



**CALIFORNIA  
ENERGY COMMISSION**



**California Energy Commission  
December 11, 2024, Business Meeting  
Backup Materials for Bidirectional Energy, Inc.**

The following backup materials for the above-referenced agenda item are available in this PDF packet as listed below:

1. Proposed Resolution
2. Grant Request Form
3. Scope of Work

**[PROPOSED]**

**RESOLUTION NO: 24-1211-03k**

**STATE OF CALIFORNIA**

**STATE ENERGY RESOURCES  
CONSERVATION AND DEVELOPMENT COMMISSION**

**RESOLUTION: Bidirectional Energy, 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 approves agreement EPC-24-029 with Bidirectional Energy, Inc. for a \$2,172,061 grant, and adopting staff's recommendation that this action is exempt from CEQA. This agreement will develop and demonstrate a bidirectional EV charger that will be interoperable with multiple EV models and an aggregator platform to enable backup power and grid-supportive load shifting at residential homes across California; 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 December 11, 2024.

AYE:

NAY:

ABSENT:

ABSTAIN:

Dated:

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Kristine Banaag  
Secretariat



## GRANT REQUEST FORM (GRF)

### A. New Agreement Number

**IMPORTANT:** New Agreement # to be completed by Contracts, Grants, and Loans Office.

**New Agreement Number:** EPC-24-029

### B. Division Information

1. Division Name: ERDD
2. Agreement Manager: Antonio Gomez
3. MS-51
4. Phone Number: 916-232-9188

### C. Recipient's Information

1. Recipient's Legal Name: Bidirectional Energy, Inc.
2. Federal ID Number: 92-3120872

### D. Title of Project

Title of project: Grid Supportive Bidirectional V2X Residential EV VPP

### E. Term and Amount

1. Start Date: 1/1/2025
2. End Date: 1/31/2028
3. Amount: \$2,172,061.00

### F. Business Meeting Information

1. Are the ARFVTP agreements \$75K and under delegated to Executive Director? No
2. The Proposed Business Meeting Date: 12/11/2024 .
3. Consent or Discussion? Consent
4. Business Meeting Presenter Name: Antonio Gomez
5. Time Needed for Business Meeting: 5 minutes.
6. The email subscription topic is: EPIC (Electric Program Investment Charge).

#### **Agenda Item Subject and Description:**

Bidirectional Energy, Inc. Proposed resolution approving agreement EPC-24-029 with Bidirectional Energy, Inc. for a \$2,172,061 grant and adopting staff's recommendation that this action is exempt from CEQA. This agreement will develop and demonstrate a bidirectional electric vehicle (EV) charger that will be interoperable with multiple EV models and an aggregator platform to enable backup power and grid-supportive load shifting at residential homes across California. (EPIC funding) Contact: Antonio Gomez

### G. California Environmental Quality Act (CEQA) Compliance

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

Yes

If yes, skip to question 2.

If no, complete the following (PRC 21065 and 14 CCR 15378) and 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 answer the following questions.**

a) Agreement **IS** exempt?

Yes

Statutory Exemption?

No

If yes, list PRC and/or CCR section number(s) and separate each with a comma. If no, enter “None” and go to the next question.

PRC section number:

CCR section number: CCR section number 1, CCR section number 2. Or, None

Categorical Exemption?

Yes

If yes, list CCR section number(s) and separate each with a comma. If no, enter “None” and go to the next question.

CCR section number: 15301

Common Sense Exemption? 14 CCR 15061 (b) (3)

No

If yes, explain reason why Agreement is exempt under the above section. If no, enter “Not applicable” and go to the next section.

Cal. Code Regs., tit 14, sec. 15301 provides that projects that consist of the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of existing or former use, are categorically exempt from the provisions of CEQA. The locations affected by the proposed project are at existing facilities, which have already been graded, disturbed, paved, and have structures constructed. Installation and deployment of the bidirectional EVSE system will require limited alteration activities such as installation of electric vehicle supply equipment at residential sites. The project activities involve negligible or no expansion of existing or former use and will not have a significant effect on the environment and thus fits within section 15301.

This project does not involve impacts on any particularly sensitive environment; any cumulative impacts of successive projects of the same type in the same place that might be considered significant; does not involve unusual circumstances that might have a significant effect on the environment; will not result in damage to scenic resources within a highway officially designated as a state scenic highway; the project site is not included on any list compiled pursuant to Government Code section 65962.5, and the project will not cause a substantial adverse change in the significance of a historical resource. Therefore, none of the exceptions to categorical exemptions listed in CEQA Guidelines section 15300.2 apply to this project and this project will not have a significant effect on the environment.



b) Agreement **IS NOT** exempt.

**IMPORTANT:** consult with the legal office to determine next steps.

No

If yes, answer yes or no to all that applies. If no, list all as “no” and “None” as “yes”.

Additional Documents	Applies
Initial Study	No
Negative Declaration	No
Mitigated Negative Declaration	No
Environmental Impact Report	No
Statement of Overriding Considerations	No
None	Yes

**H. Is this project considered “Infrastructure”?**

No

**I. Subcontractors**

List all Subcontractors listed in the Budget (s) (major and minor). Insert additional rows if needed. If no subcontractors to report, enter “No subcontractors to report” and “0” to funds.

**Delete** any unused rows from the table.

Subcontractor Legal Company Name	CEC Funds	Match Funds
EMPORIA CORP.	\$ 327,993	\$0
CALIFORNIA GREEN BUILDING COUNCIL	\$ 133,958	\$0
VOLKSWAGEN GROUP OF AMERICA, INC.	\$ 335,082	\$0

**J. Vendors and Sellers for Equipment and Materials/Miscellaneous**

List all Vendors and Sellers listed in Budget(s) for Equipment and Materials/Miscellaneous. Insert additional rows if needed. If no vendors or sellers to report, enter “No vendors or sellers to report” and “0” to funds. **Delete** any unused rows from the table.

Vendor/Seller Legal Company Name	CEC Funds	Match Funds
DEKRA CERTIFICATION, INC.	\$0	\$20,000
DRIVE TECHNOLOGIES, INC.	\$440,700	\$129,800
TBD – Automatic Transfer Device Vendor	\$93,488	\$23,513
AMERICAN HONDA FINANCE CORPORATION	\$0	\$12,000
UNDERWRITERS LABORATORIES INC.	\$61,275	\$262,934
ELEMENT MATERIALS TECHNOLOGY HOLDING USA INC.	\$37,500	\$62,500
CHROMA SYSTEMS SOLUTIONS, INC.	\$95,618	\$31,873



DER SECURITY CORP.	\$44,999	\$15,000
KEYSIGHT TECHNOLOGIES, INC.	\$76,882	\$33,118
IMPROVEMENT FACILITATION LLC	\$5,400	\$600
VOLKSWAGEN FINANCIAL SERVICES MOBILITY, LLC	\$0	\$12,000

### K. Key Partners

List all key partner(s). Insert additional rows if needed. If no key partners to report, enter "No key partners to report." **Delete** any unused rows from the table.

