



STATE OF CALIFORNIA

GRANT REQUEST FORM (GRF)

CEC-270 (Revised 12/2019)

CALIFORNIA ENERGY COMMISSION

A) New Agreement # ZVI-21-014 (to be completed by CGL office)

B) Division	Agreement Manager:	MS-	Phone
Fuels and Transportation Division	Esther Odufuwa	27	916-477-1564

C) Recipient's Legal Name	Federal ID #
ChargePoint, Inc.	26-1070576

D) Title of Project
ChargePoint Depot Charging Pantograph Solution

E) Term and Amount

Start Date	End Date	Amount
02/16/2022	03/31/2026	\$1,999,154

F) Business Meeting Information

☐ ARFVTP agreements \$75K and under delegated to Executive Director

Proposed Business Meeting Date: 02/16/2022 Consent ☐ Discussion ☒

Business Meeting Presenter: Michelle Vater Time Needed: 5 minutes

Please select one list serve. Altfuels (AB118- ARFVTP)

Agenda Item Subject and Description:

CHARGEPOINT, INC. Proposed resolution approving Agreement ZVI-21-014 with ChargePoint, Inc. for a \$1,999,154 grant to develop an automated, inverted pantograph to support the adoption of MD/HD EVs, particularly electric buses and port vehicles such as yard trucks and straddle carriers, and adopting staff's determination that this project is exempt from CEQA. (General Fund Funding) Contact: Esther Odufuwa (Staff Presentation: 5 minutes)

G) California Environmental Quality Act (CEQA) Compliance

1. Is Agreement considered a "Project" under CEQA?

☒ Yes (skip to question 2) ☐ No (complete the following (PRC 21065 and 14 CCR 15378)):

Explain why Agreement is not considered a "Project":

Agreement will not cause direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment because

2. If Agreement is considered a "Project" under CEQA:

a) ☒ Agreement **IS** exempt.

☐ Statutory Exemption. List PRC and/or CCR section number:

☒ Categorical Exemption. List CCR section number: 15301 "Existing Facilities", 15303 "New Construction or Conversion of Small Structures"; 15304 "Minor Alterations to Land"

☐ Common Sense Exemption. 14 CCR 15061 (b) (3) Explain reason why Agreement is exempt under the above section:

Cal. Code Regs., tit. 14, sec. 15301 provides that projects which consist of the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration

**GRANT REQUEST FORM (GRF)**

of existing public or private structures, facilities, mechanical equipment, or topographical features, and which involve negligible or no expansion of use beyond that existing at the time of the lead agency's determination, are categorically exempt from the provisions of the California Environmental Quality Act. This project involves installation of one electric vehicle pantograph charger. The pantograph system includes an articulating arm that ranges between 12"-72", a mast/boom that is approximately the size of a light pole, and a PowerLink approximately the size of a microwave. At the existing site, the electric vehicle charging station will be installed on a new concrete pad adjacent to existing pavement and connecting to existing electrical infrastructure. Therefore, the project falls within section 15301 and will not have a significant effect on the environment.

Cal. Code Regs., tit. 14, sec. 15303 provides that projects which consist of construction and location of limited numbers of new, small facilities or structures; installation of small new equipment and facilities in small structures; and the conversion of existing small structures from one use to another where only minor modifications are made in the exterior of the structure, are categorically exempt from the provisions of CEQA. This project involves installation of one electric vehicle pantograph charger. The pantograph system includes an articulating arm that ranges between 12"-72", a mast/boom that is approximately the size of a light pole, and a PowerLink approximately the size of a microwave. At the existing site, the electric vehicle charging station will be installed on a new concrete pad adjacent to existing pavement and connecting to existing electrical infrastructure. Therefore, the project falls within section 15303 and will not have a significant effect on the environment.

- b) ☐ Agreement **IS NOT** exempt. (consult with the legal office to determine next steps)

Check all that apply

- ☐ Initial Study
☐ Negative Declaration
☐ Mitigated Negative Declaration
☐ Environmental Impact Report
☐ Statement of Overriding Considerations

H) List all subcontractors (major and minor) and equipment vendors: (attach additional sheets as necessary)

Legal Company Name:	Budget
TBD (Pantograph structure material and installation from subcontractor) - \$80,000 Match Funding	\$
	\$
	\$

I) List all key partners: (attach additional sheets as necessary)



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Legal Company Name:

J) Budget Information

Funding Source	Funding Year of Appropriation	Budget List Number	Amount
General Fund	FY 21/22	601.129ZEV	\$1,999,154
Funding Source			\$
Funding Source			\$
Funding Source			\$
Funding Source			\$

R&D Program Area: Select Program Area TOTAL: \$1,999,154.00

Explanation for "Other" selection

Reimbursement Contract #:

Federal Agreement #:

K) Recipient's Contact Information**1. Recipient's Administrator/Officer**

Name: Laura Parsons

Address: 254 E. Hacienda Ave.

