



# Request for Proposals

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Peninsula Clean Energy, a California Joint Powers Authority, is seeking proposals from interested vendors for *Telematics-Based Electric Vehicle Managed Charging Pilot*.

**Responses are due September 27, 2021, at 5 PM Pacific Time.**

## Table of Contents

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1 RFP OVERVIEW .....	2
2. ABOUT PENINSULA CLEAN ENERGY .....	3
3 RFP SCHEDULE .....	4
4 PROPOSAL SUBMITTAL .....	5
5 CONTENT OF RESPONSE.....	6
6 REVIEW AND SELECTION PROCESS .....	9
7 AGREEMENT TERMS .....	10
8 INCLUSION OF NON-PARTICIPATING AGENCIES .....	11
9 SUPPLIER DIVERSITY .....	12
10 PENINSULA CLEAN ENERGY LEGAL OBLIGATIONS.....	13
11 GENERAL TERMS AND CONDITIONS.....	14
12 DETAILED PROJECT DESCRIPTION AND SCOPE.....	15

# 1 RFP OVERVIEW

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Peninsula Clean Energy Authority issues this Request for Proposals (RFP) to seek offers from qualified providers for telematics-based electric vehicle (EV) managed charging systems. The contract will be taken to Peninsula Clean Energy's Board of Directors for final approval.

This RFP-

- Provides general background on Peninsula Clean Energy
- Describes the service sought by Peninsula Clean Energy (scope of work)
- Provides an opportunity for Proposers to describe their qualifications and experience and explain how they can contribute to services requested.

## 1.1 Background

Peninsula Clean Energy's mission is to reduce greenhouse gas (GHG) emissions in its service territory, which includes San Mateo County, and beginning in 2022, the city of Los Banos. California's goal is to be carbon neutral by 2045, which PCE aims to support through investment in local community programs. Transportation emissions are the most significant challenge to deep decarbonization in San Mateo County. These emissions account for about 50% of direct emissions within the County.

In support of Peninsula Clean Energy's decarbonization efforts and the goal of providing 100% renewable energy on a 24/7 time-coincident basis, Peninsula Clean Energy is seeking to pilot vehicle telematics-based EV managed charging systems. The focus of this pilot is on residential EV charging with the objective of reducing the overall daily peak demand on the electrical grid.

Peninsula Clean Energy intends to build on prior learning in this phase of the pilot with an expansion that is estimated to include 1,000 – 2,000 residential customers with EVs. This phase of the pilot will seek to further validate EV load shifting potential and also evaluate the relative difference in performance from customer groups exposed to different incentives as an experimental component of the pilot.

The contractor selected in this RFP will be utilized for the pilot outlined further in this RFP, however lessons learned from this stage of the pilot will be used to inform a future program that would be made available as an optional program to any residential customers with qualifying EVs. If this phase of the pilot proves successful and Peninsula Clean Energy is satisfied with the contractor's performance, there is potential to retain the selected contractor as the program scales to include the growing number of EVs in the service territory, currently approximately 26,000.

## 2. ABOUT PENINSULA CLEAN ENERGY

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Peninsula Clean Energy is a Community Choice Aggregation agency. It is the official electricity provider for San Mateo County and, beginning in 2022, for the City of Los Banos. Founded in 2016 with a mission to reduce greenhouse gas emissions in the county, the agency serves 295,000 customers by providing more than 3,500 gigawatt hours annually of electricity that is 100% carbon-free and at lower cost than PG&E. As a community-led, not-for-profit agency, Peninsula Clean Energy makes significant investments in our communities to expand access to sustainable and affordable energy solutions. Peninsula Clean Energy is on track to deliver electricity that is 100% renewable by 2025. The agency has earned investment grade credit ratings from Moody's and Fitch. For more information on Peninsula Clean Energy, please go to [www.peninsulacleanenergy.com](http://www.peninsulacleanenergy.com).