Key Partner Legal Company Name
AMERICAN HONDA MOTOR CO., INC.

### L. Budget Information

Include all budget information. Insert additional rows if needed. If no budget information to report, enter "N/A" for "Not Applicable" and "0" to Amount. **Delete** any unused rows from the table.

Funding Source	Funding Year of Appropriation	Budget List Number	Amount
EPIC	23-24	301.001K	\$ 2,172,061

**TOTAL Amount:** \$ 2,172,061

R&D Program Area: ESB: Transportation

Explanation for "Other" selection Not applicable

Reimbursement Contract #: Not applicable

Federal Agreement #: 101

### M. Recipient's Contact Information

#### 1. Recipient's Administrator/Officer

Name: Frances Bell

Address: 2922 21St St

City, State, Zip: San Francisco, CA 94110-2739

Phone: 510-460-0097

E-Mail: frances@bidirectional.energy.com

#### 3. Recipient's Project Manager

Name: Frances Bell

Address: 2922 21St St

City, State, Zip: San Francisco, CA 94110-2739

Phone: 510-460-0097

E-Mail: frances@bidirectional.energy.com



## N. Selection Process Used

There are three types of selection process. List the one used for this GRF.

Selection Process	Additional Information
Competitive Solicitation #	GFO-23-306
First Come First Served Solicitation #	Not applicable
Other	Not applicable

## O. Attached Items

1. List all items that should be attached to this GRF by entering "Yes" or "No".

Item Number	Item Name	Attached
1	Exhibit A, Scope of Work/Schedule	Yes
2	Exhibit B, Budget Detail	Yes
3	CEC 105, Questionnaire for Identifying Conflicts	Yes
4	Recipient Resolution	No
5	Awardee CEQA Documentation	No

### Approved By

Individuals who approve this form must enter their full name and approval date in the MS Word version.

**Agreement Manager:** Antonio Gomez

**Approval Date:** 10/17/2024

**Branch Manager:** Reynaldo Gonzalez

**Approval Date:** 10/22/2024

**Director:** Reynaldo Gonzalez on behalf of director

**Approval Date:** 10/22/2024

**Exhibit A**  
**Scope of Work**  
**Bidirectional Energy, Inc.**

**I. TASK ACRONYM/TERM LISTS**

**A. Task List**

Task #		Task Name
1		General Project Tasks
2		V2X Charger Component Validation
3		EV V2X Capability Validation
4		Aggregator Platform Compatibility Validation
5	X	V2X System Interoperability
6		Pilot Demonstration
7	X	Customer Site Acquisition
8		Large Scale Demonstration
9		Evaluation of Project Benefits
10		Technology/Knowledge Transfer Activities

**B. Acronym/Term List**

Acronym/Term	Meaning
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer
CCS	Combined Charging System (EV charging connector system)
CCA	Community Choice Aggregator
CEC	California Energy Commission
CPR	Critical Project Review
EV	Electric Vehicle
EVSE	Electric Vehicle Supply Equipment (i.e. charger)
NACS	North American Charging System (EV charging connector system)
TAC	Technical Advisory Committee
TRL	Technology readiness levels
V2X	Vehicle-to-Everything
VPP	Virtual Power Plant

**II. PURPOSE OF AGREEMENT, PROBLEM/SOLUTION STATEMENT, AND GOALS AND OBJECTIVES**

**A. Purpose of Agreement**

The purpose of this Agreement is to fund a Grid Supportive Bidirectional Vehicle-to-Everything (V2X) Residential Electric Vehicle Virtual Power Plant pilot. The project team will advance residential bidirectional EV charging technology from a technology readiness level (TRL) 5 to a TRL 8 by developing a bidirectional EVSE and compatible bidirectional EV models, then

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<sup>1</sup> Please see subtask 1.3 in Part III of the Scope of Work (General Project Tasks) for a description of Critical Project Review (CPR) Meetings.



**Exhibit A**  
**Scope of Work**  
**Bidirectional Energy, Inc.**

demonstrate the grid capacity utilization impact by deploying these EVSEs and EVs in CA residential homes.

**B. Problem/ Solution Statement**

**Problem**

Residential V2X has the potential to enable EVs to power other home loads to reduce demand on the grid. Other potential use cases include exporting power during emergency grid events and offering resilient home backup power. As of April 2024, there are no residential bidirectional V2X EV chargers available on the market on CEC's V2G Equipment List. The only residential V2X chargers available to purchase in the US are only operable with a single EV model. There is a market gap for residential V2X chargers that are interoperable with multiple EV models and capable of providing backup power and load shifting capabilities to residential homes. There are also challenges in interconnecting bidirectional EVSE with the distribution grid, especially at locations that require costly electrical infrastructure upgrades that burden customers and ratepayers.

**Solution**

The project team will develop a residential bidirectional EVSE that would interoperate with multiple EV models, as well as the recipient's aggregator platform, to provide home backup and load shifting capabilities to residential homes.

Then, this project will:

- Bring available bidirectional EV and charger options to market for California consumers.
- Significantly reduce the cost of bidirectional EV chargers for California consumers, especially those in low income and disadvantaged communities.
- Provide streamlined access for California customers to easily participate in grid support programs through the aggregator platform.
- Inform California utilities and Community Choice Aggregators (CCA) on consumer behavior for future EV charging program design to continue to accelerate customer adoption and benefit the grid and ratepayers.

**C. Goals and Objectives of the Agreement**

**Agreement Goals**

The goals of this Agreement are to:

1. Advance residential bidirectional EV charging technology from a TRL5 to a TRL8 for interoperability of each of the components in the system, including the electrical vehicle, V2X charger, aggregator, as well as utility interface and programs.
2. Demonstrate that residential bidirectional EV charging increases grid capacity utilization and defers home and grid upgrades while cutting energization/interconnection timelines and reducing customer utility bills by intelligently charging and discharging V2X EVs to shift loads.

## **Exhibit A**

### **Scope of Work**

#### **Bidirectional Energy, Inc.**

**Ratepayer Benefits:**<sup>2</sup> This Agreement will result in the ratepayer benefits of greater electricity reliability and lower costs by enabling CA EV owners to:

- *Export power* - EVs can supply power to the grid when needed through utility and market programs including capacity markets, the Emergency Load Reduction Program (ELRP), and the Demand Side Grid Support Program (DSGS), thus contributing to grid reliability.
- *On-grid supply power to home* - EV charging and discharging can be managed to meet capacity requirements and offer both utility and customer savings. This is done in two ways: 1) the recipient's platform can optimize customer load by shifting demand for customers to the least expensive demand periods, 2) Emporia's Load Management service can avoid customer service upgrades without requiring the added expense of a smart panel.
- *Off-grid home backup* - offers resiliency to the customer when the grid goes down.