City, State, Zip: Campbell, CA
95008

Phone: 619-787-6455

E-Mail:

laura.parsons@chargepoint.com

2. Recipient's Project Manager

Name: Laura Parsons

Address: 254 E. Hacienda Ave.

City, State, Zip: Campbell, CA
95008

Phone: 619-787-6455

E-Mail:

laura.parsons@chargepoint.com

L) Selection Process Used☒ Competitive Solicitation Solicitation #: GFO-20-605☐ First Come First Served Solicitation Solicitation #:**M) The following items should be attached to this GRF**

1. Exhibit A, Scope of Work

2. Exhibit B, Budget Detail

3. CEC 105, Questionnaire for Identifying Conflicts

4. Recipient Resolution

5. CEQA Documentation

☒ Attached☒ Attached☒ Attached☒ N/A☐ Attached☐ N/A☒ Attached_____
Agreement Manager_____
Date_____
Office Manager_____
Date_____
Deputy Director_____
Date

Exhibit A SCOPE OF WORK

TECHNICAL TASK LIST

Task #	CPR	Task Name
1		Administration
2	X	Requirements & System Architecture
3	X	Prototyping
4	X	System Integration & Interoperability Testing
5		Project Fact Sheet
6		Data Collection & Analysis

KEY NAME LIST

Task #	Key Personnel	Key Subcontractor(s)	Key Partner(s)
1	Rex Jackson (ChargePoint, Inc.) Michael Hughes (ChargePoint, Inc.) Laura Parsons (ChargePoint, Inc.)	N/A	N/A
2	Laura Parsons (ChargePoint, Inc.) Joseph Howard (ChargePoint, Inc.) Lawrence Lee (ChargePoint, Inc.) Eric Sidle (ChargePoint, Inc.) Bill Ehlers (ChargePoint, Inc.) Brian Scott Hendrickson (ChargePoint, Inc.) Steven Farrell (ChargePoint, Inc.)	N/A	N/A
3	Laura Parsons (ChargePoint, Inc.) Randy Everman (ChargePoint, Inc.) Joseph Howard (ChargePoint, Inc.) Lawrence Lee (ChargePoint, Inc.)	TBD	TBD

	Eric Sidle (ChargePoint, Inc.) Bill Ehlers (ChargePoint, Inc.) Brian Scott Hendrickson (ChargePoint, Inc.) Steven Farrell (ChargePoint, Inc.)		
4	Laura Parsons (ChargePoint, Inc.) Joseph Howard (ChargePoint, Inc.) Lawrence Lee (ChargePoint, Inc.) Eric Sidle (ChargePoint, Inc.) Bill Ehlers (ChargePoint, Inc.) Brian Scott Hendrickson (ChargePoint, Inc.) Steven Farrell (ChargePoint, Inc.)	N/A	N/A
5	Laura Parsons (ChargePoint, Inc.) Joseph Howard (ChargePoint, Inc.) Lawrence Lee (ChargePoint, Inc.) Eric Sidle (ChargePoint, Inc.) Bill Ehlers (ChargePoint, Inc.) Brian Scott Hendrickson (ChargePoint, Inc.) Steven Farrell (ChargePoint, Inc.)		
6	Laura Parsons (ChargePoint, Inc.) Joseph Howard (ChargePoint, Inc.)	N/A	N/A

	Lawrence Lee (ChargePoint, Inc.) Eric Sidle (ChargePoint, Inc.) Bill Ehlers (ChargePoint, Inc.) Brian Scott Hendrickson (ChargePoint, Inc.) Steven Farrell (ChargePoint, Inc.)		
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GLOSSARY

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

Term/ Acronym	Definition
AC	Automation Controller
ACD	Automatic Connection Device
CAM	Commission Agreement Manager
CPR	Critical Project Review
DVT	Design Validation Testing
eBus(es)	Electric Bus(es)
ERD	Engineering Requirements Document
EV	Electric Vehicles
EVITP	Electric Vehicle Infrastructure Training Program
EVSE	Electric Vehicle Supply Equipment
EVT	Engineering Validation Testing
FTD	Fuels and Transportation Division
MD/HD	Medium and Heavy-duty
PRD	Product Requirements Document
PVT	Production Validation Testing
Recipient	ChargePoint, Inc.
RFID	Radio-frequency Identification
UCSI	Universal Smart Cable Interface

Background

The Budget Act of 2021 (AB 128, Ting, Chapter 21, Statutes of 2021, as amended by Senate Bill (SB) 129, Skinner, Chapter 69, Statutes of 2021 and SB 170, Skinner, Chapter 240, Statutes of 2021) appropriated \$785,000,000 from the General Fund to support infrastructure deployments and manufacturing projects for zero-emission light-duty and medium- and heavy-duty vehicles.