### 3 RFP SCHEDULE

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Event	Date
RFP posted	August 30, 2021
Deadline to submit questions	September 10, 2021
Answers to submitted questions are posted	September 17, 2021
Deadline to submit responses	September 27, 2021, 5 PM Pacific Time
Interviews and product demonstrations	October 4 – 8, 2021, approximate
Winner notified	October 15, 2021, approximate

## 4 PROPOSAL SUBMITTAL

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Proposals must be received on or before the above deadline and submittal must be by email to [programs@peninsulacleanenergy.com](mailto:programs@peninsulacleanenergy.com) with the subject "Proposal - <Vendor Name> - EV Managed Charging".

By participating in Peninsula Clean Energy's RFP process, a Proposer acknowledges that it has read, understands, and agrees to the terms and conditions set forth in these RFP instructions. Peninsula Clean Energy reserves the right to reject any offer that does not comply with the requirements identified herein. Furthermore, Peninsula Clean Energy may, in its sole discretion and without notice, modify, suspend, or terminate the RFP without liability to any organization or individual. The RFP does not constitute an offer to buy or create an obligation for Peninsula Clean Energy to enter into an agreement with any party, and Peninsula Clean Energy shall not be bound by the terms of any offer until Peninsula Clean Energy has entered into a fully executed agreement. Only electronic submittals will be accepted.

## 5 CONTENT OF RESPONSE

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Interested vendors must submit the following documents (except those marked “Optional”) to be considered for awarding of this proposal:

1. **Cover Letter with the following elements (1 page):**

1. Reference to this RFP
2. Legal business name, address, telephone number, and business status (corporation, limited partnership, individual, etc.).
3. Name of vendor’s representative with respect to this RFP along with telephone number and email address.
4. A signature of an authorized individual.

2. **Approach:**

1. Describe how you would achieve the Scope of Work described below.
2. A description and examples of how the administrative component of your platform works, how Peninsula Clean Energy would manage the system from an administrative perspective, etc. What controls are available? How can Peninsula Clean Energy adjust customer rate tariffs, incentives, and schedule demand-response events, etc.?
3. Describe approach for administrative support to PCE staff.
4. Provide examples of data analytics, dashboards, and reporting that would be available, in particular those that include 24-hour load shapes and analysis of peak-reduction that is attributable to the managed charging occurring as a result of the platform.
5. Provide examples of the customer interface, user experience, how customers are onboarded in your platform, and the ongoing customer experience.
6. Describe your approach and how you provide customer support for customers with questions or issues and how you’ll be able to handle these requests at the scale described.
7. Detail how your platform conducts vehicle communication and managed charging functionality, including any relevant third-party partnerships that have been secured for ongoing functionality.
8. Describe the platform’s current technical market reach as a percentage of on-road passenger EVs in use in California given the platform’s relevant requirements for vehicle participation. List of all vehicle makes and models (and model years and/or trim levels, if applicable) with which your company has successfully demonstrated charge management abilities. For each vehicle make and model, please list all relevant requirements for vehicle participation (e.g. active OnStar or Nissan Connect subscription, etc.).
9. Describe how you intend to scale your platform to include an increasing percent of on-road passenger vehicles. What are some of the obstacles to doing so and your approach to overcoming these challenges? Include a non-confidential list of vehicle makes and models that your company expects to be able to manage charging within the next year and an integration timeline.