**Technological Advancement and Breakthroughs:**<sup>3</sup> This Agreement will lead to technological advancement and breakthroughs to overcome barriers to the achievement of the State of California's statutory energy goals by moving bidirectional EV charging — EV, EVSE, and aggregator platform — from TRL5 to TRL8.

For the EV: Currently, Both Honda and Volkswagen Group of America (VWGoA) EVs have one-way charging EVs in California today. As part of this project, they will launch EVs with additional features of being North American Charging Standard (NACS) or SAE J3400 compatible as well as bidirectional capable using either ISO 15118-20 or a modified version of ISO 15118-2.

For the EVSE: Currently, Emporia has one-way residential EVSEs in its product lineup that offer customers charge optimization. As part of this project, Emporia will develop a bidirectional EVSE designed for residential installations and target ratings of 11.5 kW AC and 40 A DC charge/discharge capacity. Additionally, the charger will have a ~25 foot cable and NACS connector.

For the aggregator platform: Currently, the recipient provides a mobile app that enables EV drivers to connect to their existing unidirectional (V1G) charger and manage their charging. As part of this project, the recipient will integrate with Emporia V2X chargers to build the first residential VPP on top of bidirectional chargers and consumer EVs in the US.

#### **Agreement Objectives**

The objectives of this Agreement are broken down in 4 stages:

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<sup>2</sup> California Public Resources Code, Section 25711.5(a) requires projects funded by the Electric Program Investment Charge (EPIC) to result in ratepayer benefits. The California Public Utilities Commission, which established the EPIC in 2011, defines ratepayer benefits as greater reliability, lower costs, and increased safety (See CPUC "Phase 2" Decision 12-05-037 at page 19, May 24, 2012, [http://docs.cpuc.ca.gov/PublishedDocs/WORD\\_PDF/FINAL\\_DECISION/167664.PDF](http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/167664.PDF)).

<sup>3</sup> California Public Resources Code, Section 25711.5(a) also requires EPIC-funded projects to lead to technological advancement and breakthroughs to overcome barriers that prevent the achievement of the state's statutory and energy goals.

**Exhibit A**  
**Scope of Work**  
**Bidirectional Energy, Inc.**

- **Stage 1** will develop individual technical components: V2X charger by Emporia, bidirectional EVs by Honda and VWGoA, Virtual Power Plant (VPP) by the recipient, and a mobile app for EV drivers.
- **Stage 2** will validate the end-to-end interoperability of bidirectional EVs, chargers, and the Virtual Power Plant platform in a test environment.
- **Stage 3** will be the first real-world demonstration of the entire system with real EV drivers at a multi-family housing demonstration site.
- **Stage 4** will deploy a target of 100 V2X chargers across CA. At least 30% of the customers will be in low-income (LIC) and disadvantaged communities (DAC) to demonstrate load shifting and grid support at a substation or other predefined grid geography.

**Exhibit A**  
**Scope of Work**  
**Bidirectional Energy, Inc.**

**III. TASK 1 GENERAL PROJECT TASKS**

**PRODUCTS**

**Subtask 1.1 Products**

The goal of this subtask is to establish the requirements for submitting project products (e.g., reports, summaries, plans, and presentation materials). Unless otherwise specified by the Commission Agreement Manager (CAM), the Recipient must deliver products as required below by the dates listed in the **Project Schedule (Part V)**. All products submitted which will be viewed by the public, must comply with the accessibility requirements of Section 508 of the federal Rehabilitation Act of 1973, as amended (29 U.S.C. Sec. 794d), and regulations implementing that act as set forth in Part 1194 of Title 36 of the Federal Code of Regulations. All technical tasks should include product(s). Products that require a draft version are indicated by marking “**(draft and final)**” after the product name in the “Products” section of the task/subtask. If “(draft and final)” does not appear after the product name, only a final version of the product is required. With respect to due dates within this Scope of Work, “**days**” means working days.

**The Recipient shall:**

For products that require a draft version, including the Final Report Outline and Final Report

- Submit all draft products to the CAM for review and comment in accordance with the Project Schedule (Part V). The CAM will provide written comments to the Recipient on the draft product within 15 days of receipt, unless otherwise specified in the task/subtask for which the product is required.
- Consider incorporating all CAM comments into the final product. If the Recipient disagrees with any comment, provide a written response explaining why the comment was not incorporated into the final product.
- Submit the revised product and responses to comments within 10 days of notice by the CAM, unless the CAM specifies a longer time period, or approves a request for additional time.

For products that require a final version only

- Submit the product to the CAM for acceptance. The CAM may request minor revisions or explanations prior to acceptance.

For all products

- Submit all data and documents required as products in accordance with the following:

Instructions for Submitting Electronic Files and Developing Software:

○ **Electronic File Format**

- Submit all data and documents required as products under this Agreement in an electronic file format that is fully editable and compatible with the California Energy Commission’s (CEC) software and Microsoft (MS)-operating computing platforms, or with any other format approved by the CAM. Deliver an electronic copy of the full text of any Agreement data and documents in a format specified by the CAM, such as memory stick.

## **Exhibit A**

### **Scope of Work**

#### **Bidirectional Energy, Inc.**

The following describes the accepted formats for electronic data and documents provided to the CEC as products under this Agreement, and establishes the software versions that will be required to review and approve all software products:

- Data sets will be in MS Access or MS Excel file format (version 2007 or later), or any other format approved by the CAM.
- Text documents will be in MS Word file format, version 2007 or later.
- Project management documents will be in Microsoft Project file format, version 2007 or later.

#### ○ **Software Application Development**

Use the following standard Application Architecture components in compatible versions for any software application development required by this Agreement (e.g., databases, models, modeling tools), unless the CAM approves other software applications such as open source programs:

- Microsoft ASP.NET framework (version 3.5 and up). Recommend 4.0.
- Microsoft Internet Information Services (IIS), (version 6 and up) Recommend 7.5.
- Visual Studio.NET (version 2008 and up). Recommend 2010.
- C# Programming Language with Presentation (UI), Business Object and Data Layers.
- SQL (Structured Query Language).
- Microsoft SQL Server 2008, Stored Procedures. Recommend 2008 R2.
- Microsoft SQL Reporting Services. Recommend 2008 R2.
- XML (external interfaces).

Any exceptions to the Electronic File Format requirements above must be approved in writing by the CAM. The CAM will consult with the CEC's Information Technology Services Branch to determine whether the exceptions are allowable.

