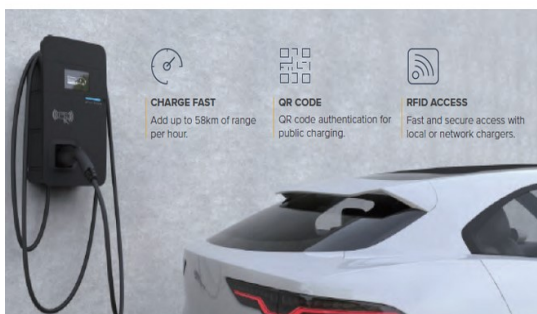


OCPP with Amazon Web Services (AWS)

Type of EV Chargers and Inventory:

	Level 1	Level 2	Level 3
Voltage Rating	120 V  Wall outlet	220-240 V  J1772 or 'J plug'	480+ V  CCS CHAdeMO
Ampere Rating	12	32	100
Output - V (volts) x I (amps) = P (watts)	120 volts x 12 amps = 1.44 kW	240 volts x 32 amps = 7.6 kW	480 Volts x 100 amps = 48 kW
Range per hour (KM)	7-9	30	80% full battery in 30 minutes
Locations	○ ARHCC (16) ○ JPOCSC (19) ○ MMH (3) ○ SPH (6) ○ C&W (4)	○ ARHCC (3) ○ BH (8) ○ CGH (2) ○ DH (5) ○ LMH (2) ○ RCH (8) ○ RMH (6) ○ SMH (14) ○ SPH (8) ○ C&W (2)	

AX 48A EV AC Charger



Charger Specifications

Network Comm. Standard	OCP1.6J / 2.0.1
Charger Level	Level 2
Power Delivery	19.2kW (240Vac*80A)
Output Current Range	0A, 6-48A / 80A
Input Rating	220-220V / Single Phase
AC Input Connection	L1/L2/GND
Circuit Breaker	40A
Operating Temperature	-30°C to 50°C+
Connector Type	J1772
LCD Screen	5"
Number of Connector	1
Cable Length	16 FT
Dimensions (WxDxH)	295mm x 158mm x 505mm
Weight	<10kg (22lbs) With Cable

Network Specifications

Wifi Frequency Band	2.4 GHz
Wifi Authentication	WPA, WPA2, PSK
QR Code Activation	Yes
App Authentication	N/A
Static Load Balancing	Yes
Dynamic Load Balancing	Local Offline
IP Level	Nema Type 4
Certification	cULus
Wireless Certification	FCC/IC

ZEROVA AX 48A

The current standardized charger we have deployed at health authority sites. With its modern and sleek design, the AX is perfect for residential and commercial EV charging. The AX offers Level 2 charging that delivers up to 48 amps of power (58 kilometers of range per hour). The AX supports RFID card for user authentication and charger management, and with the built-in 5" LCD screen, users have the option to QR Code for verification.

Cable Management

Cable management protocols are implemented to prevent any potential trip and fall hazards, thereby ensuring the well-being of users and maintaining a secure charging environment.

- Extends the life of cables by elevating them off the ground
- Ratcheting function eliminates constant tension on cable when plugged into vehicle
- Steel construction (*recommended for indoor use*)
- 10 ft. pull length
- Fits 0.75" to 1.50" diameter cables
- Lifts cables up to AC/80A and DC/25kW
- Mounts to wall, ceiling, or pedestal



Mechanical Protection

BCEC rule 2-200 requires EVSE equipment to be installed and guarded to prevent potential mechanical damage. Examples of common practices that protect EVSE from mechanical damage from vehicles included but are not limited to:

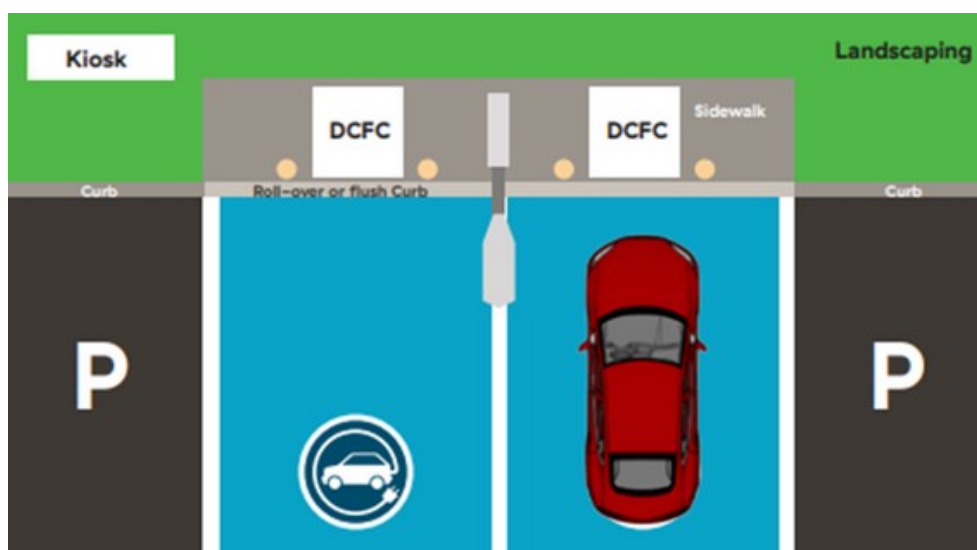
1. Installing the EVSE out of the of vehicular path (i.e., sidewall of garage).
2. Mounting the EVSE at a height where it is unlikely to be struck by a vehicle.
3. Installing bollards or guards to protect the EVSE.
4. Install EVSE a sufficient distance back from raised curbs, sidewalks, or parking stops.

Note: There may also be additional BCEC and manufacturers' requirements to protect the cable or conduit feeds that provide power to the EVSE.



Stall Markings & Layout

- EV charging stations should be universally accessible as part of the effort to facilitate EVs as a mainstream driving option. Universal access requires a 1.2 meter wide access aisle in addition to a standard 2.5 meter parking stall for a total width of 3.7 meters. One central access aisle can serve two parking stalls. In non curbside layouts, the access aisle is not designated separately; the 3.7 meter width is included in every layout, making this truly 'universal' rather than a special provision.
 - If your stall is an accessible one, it is not necessary to paint an "accessibility parking space marking" in the stall. This way, the charging stall will remain open to all drivers wanting to charge.
- Wide Boundary Lines mark the extent of the charging station and indicate the direction of vehicle entry/ exit. Apply the parking lot markings parallel to the path of the vehicle in order to define parking lot pull through or pull in / back out style stalls.
- Plug & Car Icon Place the Icons in relation to the charger and car. Only one plug icon per charger should be used.
- Paint stalls and add an EV charging logo to indicate stalls are for EV charging only



Wayfinding

It is helpful to have signage that points drivers in the right direction or alerts them that a charging station is nearby. This reduces EV drivers from needing take their eyes off the road to search for nearby stations and raises awareness of the existence of a charging network to prospective EV purchasers.

 **Electric Vehicle Charging Station** 

HOW TO USE:

1. Park your electric vehicle in the charging station.
2. Connect the charger to your vehicle.
3. Scan the QR code on the charger screen.
4. Enter the requested information and press the **START CHARGE** button.
5. Unplug your vehicle when charging is complete or the 2-hour time limit is reached.
6. Relocate your vehicle to a regular parking stall.

ELECTRIC VEHICLE ETIQUETTE

- Do not use charging station if you are unable to move vehicle after charging or 2-hour time limit has expired.
- Store the cord after use.
- Do not unplug other vehicles.
- Actively charging vehicles only.