10. Provide examples of past implementations with other utilities, including the charge management parameters, number of customers enrolled, peak-reduction achieved or other results, etc.
  11. Outline how charging data obtained in your platform could potentially be used for participation in the California Low Carbon Fuel Standard and how your data reporting templates minimize the level of effort on behalf of Peninsula Clean Energy staff to provide data for this program.
  12. Specify your planned enhancements over the next 12 to 18 months with special attention to features relevant to the pilot.
  13. Describe your cybersecurity protocols and how you ensure customer privacy and data security.
3. **Qualifications and Experience:**
1. Demonstrated load management results in previous pilots or programs.
  2. What vehicle data your company is utilizing to conduct charge management and how these data are provided to Peninsula Clean Energy.
  3. Ability to innovate and meet project objectives.
  4. Describe your company's financial strength (investment rounds, etc.), major partners, and position in the market.
4. **Price:**
1. Include the price to provide the services outlines in this RFP, including both upfront startup and development costs and ongoing subscription costs. Ongoing, annual subscription costs should be referenced on a tiered basis, as indicated below:
    - 0- 2,000 vehicles
    - 2,001 - 4,9999 vehicles
    - 5,000 – 9,9999 vehicles
    - 10,000 – 19,9999 vehicles
    - 20,000 – 29,999 vehicles
    - 30,000+ vehicles
5. **References:**
1. Provide 1-3 references, preferably from other CCAs or utilities, that speak to results demonstrated from previous pilots or programs, your managed charging platform, customer service to both the client and end-users, administrative tools, reporting features, etc.
6. **Certificates of Insurance for the following coverages:**
1. Commercial General Liability – for bodily injury, property damage, and personal injury \$1,000,000 – each occurrence \$2,000,000 – in aggregate
  2. Worker's Compensation and Employer's' Liability (EPL)– injury or death, each accident At least \$1,000,000 (EPL not required for Sole Proprietor)
7. **Supplier Diversity Questionnaire (Optional):**
1. Peninsula Clean Energy's Supplier Diversity Questionnaire can be downloaded at: <https://www.peninsulacleanenergy.com/wp->

content/uploads/2020/05/Peninsula-Clean-Energy-Supplier-Diversity-Questionnaire.docx.

2. Please note, your response (or lack thereof) will have no impact on your contract status or eligibility to work with Peninsula Clean Energy in accordance with state law.



## 6 REVIEW AND SELECTION PROCESS

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Evaluation will be based on a combination of quantitative and qualitative criteria. Peninsula Clean Energy will evaluate each Offer against these criteria and select a subset of Offers to move to the Shortlist phase. The most qualified individual or firm will be recommended by the RFP Evaluation Committee based on the overall strength of each proposal and is not restricted to considerations of any single factor such as cost. The criteria used as a guideline in the evaluation will include, but not be limited to, the following:

- 6.1. Qualifications and experience of the entity, including capability and experience of key personnel and experience with other public and/or private agencies to provide an EV managed charging platform at the scale described for this pilot.
- 6.2. History of successfully performing managed charging pilots or programs for other CCAs or utilities with demonstrated results. Experience with other related load shaping and electric vehicle programs may also be considered.
- 6.3. Completeness of the proposed approach, including clarity of understanding of the platform and other key objectives to be provided.
- 6.4. Demonstrated ability to manage EV charging with multiple vehicle makes and models. Preference will be given to bidders who can demonstrate managed-charging capabilities with the most vehicle types and have a clear strategy to increase vehicle eligibility and likelihood of success.
- 6.5. Quality and ease of use of customer interface, overall customer experience, and customer support provided.
- 6.6. Sophistication of administrative and data reporting and analytics features available to Peninsula Clean Energy staff in the platform, particularly the ability to easily customize load shaping activity and clearly display load shapes and quantifiable measurements of how your platform is performing such as kW reduced from peak as a direct result of managed charging, counter-factual analysis, historical comparisons, etc.
- 6.7. Existence of and circumstances surrounding any claims and violations against you or your organization.
- 6.8. Financial viability of proposer.
- 6.9. Cost to Peninsula Clean Energy for the primary services described by this RFP.
- 6.10. References

## 7 AGREEMENT TERMS

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Awardees will be required to enter into a contract using Peninsula Clean Energy's contract terms. Modification of the contract terms may be proposed by the Proposer for consideration by Peninsula Clean Energy but are not guaranteed to be accepted. Rejection of the final terms from Peninsula Clean Energy is grounds for disqualification. Shortlisted participants will be required to provide any redlines to the standard terms ahead of the interview phase.