## **MEETINGS**

### **Subtask 1.2 Kick-off Meeting**

The goal of this subtask is to establish the lines of communication and procedures for implementing this Agreement.

#### **The Recipient shall:**

- Attend a "Kick-off" meeting with the CAM, and other CEC staff relevant to the Agreement. The Recipient's Project Manager and any other individuals deemed necessary by the CAM or the Project Manager shall participate in this meeting. The administrative and technical aspects of the Agreement will be discussed at the meeting. Prior to the meeting, the CAM will provide an agenda to all potential meeting participants. The meeting may take place in person or by electronic conferencing (e.g., Teams, Zoom), with approval of the CAM.

The Kick-off meeting will include discussion of the following:

- The CAM's expectations for accomplishing tasks described in the Scope of Work;
- An updated Project Schedule;
- Terms and conditions of the Agreement;
- Invoicing and auditing procedures;
- Travel;
- Equipment purchases;

**Exhibit A**  
**Scope of Work**  
**Bidirectional Energy, Inc.**

- Administrative and Technical products (subtask 1.1);
  - CPR meetings (subtask 1.3);
  - Monthly Calls (subtask 1.5)
  - Quarterly Progress reports (subtask 1.6)
  - Final Report (subtask 1.7)
  - Match funds (subtask 1.8);
  - Permit documentation (subtask 1.9);
  - Subawards(subtask 1.10);
  - Technical Advisory Committee meetings (subtasks 1.11 and 1.12);
  - Agreement changes;
  - Performance Evaluations; and
  - Any other relevant topics.
- Provide *Kick-off Meeting Presentation* to include but not limited to:
    - Project overview (i.e. project description, goals and objectives, technical tasks, expected benefits, etc.)
    - Project schedule that identifies milestones
    - List of potential risk factors and hurdles, and mitigation strategy
  - Provide an *Updated Project Schedule, Match Funds Status Letter, and Permit Status Letter*, as needed to reflect any changes in the documents.

**The CAM shall:**

- Designate the date and location of the meeting.
- Send the Recipient a *Kick-off Meeting Agenda*.

**Recipient Products:**

- Kick-off Meeting Presentation
- Updated Project Schedule (*if applicable*)
- Match Funds Status Letter (subtask 1.7) (*if applicable*)
- Permit Status Letter (subtask 1.8) (*if applicable*)

**CAM Product:**

- Kick-off Meeting Agenda

**Subtask 1.3 Critical Project Review (CPR) Meetings**

The goal of this subtask is to determine if the project should continue to receive CEC funding, and if so whether any modifications must be made to the tasks, products, schedule, or budget. CPR meetings provide the opportunity for frank discussions between the CEC and the Recipient. As determined by the CAM, discussions may include project status, challenges, successes, advisory group findings and recommendations, final report preparation, and progress on technical transfer and production readiness activities (if applicable). Participants will include the CAM and the Recipient and may include the CAO and any other individuals selected by the CAM to provide support to the CEC.

CPR meetings generally take place at key, predetermined points in the Agreement, as determined by the CAM and as shown in the Task List on page 1 of this Exhibit. However, the CAM may schedule additional CPR meetings as necessary. The budget may be reallocated to cover the additional costs borne by the Recipient, but the overall Agreement

## **Exhibit A**

### **Scope of Work**

#### **Bidirectional Energy, Inc.**

amount will not increase. CPR meetings generally take place at the CEC, but they may take place at another location, or may be conducted via electronic conferencing (e.g., WebEx) as determined by the CAM.

#### **The Recipient shall:**

- Prepare and submit a *CPR Report* for each CPR meeting that: (1) discusses the progress of the Agreement toward achieving its goals and objectives; and (2) includes recommendations and conclusions regarding continued work on the project.
- Attend the CPR meeting.
- Present the CPR Report and any other required information at each CPR meeting.

#### **The CAM shall:**

- Determine the location, date, and time of each CPR meeting with the Recipient's input.
- Send the Recipient a *CPR Agenda* with a list of expected CPR participants in advance of the CPR meeting. If applicable, the agenda may include a discussion of match funding and permits.
- Conduct and make a record of each CPR meeting. Provide the Recipient with a schedule for providing a Progress Determination on continuation of the project.
- Determine whether to continue the project, and if so whether modifications are needed to the tasks, schedule, products, or budget for the remainder of the Agreement. A determination of unsatisfactory progress This may result in project delays, including a potential Stop Work Order, while the CEC determines whether the project should continue.
- Provide the Recipient with a *Progress Determination* on continuation of the project, in accordance with the schedule. The Progress Determination may include a requirement that the Recipient revise one or more products.

#### **Recipient Products:**

- CPR Report(s)

#### **CAM Products:**

- CPR Agenda(s)
- Progress Determination

#### **Subtask 1.4 Final Meeting**

The goal of this subtask is to complete the closeout of this Agreement.

#### **The Recipient shall:**

- Meet with CEC staff to present project findings, conclusions, and recommendations. The final meeting must be completed during the closeout of this Agreement. This meeting will be attended by the Recipient and CAM, at a minimum. The meeting may occur in person or by electronic conferencing (e.g., WebEx), with approval of the CAM.

The technical and administrative aspects of Agreement closeout will be discussed at the meeting, which may be divided into two separate meetings at the CAM's discretion.

- The technical portion of the meeting will involve the presentation of findings, conclusions, and recommended next steps (if any) for the Agreement. The CAM will determine the appropriate meeting participants.

**Exhibit A**  
**Scope of Work**  
**Bidirectional Energy, Inc.**

- The administrative portion of the meeting will involve a discussion with the CAM of the following Agreement closeout items:
  - Disposition of any procured equipment.
  - The CEC's request for specific "generated" data (not already provided in Agreement products).
  - Need to document the Recipient's disclosure of "subject inventions" developed under the Agreement.
  - "Surviving" Agreement provisions such as repayment provisions and confidential products.
  - Final invoicing and release of retention.
- Prepare a *Final Meeting Agreement Summary* that documents any agreement made between the Recipient and Commission staff during the meeting.
- Prepare a *Schedule for Completing Agreement Closeout Activities*.
- Provide copies of *All Final Products* organized by the tasks in the Agreement.

**Products:**

- Final Meeting Agreement Summary (*if applicable*)
- Schedule for Completing Agreement Closeout Activities
- All Final Products

**MONTHLY CALLS, REPORTS AND INVOICES**

**Subtask 1.5 Monthly Calls**

The goal of this task is to have calls at least monthly between the 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.



## **Exhibit A**

### **Scope of Work**

#### **Bidirectional Energy, Inc.**

##### **Subtask 1.6 Quarterly Progress Reports and Invoices**

The goals of this subtask are to: (1) periodically verify that satisfactory and continued progress is made towards achieving the project objectives of this Agreement; and (2) ensure that invoices contain all required information and are submitted in the appropriate format.