 For technical issues call:
1-866-898-3873
All other inquiries email: CommuterServices@fraserhealth.ca

 **Electric Vehicle Charging Station** 

HOW TO USE:

1. Park your electric vehicle in the charging station.
2. Connect the charger to your vehicle.
3. Scan the QR code on the charger screen.
4. Enter the requested information and press the **START CHARGE** button.
5. Unplug your vehicle when charging is complete or the 2-hour time limit is reached.
6. Relocate your vehicle to a regular parking stall.

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**EXCEPT FOR
ACTIVELY CHARGING
VEHICLE**

**2 Hour Maximum
STRICTLY ENFORCED**

Unauthorized vehicles will be ticketed and/or towed at owner's expense.

User Etiquette

Here are some potential user etiquette guidelines that can help ensure turnover and promote fair usage of EVCS in hospital sites for staff and visitors.

Use Charging Stations Only When Necessary

Use the charging stations only when your electric vehicle needs to be charged. Avoid using the charging stations as regular parking spots or for extended periods.

Be Courteous to Other Users

Please do not unplug other vehicles.

Follow Time Limits

Do not use charging station if you are unable to move vehicle after charging or 2-hour time limit has expired.

Do Not Tamper with Equipment

Do not attempt to tamper with the charging equipment, remove or modify any components, or damage the equipment in any way. Ensure that you store the cord after use.

Disclaimer

EVCS users will have to agree to the following disclaimer before starting their charging session.

BY USING THIS ELECTRIC VEHICLE CHARGING STATION ("STATION") OWNED BY Provincial Health Services Authority (PHSA), I AGREE AS FOLLOWS:

EVCS RULES

By using this charging station, I agree to:

- Read and understand the rules and regulations for using the EV charging stations.
- Move my electric vehicle after 2 hours of charging to allow for turnover and availability.
- Follow the text/email notifications I receive throughout my charging session to ensure prompt movement of my electric vehicle.
- Follow electric vehicle etiquette, including:
 - Not using the electric vehicle charging station if unable to relocate my electric vehicle once charge is complete and/or the 2-hour time limit has expired.
 - Storing the cord once I am finished.
 - Not unplugging others.
 - Using the station for actively charging vehicles only.

INSTRUCTIONS

I agree to follow these instructions to use this EVCS:

- 1) Park my electric vehicle in the reserved electric vehicle charging station stall only.
- 2) Connect the charger to my vehicle.
- 3) Scan the QR code on the charger screen.
- 4) Enter the requested information and touch the START CHARGE button.
- 5) Unplug my vehicle to stop charging when complete and/or when the charging time limit of 2 hours is reached.
- 6) Relocate my vehicle to a regular parking stall within 15 minutes.

I will use this station strictly in accordance with PHSA's instructions.

ASSUMPTION OF RISK

I voluntarily accept any and all risks associated with my use of this station. I understand that such risks may include, without limitation, property damage (e.g. to my electric vehicle), personal injury, or death. I am solely responsible for informing myself of such risks.

RELEASE

I release, waive, and forever discharge any and all claims that I have or may have in the future against PHSA and its directors, officers, employees, contractors, agents, and representatives (collectively, "PHSA Personnel") in connection with my use of this station. I will not bring such claims against the PHSA Personnel.

INDEMNITY

I will indemnify and hold harmless the PHSA Personnel from and against any and all losses and damages suffered or incurred by the PHSA Personnel resulting from my use of this station other than in accordance with PHSA's instructions.

COLLECTION NOTICE

Electrum Charging Solutions, on behalf of Provincial Health Services Authority (PHSA) collects certain personal information from its users for the purpose of administering the charging service and the subsequent payment. This information is collected under section 26(c) of the Freedom of Information and Protection of Privacy Act (FOIPPA) and will only be used for the specific purposes outlined.

I acknowledge that PHSA collects certain personal information from me for the purpose of administering the charging service and the subsequent payment. I understand that this information will only be used for the specific purposes outlined.