Peninsula Clean Energy's Software as A Service (SAAS) contract terms are available for review here:

<https://www.peninsulacleanenergy.com/wp-content/uploads/2021/08/Contract-2-NON-STANDARD-Template-for-SAAS-VENDORS-May-2021.docx>

## 8 INCLUSION OF NON-PARTICIPATING AGENCIES

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PCE is asking all responding vendors to indicate their willingness to extend the terms of resulting contracts, inclusive of price, to other interested California-based municipalities, municipally-owned utilities and community choice energy programs. While this clause in no way commits these agencies to contract with PCE's awarded consultant, nor does it guarantee any additional orders will result, it does allow other agencies, at their discretion, to make use of PCE's competitive process (provided said process satisfies their own procurement guidelines) and purchase directly from the awarded contractor. All purchases made by other agencies shall be understood to be transactions between that agency and the awarded vendor; PCE shall not be responsible for any such purchases.

## 9 SUPPLIER DIVERSITY

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Consistent with its strategic goals, Peninsula Clean Energy has a strong commitment to foster a work environment that espouses sustainable business practices and cultivates a culture of innovation, diversity, transparency, integrity, and commitment to the organization's mission and the communities it serves. As part of that goal, Peninsula Clean Energy strives to ensure its use of vendors and suppliers who share its commitment to sustainable business and inclusionary practices.

To help ensure an inclusive set of vendors and suppliers, Peninsula Clean Energy's policy requires it to:

1. Strive to use local businesses and provide fair compensation in the purchase of services and supplies;
2. Proactively seek services from local businesses and from businesses that have been Green Business certified and/or are taking steps to protect the environment; and
3. Engage in efforts to reach diverse communities to ensure an inclusive pool of potential suppliers.

General Order 156 (GO 156) is a California Public Utilities Commission ruling that requires utility entities to procure at least 21.5% of their contracts with majority women-owned, minority-owned, disabled veteran-owned and LGBT-owned business enterprises' (WMDVLGBTBEs) in all categories. Qualified businesses become GO 156 certified through the CPUC and are then added to the GO 156 Clearinghouse database.

The CPUC Clearinghouse can be found here: [www.thesupplierclearinghouse.com](http://www.thesupplierclearinghouse.com). Peninsula Clean Energy's policies and commitment to diversity are consistent with the principles of GO 156, and, therefore, respondents to this RFP are asked to voluntarily disclose their GO 156 certification status as well as their efforts to work with diverse business enterprises, including those owned or operated by women (WBE), minorities (MBE), disabled veterans (DVBE), and lesbian, gay, bisexual, or transgender people (LGBTBE).

As a public agency and consistent with state law, Peninsula Clean Energy will not use any such provided information in any part of its decision-making or selection process. Rather, Peninsula Clean Energy will use that information solely to help evaluate how well it is conforming to its own policies and goals. Pursuant to California Proposition 209, Peninsula Clean Energy does not give preferential treatment based on race, sex, color, ethnicity, or national origin.

## 10 PENINSULA CLEAN ENERGY LEGAL OBLIGATIONS

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Peninsula Clean Energy is not obligated to respond to any offer submitted as part of the RFP. All parties acknowledge that Peninsula Clean Energy is a public agency subject to the requirements of the California Public Records Act, Cal. Gov. Code section 6250 et seq. Peninsula Clean Energy acknowledges that another party may submit information to Peninsula Clean Energy that the other party considers confidential, proprietary, or trade secret information pursuant to the Uniform Trade Secrets Act (Cal. Civ. Code section 3426 et seq.), or otherwise protected from disclosure pursuant to an exemption to the California Public Records Act (Government Code sections 6254 and 6255) (“Confidential Information”). Any such other party acknowledges that Peninsula Clean Energy may submit to the other party Confidential Information. Upon request or demand of any third person or entity not a party to this RFP (“Requestor”) for production, inspection and/or copying of information designated as Confidential Information by a party disclosing such information (“Disclosing Party”), the party receiving such information (“Receiving Party”), as soon as practical but within three (3) business days of receipt of the request, shall notify the Disclosing Party that such request has been made, by telephone call, letter sent via email and/or by US Mail to the address or email address listed on the cover page of the RFP. The Disclosing Party shall be solely responsible for taking whatever legal steps are necessary to protect information deemed by it to be Confidential Information and to prevent release of information to the Requestor by the Receiving Party. If the Disclosing Party takes no such action, after receiving the foregoing notice from the Receiving Party, the Receiving Party shall be permitted to comply with the Requestor's demand and is not required to defend against it.