##### **The Recipient shall:**

- Submit a *Quarterly Progress Report* to the CAM. Each progress report must:
  - Summarize progress made on all Agreement activities as specified in the scope of work for the reporting period, including accomplishments, problems, milestones, products, schedule, fiscal status, and 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>
- Submit a monthly or quarterly *Invoice* on the invoice template(s) provided by the CAM.

##### **Recipient Products:**

- Quarterly Progress Reports
- Invoices

##### **CAM Product:**

- Invoice template

##### **Subtask 1.7 Final Report**

The goal of this subtask is to prepare a comprehensive Final Report that describes the original purpose, approach, results, and conclusions of the work performed under this Agreement. When creating the Final Report Outline and the Final Report, the Recipient must use the CEC Style Manual provided by the CAM.

##### **Subtask 1.7.1 Final Report Outline**

##### **The Recipient shall:**

- Prepare a *Final Report Outline* in accordance with the *Energy Commission Style Manual* provided by the CAM.

##### **Recipient Products:**

- Final Report Outline (draft and final)

##### **CAM Products:**

- Energy Commission Style Manual
- Comments on Draft Final Report Outline
- Acceptance of Final Report Outline

##### **Subtask 1.7.2 Final Report**

##### **The Recipient shall:**

- Prepare a *Final Report* for this Agreement in accordance with the approved Final Report Outline, Energy Commission Style Manual, and Final Report Template provided by the

## **Exhibit A**

### **Scope of Work**

#### **Bidirectional Energy, Inc.**

CAM with the following considerations:

- Ensure that the report includes the following items, in the following order:
  - Cover page (**required**)
  - Credits page on the reverse side of cover with legal disclaimer (**required**)
  - Acknowledgements page (optional)
  - Preface (**required**)
  - Abstract, keywords, and citation page (**required**)
  - Table of Contents (**required**, followed by List of Figures and List of Tables, if needed)
  - Executive summary (**required**)
  - Body of the report (**required**)
  - References (if applicable)
  - Glossary/Acronyms (If more than 10 acronyms or abbreviations are used, it is required.)
  - Bibliography (if applicable)
  - Appendices (if applicable) (Create a separate volume if very large.)
  - Attachments (if applicable)
- Submit a draft of the Executive Summary to the TAC for review and comment.
- Develop and submit a *Summary of TAC Comments on Draft Final Report* received on the Executive Summary. For each comment received, the Recipient will identify in the summary the following:
  - Comments the Recipient proposes to incorporate.
  - Comments the Recipient does propose to incorporate and an explanation for why.
- Submit a draft of the report to the CAM for review and comment. The CAM will provide written comments to the Recipient on the draft product within 15 days of receipt.
- Incorporate all CAM comments into the *Final Report*. If the Recipient disagrees with any comment, provide a *Written Responses to Comments* explaining why the comments were not incorporated into the final product.
- Submit the revised *Final Report* electronically with any Written Responses to Comments within 10 days of receipt of CAM's Written Comments on the Draft Final Report, unless the CAM specifies a longer time period or approves a request for additional time.

#### **Products:**

- Summary of TAC Comments on Draft Final Report
- Draft Final Report
- Written Responses to Comments (*if applicable*)
- Final Report

#### **CAM Product:**

- Written Comments on the Draft Final Report

### **MATCH FUNDS, PERMITS, AND SUBAWARDS**

#### **Subtask 1.8 Match Funds**

The goal of this subtask is to ensure that the Recipient obtains any match funds planned for this Agreement and applies them to the Agreement during the Agreement term.

While the costs to obtain and document match funds are not reimbursable under this Agreement, the Recipient may spend match funds for this task. Match funds must be identified in writing, and the Recipient must obtain any associated commitments before incurring any

## **Exhibit A Scope of Work Bidirectional Energy, Inc.**

costs for which the Recipient will request reimbursement.

### **The Recipient shall:**

- Prepare a *Match Funds Status Letter* that documents the match funds committed to this Agreement. If no match funds were part of the application that led to the CEC awarding this Agreement and none have been identified at the time this Agreement starts, then state this in the letter.

If match funds were a part of the application that led to the CEC awarding this Agreement, then provide in the letter:

- A list of the match funds that identifies:
  - The amount of cash match funds, their source(s) (including a contact name, address, and telephone number), and the task(s) to which the match funds will be applied.
  - The amount of each in-kind contribution, a description of the contribution type (e.g., property, services), the documented market or book value, the 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 must identify its owner and provide a contact name, address, telephone number, and the address where the property is located.
  - If different from the solicitation application, provide a letter of commitment from an authorized representative of each source of match funding that the funds or contributions have been secured.
- At the Kick-off meeting, discuss match funds and the impact on the project if they are significantly reduced or not obtained as committed. If applicable, match funds will be included as a line item in the progress reports and will be a topic at CPR meetings.
- Provide a *Supplemental Match Funds Notification Letter* to the CAM of receipt of additional match funds.
- Provide a *Match Funds Reduction Notification Letter* to the CAM if existing match funds are reduced during the course of the Agreement. Reduction of match funds may trigger a CPR meeting.

### **Products:**

- Match Funds Status Letter
- Supplemental Match Funds Notification Letter (*if applicable*)
- Match Funds Reduction Notification Letter (*if applicable*)

### **Subtask 1.9 Permits**

The goal of this subtask 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, with the exception of costs incurred by University of California recipients. Permits must be identified and obtained before the Recipient may incur any costs related to the use of the permit(s) for which the Recipient will request reimbursement.

### **The Recipient shall:**

- Prepare a *Permit Status Letter* that documents the permits required to conduct this Agreement. If no permits are required at the start of this Agreement, then state this in the letter. If permits will be required during the course of the Agreement, provide in the letter:

## **Exhibit A**

### **Scope of Work**

#### **Bidirectional Energy, Inc.**

- A list of the permits that identifies: (1) the type of permit; and (2) the name, address, and telephone number of the permitting jurisdictions or lead agencies.
- The schedule the Recipient will follow in applying for and obtaining the permits.

The list of permits and the schedule for obtaining them will be discussed at the Kick-off meeting (subtask 1.2), and a timetable for submitting the updated list, schedule, and copies of the permits will be developed. The impact on the project 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 progress reports and will be a topic at CPR meetings.

- If during the course of the Agreement additional permits become necessary, then provide the CAM with an *Updated List of Permits* (including the appropriate information on each permit) and an *Updated Schedule for Acquiring Permits*.
- Send the CAM a *Copy of Each Approved Permit*.
- If during the course of the Agreement permits are not obtained on time or are denied, notify the CAM within 5 days. Either of these events may trigger a CPR meeting.