AGREEMENT

By pressing "I UNDERSTAND", I agree to the conditions set out above

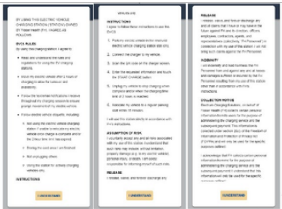
BY USING THIS ELECTRIC VEHICLE CHARGING STATION ("STATION") OWNED BY Provincial Health Services Authority (PHSA), I AGREE AS FOLLOWS: EVCS RULES By using this charging station, I agree to: • Read and understand the rules and regulations for using the EV charging stations. • Move my electric vehicle after 2 hours of charging to allow for turnover and availability. • Follow the text/email notifications I receive throughout my charging session to ensure prompt movement of my electric vehicle. • Follow electric vehicle etiquette, including: ◦ Not using the electric vehicle charging station if unable to relocate my electric vehicle once charge is complete and/or the 2-hour time limit has expired. ◦ Storing the cord once I am finished. ◦ Not unplugging others. ◦ Using the station for actively charging vehicles only. I UNDERSTAND	INSTRUCTIONS I agree to follow these instructions to use this EVCS: 1. Park my electric vehicle in the reserved electric vehicle charging station stall only. 2. Connect the charger to my vehicle. 3. Scan the QR code on the charger screen. 4. Enter the requested information and touch the START CHARGE button. 5. Unplug my vehicle to stop charging when complete and/or when the charging time limit of 2 hours is reached. 6. Relocate my vehicle to a regular parking stall within 15 minutes. I will use this station strictly in accordance with PHSA's instructions. ASSUMPTION OF RISK I voluntarily accept any and all risks associated with my use of this station. I understand that such risks may include, without limitation, property damage (e.g. to my electric vehicle), personal injury, or death. I am solely responsible for informing myself of such risks. RELEASE I release, waive, and forever discharge any and all I UNDERSTAND	my use of this station. I will not bring such claims against the PHSA Personnel. INDEMNITY I will indemnify and hold harmless the PHSA Personnel from and against any and all losses and damages suffered or incurred by the PHSA Personnel resulting from my use of this station other than in accordance with PHSA's instructions. COLLECTION NOTICE Electrum Charging Solutions, on behalf of Provincial Health Services Authority (PHSA) collects certain personal information from its users for the purpose of administering the charging service and the subsequent payment. This information is collected under section 26(c) of the Freedom of Information and Protection of Privacy Act (FOIPPA) and will only be used for the specific purposes outlined. I acknowledge that PHSA collects certain personal information from me for the purpose of administering the charging service and the subsequent payment. I understand that this information will only be used for the specific purposes outlined. AGREEMENT By pressing "I UNDERSTAND", I agree to the conditions set out above. I UNDERSTAND
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User Experience:



Step 1 EVCS User parks in EV stall and scans QR code with their cell phone

Step 2 User receives disclaimer agreement on cell phone

A sequence of three smartphone screens showing the registration process. The first screen shows a "Start Charging" button. The second screen shows a "NEXT" button. The third screen shows a form with fields for "Licence Plate", "Phone", and "Email", with a "CONFIRM AND START" button at the bottom.

Step 3 After agreeing to the disclaimer, the user will enter their licence plate and phone number

Step 4 Once all requested information has been entered, the user can now start their charging session. The user will receive a text message notifying them of the charging session start time and max duration.



Step 5 User will receive another text message later on, informing them their charging session will expire soon

Step 6 At the end of the charging session, the user will receive a final text message notifying them the session is complete and to relocate their vehicle



Maintenance

Maintenance for the EVCS will be taken care of by a preferred vendor and TDMCS by monitoring the EVCS dashboard or taking action when a complaint is received from the site or user. The EVCS dashboard allows for live monitoring and off site resets. If an issue arises, TDMCS and the vendor will be able to see the status of the charging station (shown below) change to an error state.