## 11 GENERAL TERMS AND CONDITIONS

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1. **Peninsula Clean Energy's Reserved Rights:** Peninsula Clean Energy may, at its sole discretion: withdraw this Request for Proposal at any time, and/or reject any or all materials submitted. Respondents are solely responsible for any costs or expenses incurred in connection with the preparation and submittal of the materials for this RFP.
2. **Public Records:** All documents submitted in response to this RFP will become the property of Peninsula Clean Energy upon submittal and will be subject to the provisions of the California Public Records Act and any other applicable disclosure laws.
3. **No Guarantee of Contract:** Peninsula Clean Energy makes no guarantee that a contractor and/ or firm added to the qualified vendor list will result in a contract.
4. **Response is Genuine:** By submitting a response pursuant to this RFP, Respondent certifies that this submission is genuine, and not sham or collusive, nor made in the interest or on behalf of any person not named therein; the submitting firm has not directly or indirectly induced or solicited any other submitting firm to put in a sham bid, or any other person, firm or corporation to refrain from submitting a submission, and the submitting firm has not in any manner sought by collusion to secure for themselves an advantage over any other submitting firm.

## 12 DETAILED PROJECT DESCRIPTION AND SCOPE

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### **Project Overview:**

Peninsula Clean Energy is seeking a telematics-based managed charging system for its residential EV Managed Charging pilot project. The project is in support of Peninsula Clean Energy's decarbonization strategy by developing systems that shift daily energy demand from critical on-peak hours to hours that are better served by renewable energy.

The EV Managed Charging pilot is currently focused on reducing the overall peak demand that occurs during daily residential EV charging. The Managed Charging pilot is now in its second phase, expanding on a prior proof of concept test. Peninsula Clean Energy intends to further validate peak reduction potential in this pilot, as well as gather lessons learned, to inform a potential future expansion into a full-scale program that would be made available to all eligible customers.

The scope of this phase of the pilot is expected to enroll approximately 1,000 – 2,000 residential customers with EVs. PCE is planning to lead customer recruitment, targeting known residential customers with EVs in the quarter preceding the beginning of the pilot. The pilot is anticipated to run for 9 – 12 months, after initial development and customer recruitment and onboarding stages.

This phase of the project also includes a customer experiment to test various incentives that encourage participation and performance in a managed charging program and is a collaboration with the University of California, Davis. Enrolled customers in this pilot will be randomly placed into a control and 3-6 treatment groups to ascertain the relative peak reduction impacts and customer performance in response to various incentives. The incentives to be tested will likely include a flat rebate (e.g. \$10/month credit), a price-reduction for charging that occurs off-peak, and a group with no incentives except for managed charging information. Incentives will be provided by PCE to the customer in the form of a bill credit, utilizing information from the managed charging system (e.g. monthly total kWh of off-peak charging per customer), as necessary. If feasible, the experiment may also consider further analysis between treatment groups that receive a full charge to the maximum amount set by the customer and charging levels less than full (e.g. 80% charge).

If Peninsula Clean Energy deems the pilot a successful effort in reducing peak energy demand, is a cost-effective load shifting strategy, and, subject to Board of Directors approval, the contractor may be retained as the pilot transitions into a full-scale program.

### **Scope of Work:**

The scope of work of this project is outlined in the key objectives and other sections below.