#### **Products:**

- Permit Status Letter
- Updated List of Permits (*if applicable*)
- Updated Schedule for Acquiring Permits (*if applicable*)
- Copy of Each Approved Permit (*if applicable*)

#### **Subtask 1.10 Subawards**

The goals of this subtask are to: (1) procure subawards required to carry out the tasks under this Agreement; and (2) ensure that the subawards are consistent with the terms and conditions of this Agreement.

#### **The Recipient shall:**

- Manage and coordinate subrecipients activities in accordance with the requirements of this Agreement.
- Incorporate this Agreement by reference into each subaward.
- Include any required Energy Commission flow-down provisions in each subaward, in addition to a statement that the terms of this Agreement will prevail if they conflict with the subaward terms.
- If requested by the CAM, submit a draft of each *Subaward* required to conduct the work under this Agreement.
- If requested by the CAM, submit a final copy of each executed subaward.
- Notify and receive written approval from the CAM prior to adding any new subrecipient (see the terms regarding of subrecipient additions in the terms and conditions).

#### **Products:**

- Subawards (*if requested by the CAM*)

### **TECHNICAL ADVISORY COMMITTEE**

#### **Subtask 1.11 Technical Advisory Committee (TAC)**

The goal of this subtask is to create an advisory committee for this Agreement. The TAC should be composed of diverse professionals. The composition will vary depending on interest, availability, and need. TAC members will serve at the CAM's discretion. The purpose of the TAC is to:

**Exhibit A**  
**Scope of Work**  
**Bidirectional Energy, Inc.**

- Provide guidance in project direction. The guidance may include scope and methodologies, timing, and coordination with other projects. The guidance may be based on:
  - Technical area expertise;
  - Knowledge of market applications; or
  - Linkages between the Agreement work and other past, present, or future projects (both public and private sectors) that TAC members are aware of in a particular area.
- Review products and provide recommendations for needed product adjustments, refinements, or enhancements.
- Evaluate the tangible benefits of the project to the state of California, and provide recommendations as needed to enhance the benefits.
- Provide recommendations regarding information dissemination, market pathways, or commercialization strategies relevant to the project products.
- Help set the project team's goals and contribute to the development and evaluation of its statement of proposed objectives as the project evolves.
- Provide a credible and objective sounding board on the wide range of technical and financial barriers and opportunities.
- Help identify key areas where the project has a competitive advantage, value proposition, or strength upon which to build.
- Advocate, to the extent the TAC members feel is appropriate, on behalf of the project in its effort to build partnerships, governmental support, and relationships with a national spectrum of influential leaders.
- Ask probing questions that insure a long-term perspective on decision-making and progress toward the project's strategic goals.

The TAC may be composed of qualified professionals spanning the following types of disciplines:

- Researchers knowledgeable about the project subject matter;
- Members of trades that will apply the results of the project (e.g., designers, engineers, architects, contractors, and trade representatives);
- Public interest market transformation implementers;
- Product developers relevant to the project;
- U.S. Department of Energy research managers, or experts from other federal or state agencies relevant to the project;
- Public interest environmental groups;
- Utility representatives;
- Air district staff; and
- Members of relevant technical society committees.

**The Recipient shall:**

- Prepare a *List of Potential TAC Members* that includes the names, companies, physical and electronic addresses, and phone numbers of potential members. The list will be discussed at the Kick-off meeting, and a schedule for recruiting members and holding the first TAC meeting will be developed.
- Recruit TAC members. Ensure that each individual understands member obligations and the TAC meeting schedule developed in subtask 1.12.
- Prepare a *List of TAC Members* once all TAC members have committed to serving on the TAC.

**Exhibit A**  
**Scope of Work**  
**Bidirectional Energy, Inc.**

- Submit *Documentation of TAC Member Commitment* (such as Letters of Acceptance) from each TAC member.

**Products:**

- List of Potential TAC Members
- List of TAC Members
- Documentation of TAC Member Commitment

**Subtask 1.12 TAC Meetings**

The goal of this subtask is for the TAC to provide strategic guidance for the project by participating in regular meetings, which may be held via teleconference.

**The Recipient shall:**

- Discuss the TAC meeting schedule with the CAM at the Kick-off meeting. Determine the number and location of meetings (in-person and via teleconference) in consultation with the CAM.
- Prepare a *TAC Meeting Schedule* that will be presented to the TAC members during recruiting. Revise the schedule after the first TAC meeting to incorporate meeting comments.
- Prepare a *TAC Meeting Agenda* and *TAC Meeting Back-up Materials* for each TAC meeting.
- Organize and lead TAC meetings in accordance with the TAC Meeting Schedule. Changes to the schedule must be pre-approved in writing by the CAM.
- Prepare *TAC Meeting Summaries* that include any recommended resolutions of major TAC issues.

**The TAC shall:**

- Help set the project team's goals and contribute to the development and evaluation of its statement of proposed objectives as the project evolves.
- Provide a credible and objective sounding board on the wide range of technical and financial barriers and opportunities.
- Help identify key areas where the project has a competitive advantage, value proposition, or strength upon which to build.
- Advocate on behalf of the project in its effort to build partnerships, governmental support and relationships with a national spectrum of influential leaders.
- Ask probing questions that insure a long-term perspective on decision-making and progress toward the project's strategic goals.
- Review and provide comments to proposed project performance metrics.
- Review and provide comments to proposed project Draft Technology Transfer Plan.

**Products:**

- TAC Meeting Schedule (draft and final)
- TAC Meeting Agendas (draft and final)
- TAC Meeting Back-up Materials
- TAC Meeting Summaries

**Subtask 1.13 Project Performance Metrics**

The goal of this subtask is to finalize key performance targets for the project based on feedback from the TAC and report on final results in achieving those targets. The performance targets

## **Exhibit A**

### **Scope of Work**

#### **Bidirectional Energy, Inc.**

should be a combination of scientific, engineering, techno-economic, and/or programmatic metrics that provide the most significant indicator of the research or technology's potential success.

#### **The Recipient shall:**

- Complete and submit the project performance metrics section of the *Initial Project Benefits Questionnaire*, developed in the Evaluation of Project Benefits task, to the CAM.
- Present the draft project performance metrics at the first TAC meeting to solicit input and comments from the TAC members.
- Develop and submit a *TAC Performance Metrics Summary* that summarizes comments received from the TAC members on the proposed project performance metrics. The *TAC Performance Metrics Summary* will identify:
  - TAC comments the Recipient proposes to incorporate into the *Initial Project Benefits Questionnaire*, developed in the Evaluation of Project Benefits task.
  - TAC comments the Recipient does not propose to incorporate with and explanation why.
- Develop and submit a *Project Performance Metrics Results* document describing the extent to which the Recipient met each of the performance metrics in the *Final Project Benefits Questionnaire*, developed in the Evaluation of Project Benefits task.
- Discuss the *Project Performance Metrics Results* at the Final Meeting.