On August 7, 2020, the CEC released Grant Funding Opportunity entitled “BESTFIT Innovative Charging Solutions.” This competitive grant solicitation was to fund projects

that demonstrate transformative technology solutions and work to accelerate the successful commercial deployment of electric vehicle (EV) charging for both light-duty (LD) and medium- and heavy-duty (MD/HD) applications. In response to GFO-20-605, the Recipient submitted Proposal #6, which was proposed for funding in the CEC's Revised Notice of Proposed Awards on September 9, 2021. GFO-20-605 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:

MD/HD EVs have larger capacity batteries, which require longer dwell times due to power carrying limitations in conventional charging connectors. Additionally, the traditional charging cable and connector are often the first components to fail on electric vehicle supply equipment (EVSE) as they are often twisted, pulled, dropped, and driven over. Pantographs – automatic connection devices that mount to a structure and extend charging arms to transfer power to EVs without user interaction – have the capacity to deliver more power due to the large surface areas of the mating components, decreasing charging dwell times by nearly 500%. The pantograph removes the need for one of the most unreliable components of EVSE: the charging cable and connector. The pantograph can also improve the safety of the charging depot and its employees, when compared to traditional charging cables, since it does not require personnel to walk around a busy depot, plugging and unplugging vehicles while vehicles come and go. Currently, there is a limited supply of inverted pantograph charging solutions despite significant demand. The lack of available product offerings has limited the speed of electric bus (eBus) deployments in California and the rest of the United States due to rising global demand. This project would allow delivery of an interoperable pantograph solution to the California market.

Goals of the Agreement:

The goal of this agreement is to demonstrate advancements in the customer or charging interface of MD/HD EVs.

Objectives of the Agreement:

The objectives of this agreement are to:

- Prototype and demonstrate a charging solution that includes an inverted pantograph.
- Create a universal charging interface that enables the connection of any third-party connector/connection device to ChargePoint chargers.
- Conduct interoperability testing of the pantograph solution with eBuses.

- Record lessons learned to help advance commercialization of the pantograph solution for opportunity (on route) and depot charging scenarios.

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 California Energy Commission (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 Energy Commission 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 Energy Commission funds (Options)
- CEC request for specific “generated” data (not already provided in Agreement products)
- “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. 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.

The Recipient shall:

- Prepare an Outline of the Final Report.
- Prepare a Final Report 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 one bound copy of the Final Report with the final invoice.

Products:

- Outline of the Final Report
- 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 subawards (if requested)
- Final subawards (if requested)

TECHNICAL TASKS

TASK 2 REQUIREMENTS AND SYSTEM ARCHITECTURE

The goal of this task is to finalize the system level requirements and develop the system architecture for the pantograph solution. This process will include development of the universal smart charger interface (USCI) component of the pantograph solution.

The Recipient shall:

- Complete pantograph system and sub-system requirements. Finalize a System Requirements Summary and submit to CAM.
- Complete pantograph system architecture and block diagrams. Finalize a High-Level System Block Diagram and submit to CAM.
- Design, develop, build, and test a prototype USCI.
- Conduct USCI engineering validation testing (EVT) and design validation testing (DVT) and improve design in each phase. Submit Summary Report of EVT and DVT to CAM when completed.
- Complete production validation testing (PVT) phase for a USCI unit to be used in the prototype pantograph systems. Submit Photo Documentation

of USCI PVT Unit, as well as Summary Report of PVT, to CAM when completed.

Products:

- System Requirements Summary
- High Level System Block Diagram
- Summary Report of EVT
- Summary Report of DVT
- Photo Documentation of USCI PVT Unit
- Summary Report of PVT

[CPR WILL BE HELD IN THIS TASK. See Task 1.2 for details]

TASK 3 PROTOTYPING

The goal of this task is to build and test the full system prototypes of the automatic pantograph solution.

The Recipient shall:

- Procure automation controller prototype(s).
- Build the supporting structure(s) for the pantograph solutions (one indoor unit and one outdoor unit).
- 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.
- Install charging equipment to support the pantograph prototypes.
- Develop vehicle simulator(s) for testing.
- Complete integration and testing of the complete pantograph solution. Upon the completion of prototype systems testing, submit Prototypes Test Report Summary to CAM. In addition, submit Photo Documentation of Prototype Pantograph Solutions to CAM when the units are completed.