**Key Objectives:**

1. Manage EV charging for an estimated 1,000 – 2,000 customers with various home charging setups (e.g. Level 1, Level 2, etc.), charge profiles, and departure times, moving as much charging as possible and acceptable to the customer, to off-peak hours.
2. Provide a managed charging solution that is easy to understand and operate, minimizing the level of effort needed from a customer perspective.
3. Provide Peninsula Clean Energy with a flexible and robust, but easy to manage administrative controls and data reporting features, which allows PCE to evaluate customer charging data and performance of the managed charging system.
4. Quantify the amount of load-shift that is achievable through the managed charging system and various customer groups receiving different incentives, to help inform a future program.
5. Ensure 90+% customer satisfaction with the App and customer service provided.

**12.1 Pilot Tasks**

1. Participate in a limited number of meetings with the academic research team to a) if necessary, refine research methodology based on platform capabilities, and b) determine how to operationalize the research design in the system.
2. Configure managed charging platform based on identified requirements, outlined below.
3. Deploy managed charging platform, customer interface and communications, and program reporting dashboards, described below.
4. Provide customer support during onboarding and throughout the pilot period, including troubleshooting any issues or questions that customers may have while enrolling or participating in the managed charging platform, provide in-App and external outreach materials and instructional user guides for customers, etc.
5. Support Peninsula Clean Energy and other collaborators during the estimated 9-12 month pilot period, performing design iterations, feature updates, and software fixes, as needed.
6. Assist in data evaluation and analysis, as necessary, to support Peninsula Clean Energy's load-shifting and experimental objectives.
7. Provide final report on the managed charging system performance during the pilot period, technical challenges and proposed solutions, scaling potential noting any technical challenges to expansion, and other lessons learned for consideration in future program design of an EV managed charging program.



## 12.2 Required Managed Charging System Specifications

### 12.2.1 Managed Charging System Requirements

1. Ability to connect with customer vehicles through telematics (no hardware needed) to read vehicle data and start and stop vehicle charging based on parameters set by Peninsula Clean Energy and customer inputs for both Level 1 (120V) and Level 2 (208V – 240V) charging.
2. Bidders should be able to demonstrate successful charge management with a broad array of vehicle makes and models via telematics platform and preference will be given to contractors with proven abilities to manage the most vehicle types. Bidders should provide a list of supported vehicles.
3. Minimum required data to be collected from the vehicle and/or user include:
  - a. Vehicle make/model and model year
  - b. Vehicle Identification Number (VIN)
  - c. Vehicle location (latitude and longitude)
  - d. Battery state of charge
  - e. Plug-in and plug-out times
  - f. Total plug-in duration
  - g. Charge start and end times per session, specifically indicating if multiple charging start/stop times were used in a single charging session as a result of charge management
  - h. Total charge duration
  - i. Total energy dispensed per session
  - j. Charging rate used per session (in average kW per session)
  - k. Instantaneous charging rate (in kW), per vehicle and in aggregate
  - l. Customer's intended time of departure
  - m. Customer engagement in App or desktop website (e.g. frequency of usage, etc.)
4. Establish ongoing data transfer mechanism (e.g. API data stream or daily transfer into cloud storage or SFTP, etc.) to provide Peninsula Clean Energy with all customer data obtained during the pilot.

### 12.2.2 Customer Interface Requirements:

Contractor shall provide a white-labelled customer interface that provides the following, at a minimum:

1. White-labeled platform that Peninsula Clean Energy can customize with its branding.
2. Available as a mobile app and desktop website.
3. Onboarding process that includes the collection of vehicle make/model and VIN information as well as customer contact information. Customers should be able to select their rate tariff, or if possible, rate tariff is determined by their service account identification number.
4. Customer charge management inputs that include rate tariff, expected departure time, and minimum desired battery state of charge.
5. Customer performance metrics, including customer's cost of EV charging, factoring in their EV charging usage on their rate schedule, a comparison in fuel costs to a typical gasoline vehicle fuel costs for an estimated equivalent usage, the amount of charging done off-peak as a percentage of overall residential charging, duration of enrollment, and other metrics to be determined.
6. Customer notifications (e.g. text, in-app notifications, and/or email) for events such as: reminder to plug their car in, hours to avoid charging, etc.
7. Ability for customer to temporarily opt-out or override managed charging settings and charge immediately.
8. Driver support via email or phone to troubleshoot customer issues, questions, and complaints.