#### **Products:**

- TAC Performance Metrics Summary
- Project Performance Metrics Results

### **Confidential and Personal Information**

#### **Subtask 1.14 Handling Confidential Information and Personal Information**

The goal of this subtask is to ensure that all confidential and personal information is handled by the Recipient in accordance with the Special Terms and Conditions for Confidential and Personal Information.

#### **The Recipient shall:**

- Submit signed Information Security Program Plan Attestation that Contractor has an Information Security Program Plan (ISPP) that meets the minimum requirements as stated in SAM 5300 and any other applicable law. CAM will provide ISPP Attestation form.
- Submit signed Non-Disclosure Agreements (NDAs) from Contractor and Subcontractor employees prior to the sharing of confidential information with the employees. CAM will provide NDA form.
- Contractor shall ensure that all individuals employed by Contractor or a Subcontractor who will have access to confidential information take an annual security awareness training and submit the Employee Security Awareness Training Certificates.
- Submit verification that confidential information and personal information is destroyed at agreement end (or when work is completed).

#### **Products:**

- Signed non-disclosure agreement from Contractor and Subcontractor employees
- Signed Information Security Program Plan Attestation Form

**Exhibit A**  
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**Bidirectional Energy, Inc.**

- Employee Security Awareness Training Certificates
- Verification of destruction of confidential information and personal information

**IV. TECHNICAL TASKS**

**TASK 2 – V2X CHARGER COMPONENT VALIDATION**

The goal of this task is to develop, test, and validate the functionality of the bidirectional vehicle-to-everything (V2X) charger and advance it to Technology Readiness Level (TRL) 5.

**The Recipient shall:**

- Attain and provide evidence of UL 1741 SB certification of the Emporia V2X charger.
- Ensure Emporia V2X charger is compliant with Open Charge Point Protocol (OCPP) and certified by the Open Charge Alliance (at minimum, subset and security certificates).
- Ensure Emporia V2X charger is readily interoperable with a range of EVs using ISO 15118, including International Organization for Standardization (ISO) 15118-20.
- Attain and provide evidence of NACS compatibility of the Emporia V2X charger.
- Test capability of Emporia V2X charger to perform home backup (that is, backup operation during an electrical outage).
- Ensure Emporia V2X charger is prepared for acceptance and interconnection by utilities, including listing on the CEC V2G Equipment List.
- Put together a *V2X EVSE Readiness Report* documenting the certifications and testing of the Emporia V2X charger, including copies of certifications.

**Products:**

- V2X EVSE Readiness Report

**TASK 3 - EV V2X CAPABILITY VALIDATION**

The goal of this task is to reach Technology Readiness Level (TRL) 5 for the electric vehicle (EV) to gain bidirectional vehicle-to-everything (V2X) capability.

**The Recipient shall:**

- Attain and provide evidence of ISO 15118-20 interoperability of the Honda electric vehicle.
- Attain and provide evidence of NACS compatibility of the Honda electric vehicle.
- Attain and provide evidence of modified ISO 15118-2 interoperability of the Volkswagen Group of America (VWGofA) electric vehicle.
- Attain and provide evidence of NACS compatibility of the VWGofA electric vehicle.
- Put together a *V2X EV Capability Report* documenting the certifications and testing of the Honda and VWGofA EVs, including copies of certifications. This report will detail the EVs' capability to perform all V2X tasks essential to the completion of this project. These include, but are not limited to, automatically following EVSE charging and discharging profiles, switching between charging and discharging when commanded by the EVSE, and starting and ending sessions as commanded by the EVSE.

**Products:**

- V2X EV Capability Report

**TASK 4 - AGGREGATOR PLATFORM COMPATIBILITY VALIDATION**



## **Exhibit A**

### **Scope of Work**

#### **Bidirectional Energy, Inc.**

The goal of this task is to integrate the recipient's Virtual Power Plant platform with a variety of dynamic grid signal sources.

#### **The Recipient Shall:**

- Develop Utility and Market Interface Plan to integrate the recipient's Virtual Power Plant (VPP) platform with relevant California markets and IOU programs. This includes digital integration with the relevant application programming interfaces (APIs) to connect to these rates and programs.
- Ensure the VPP platform is compliant with OCPP and certified by the Open Charge Alliance (at minimum, full and security certificates).
- Demonstrate successful integration of the VPP platform with dynamic grid signals with relevant California markets and IOU programs.
- Develop VPP customer interface(s) to collect inputs, explain how charging will be optimized, explain how responding to grid signals will create value for the customer, and notify the customer of additional savings opportunities using one or more customer-facing interfaces.
- Put together a *V2X Aggregator Platform Readiness Report* documenting the certifications and testing of the recipient's Aggregator Platform.

#### **Products:**

- V2X Aggregator Platform Readiness Report

#### **TASK 5 - V2X SYSTEM INTEROPERABILITY**

The goal of this task is to ensure that the developed bidirectional Emporia V2X charger is interoperable with EV models using ISO 15118 and NACS; that the EV is interoperable with the bidirectional charger using ISO 15118 and NACS; and that the recipient's VPP platform is interoperable with the charger using OCPP.

#### **The Recipient shall:**

- Test interoperability between Emporia V2X charger and Honda EV.
- Test interoperability between Emporia V2X charger and VWGofA EV.
- Test interoperability between Emporia V2X charger platform and the recipient's platform using OCPP and/or API.
- Test interoperability between the recipient's platform and California grid programs using relevant predefined protocols.
- Complete end-to-end interoperability test between EV, Emporia V2X charger, the recipient's platform, and California market interfaces.
- Prepare a *Measurement & Verification (M&V) Plan* for the demonstration deployment that includes the pilot project's capacity of electric service; number, type/class, and make of vehicles used; reduction in peak from PEV flexible load (kW); and customer reduced or deferred grid infrastructure upgrade costs (\$).
- Prepare a *V2X System Interoperability Report* documenting the end-to-end interoperability test results between charger, EVs, and aggregator platform.
- Prepare *CPR Report #1* in accordance with subtask 1.3 (CPR Meetings).
- Participate in a CPR meeting.

#### **Products:**

- Measurement & Verification (M&V) Plan

**Exhibit A**  
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**Bidirectional Energy, Inc.**

- V2X System Interoperability Report
- CPR Report #1

**TASK 6 – PILOT DEMONSTRATION**

The goal of this task is to deploy the product developed under Tasks 2 & 3 to the multi-family housing demonstration site and bring the V2X technology to a TRL7.