Products:

- EVITP Certification Numbers of each EVITP-certified electrician
- AB 841 Certification
- Prototypes Test Report Summary

- Photo Documentation of Prototype Pantograph Solutions
[CPR WILL BE HELD IN THIS TASK. See Task 1.2 for details]

TASK 4 SYSTEM INTREGRATION & INTEROPERABILITY TESTING

The goal of this task is to validate the complete pantograph system with multiple eBus manufacturers and perform a complete system level demonstration (with the outdoor-installed pantograph) using an eBus.

The Recipient shall:

- Perform compliance testing, if needed, to deploy the complete pantograph system at the demonstration site.
- Perform integration and interoperability testing of the complete system with buses from multiple manufacturers. Upon the completion of complete system testing, submit Complete System Test Report Summary to CAM.
- Perform a complete system level demonstration by charging an eBus using the prototype pantograph solution. Submit Photo Documentation of Complete Pantograph System (including Pantograph Actuation) to CAM when completed.

Products:

- Complete Systems Test Report Summary
- Photo Documentation of Complete Pantograph System (including Pantograph Actuation)

[CPR WILL BE HELD IN THIS TASK. See Task 1.2 for details]

TASK 5 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) from the project.

Products:

- Initial Project Fact Sheet
- Final Project Fact Sheet

- High Quality Digital Photographs

TASK 6 DATA COLLECTION AND ANALYSIS

The goal of this task is to collect operational data from the project, to analyze that data for economic and environmental impacts, and to include the data and analysis in the Final Report.

The Recipient shall:

- Develop data collection test plan for deployed charging equipment.
- Troubleshoot any issues identified.
- Collect and provide the following data:
 - Number, type, date and location of chargers or hydrogen refueling stations installed.
 - Nameplate capacity of the installed equipment, in kW for chargers and kg/day for hydrogen.
 - Number and type of outlets per charger.
 - Location type, such as street, parking lot, hotel, restaurant, or multi-unit housing.
 - Total cost per charger or refueling station, the subsidy from the CEC per charger or refueling station, federal subsidy per charger or refueling station, utility subsidy per charger or refueling station, and privately funded share per charger or refueling station.
- Collect and provide 12 months of throughput, usage, and operations data from the project including, but not limited to:
 - Number of charging sessions
 - Average charger downtime
 - Energy delivered (kWh)
 - Peak power delivered (kW)
 - Duration of active charging, hourly
 - Duration of charging session, hourly (e.g., vehicle parked but not actively charging)
 - Average session duration
 - Average kWh dispensed
 - Types of vehicles using the charging equipment
 - Applicable price for charging, including but not limited to electric utility tariff, EVSP service contract, or public charger price
 - Payment method for public charging
 - Number of unique vehicles and frequency of “repeat vehicles”

- Energy delivered back to grid or facility if a bidirectional charging use case (kWh)
- Maximum capacity of the new fueling system
- Normal operating hours, up time, downtime, and explanations of variations
- Gallons of gasoline and/or diesel fuel displaced (with associated mileage information)
- Expected air emissions reduction, for example:
 - Non-methane hydrocarbons
 - Oxides of nitrogen
 - Particulate Matter
 - Formaldehyde
- Duty cycle of the current fleet and the expected duty cycle of future vehicle acquisitions
- Identify any current and planned use of renewable energy in the project.
- Identify the source of the alternative fuel.
- Describe any energy efficiency measures used in the facility that may exceed Title 24 standards in Part 6 of the California Code Regulations.
- Provide data on potential job creation, economic development, and increased state revenue as a result of expected future expansion.
- Compare any project performance and expectations provided in the proposal to CEC with actual project performance and accomplishments.
- Provide a quantified estimate of the project's carbon intensity values for life-cycle greenhouse gas emissions.
- Collect data, information, and analysis described above and include in the Final Report.

Products:

- Data collection on charging events and other relevant data will be submitted electronically in a quarterly progress report.
- Data collection information and analysis will be included in the Final Report.

STATE OF CALIFORNIA

STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION: CHARGEPOINT, INC.

RESOLVED, that the State Energy Resources Conservation and Development Commission (CEC) adopts the staff CEQA findings contained in the Agreement or Amendment Request Form (as applicable); and

RESOLVED, that the CEC Agreement ZVI-21-014 with ChargePoint, Inc. for a \$1,999,154 grant to develop an automated, inverted pantograph to support the adoption of MD/HD EVs, particularly electric buses and port vehicles such as yard trucks and straddle carriers; and

FURTHER BE IT RESOLVED, that the Executive Director or their designee shall execute the same on behalf of the CEC.

CERTIFICATION

The undersigned Secretariat to the CEC does hereby certify that the foregoing is a full, true, and correct copy of a Resolution duly and regularly adopted at a meeting of the CEC held on February 16, 2022.

AYE:

NAY:

ABSENT:

ABSTAIN:

Liza Lopez
Secretariat