### 12.2.3 Administrative Interface

At a minimum, the following functionality should be available for Peninsula Clean Energy to administer the platform for its customers:

1. Ability to add and remove administrative users within Peninsula Clean Energy.
2. The platform should allow customers to select their rate schedules and allow Peninsula Clean Energy to make any adjustments to these rate schedules, create new rate schedules, or provide new customer incentive offerings, as needed.
3. Add, remove, and adjust various incentives and offers for customers.
4. Remove or unenroll customers from the platform.
5. Assign customers to various groups or categories to for evaluation.

6. Draft and edit customer-facing content such as push notifications and/or emails to be delivered to the customers, based on parameters set by Peninsula Clean Energy.

#### 12.2.4 Reporting Requirements:

At a minimum, the following should be provided to Peninsula Clean Energy as a dashboard with the ability to download data at will and analyze reports on a regular (e.g. monthly) basis:

1. Total number of enrolled vehicles.
2. Instantaneous energy usage at any given time among all enrolled vehicles.
3. Total charging energy by time period (e.g. peak, part-peak, off-peak).
4. 24-hour averaged load profile for EV charging with enrolled vehicles and a differentiation in load profiles among managed vs unmanaged charging.
5. Average charging rate (average kW).
6. Breakdown of how many EVs charge at various rates (e.g. Level 1, Level 2, etc.).
7. Customer performance metrics such as number of opt-outs, etc.
8. Counter-factual metrics that summarize load, at any hour of the day, had managed charging not occurred, to demonstrate energy peak reduction that is directly attributable to the managed charging system.
9. Historical analyses that show customer load shapes, at an aggregate and individual level, over time.
10. Ability to filter or otherwise place customers into distinct groups to allow for evaluation on the parameters outlined above in comparison to each other, in support of Peninsula Clean Energy's incentives experiment.

#### 12.2.5 Data compatible with the California Air Resources Board, Low Carbon Fuel Standard (LCFS) Program

Contactors should be familiar with the LCFS program and provide residential EV charging data that is compatible with LCFS Guidance 19-03 and 19-04, including charging session details that contain VIN, geofenced location (latitude and longitude), energy dispensed per session, charging start and end time, etc. per unique charging session. Data should be able to be downloaded in a format compatible with LCFS with minimal additional manipulation.

### **12.3 Plan to expand charge management abilities to additional vehicle makes and models**

Contractor must demonstrate a clear path to expand charge management abilities beyond vehicles that are currently supported. The plan should include both vehicle makes and models that are currently compatible with managed charging systems but otherwise not currently enrolled, and optionally, vehicles that do not have the hardware and/or current software subscriptions or licenses to conduct managed charging. This can include a development strategy, contractual relationships, and/or hardware solutions, etc.

### **12.4 Optional, but desirable features**

The following features are desirable, but not a critical need at the commencement of the contract. Bidders should speak to how these features could be developed, if not already available, including the level of effort, cost, and timing that would be required to develop these features.

1. Optimized charging profiles with dynamic start times. This feature would allow vehicles to start charging dynamically, based on the state of charge of the battery, charging rate, and expected departure time, to allow charging to be staggered among all enrolled vehicles and avoid “timer peaks” that may occur at the beginning of off-peak hours.
2. Machine learning or other ability to learn charging behaviors such as plug-in and plug-out times and typical charging rates per vehicle, to inform managed charging algorithms beyond customer inputs.