**The Recipient shall:**

- Prepare *Multi-Family Housing Project Deployment Plan* that accounts for customer deployment, data collection, system performance, reporting, and actions taken to defer customer/grid side upgrades.
- Install a target of 4 Emporia V2X chargers.
- Provide a target of 2 Honda EVs and 2 VWGofA EVs to participating tenants.
- Develop a *Work Plan and Process Flow Document* based on lessons learned from Task 6 for outreach activities, enrollment, installation and monitoring procedures. This document will include a customer journey map as well as metrics for success.
- Collect data and report system performance and customer deployment in a *V2X System Performance Report*. This report will detail metrics for success, a qualitative assessment on customer journey, and real-world demonstration data (such as installation cost, installation timeline, operation cost, number of charge/discharge events, energy transferred, etc.). It will also include evidence of charger installation and EV delivery.

**Products:**

- Multi-Family Housing Project Deployment Plan
- Work Plan and Process Flow Document
- V2X System Performance Report

**TASK 7 - CUSTOMER SITE ACQUISITION**

The goal of this task is to perform customer acquisition of a target of 100 residential customer sites.

**The Recipient shall:**

- Develop *Customer Acquisition Plan* based on lessons learned from Task 6 and process flow for outreach activities, enrollment, installation and monitoring procedures.
- Acquire a target of 100 customers. A target of 30 customers will be located in low income and disadvantaged communities. Activities may include:
  - Outreach and Marketing
    - Identify prospective suitable locations
    - Promote the program and application process
    - Engage with stakeholders for promotions and program enrollment including building owners and property managers
  - Enrollment of Participants
    - Define application process and eligibility criteria
    - Collect participant applications
    - Provide applicants information to the designated installer for verification and selection for program participation
    - Collect participation agreements and copies of participant electric utility bills

## **Exhibit A**

### **Scope of Work**

#### **Bidirectional Energy, Inc.**

- Resident Engagement / Pre-Education Technology Knowledge
  - Develop *Participant Education Materials* to educate participants on the technology benefits, installation needs, and operations.
  - Develop clear pathways and guidelines for V2X options available to participants for cost savings and resilience
  - For rental properties engage property managers/owners to gain approvals and understand any landlord barriers to the installation and use of chargers
- Support installation of V2X EV Chargers
  - Work with the designated installer and be the liaison with the resident/homeowner during installation process
  - Help coordinate the installation schedule with the participants
- Monitoring and Survey
  - Develop and administer a *Participant Pre-Survey* for knowledge baseline and data gathering.
  - Develop and administer a *Participant Feedback Survey* on the installation process and their initial reactions to the products.
- Prepare *CPR Report #2* in accordance with subtask 1.3 (CPR Meetings).
- Participate in a CPR meeting.

#### **Products:**

- Customer Acquisition Plan
- Participant Education Material
- Participant Pre-Survey
- Participant Feedback Survey
- CPR Report #2

#### **TASK 8 – LARGE SCALE DEMONSTRATION**

The goal of this task is to deploy the products demonstrated in Task 6 to customers and meet the customer deployment at a target of 100 sites.

#### **The Recipient shall:**

- Install a target of 100 bidirectional EV chargers in single family and multi-family sites within California with a target of at least 30 sites located in disadvantaged or low-income communities.
- Ensure all EVSE models installed are safety certified by a Nationally Recognized Test Laboratory (NRTL) and certified by the Open Charge Alliance.
- Submit a *Completed and signed AB 841 Certification* that certifies the project has complied with all AB 841 (2020) requirements specified in the Agreement Terms and Conditions or describes why the AB 841 requirements do not apply to the project. The certification shall be signed by Recipient's authorized representative.
- Prepare a *Customer Deployment Report* that will include the following:
  - Evidence of each completed customer deployment (such as a photo of the installation, a screenshot of the EV or EVSE uniquely identified in a management dashboard, or similar) compiled in a document or shared folder, available to CEC upon request.
  - Entry of EVITP Certification Numbers in the Customer Deployment Log of the electricians employed for each completed customer deployment with EVSE installation (use Column O, "EVITP Cert Number(s)").

**Exhibit A**  
**Scope of Work**  
**Bidirectional Energy, Inc.**

- Entry of deployment information in the Customer Deployment Log (see next task and available template) for each completed customer deployment.
- Lessons learned over the course of the deployments, key findings, and a quantitative analysis of the benefits provided to the customer and the grid during the demonstration.

**Products:**

- Completed and signed AB 841 Certification
- Customer Deployment Report

**TASK 9: EVALUATION OF PROJECT BENEFITS**

The goal of this task is to report the benefits resulting from this project.

**The Recipient shall:**

- Complete the *Initial Project Benefits Questionnaire*. The Initial Project Benefits Questionnaire shall be initially completed by the Recipient with 'Kick-off' selected for the 'Relevant data collection period' and submitted to the CAM for review and approval.
- Complete the *Annual Survey* by January 31st of each year. The Annual Survey includes but is not limited to the following information:
  - Technology commercialization progress
  - New media and publications
  - Company growth
  - Follow-on funding and awards received
- Complete the *Final Project Benefits Questionnaire*. The Final Project Benefits Questionnaire shall be completed by the Recipient with 'Final' selected for the 'Relevant data collection period' and submitted to the CAM for review and approval.
- Respond to CAM questions regarding the questionnaire drafts.
- Complete and update the project profile on the CEC's public online project and recipient directory on the Energize Innovation website ([www.energizeinnovation.fund](http://www.energizeinnovation.fund)), and provide *Documentation of Project Profile on EnergizeInnovation.fund*, including the profile link.
- If the Prime Recipient is an Innovation Partner on the project, complete and update the organizational profile on the CEC's public online project and recipient directory on the Energize Innovation website ([www.energizeinnovation.fund](http://www.energizeinnovation.fund)), and provide *Documentation of Organization Profile on EnergizeInnovation.fund*, including the profile link.

**Products:**

- Initial Project Benefits Questionnaire
- Annual Survey(s)
- Final Project Benefits Questionnaire
- Documentation of Project Profile on EnergizeInnovation.fund
- Documentation of Organization Profile on EnergizeInnovation.fund

**TASK 10 TECHNOLOGY/KNOWLEDGE TRANSFER ACTIVITIES**

## **Exhibit A**

### **Scope of Work**

#### **Bidirectional Energy, Inc.**

The goal of this task is to ensure the technological learning that resulted from the demonstration(s) is captured and disseminated to the range of professions that will be responsible for future deployments of this technology or similar technologies.

#### **The Recipient Shall:**

- Develop and submit a *Project Case Study Plan* that outlines how the Recipient will document the planning, construction, commissioning, and operation of the technology or system being demonstrated. The Project Case Study Plan should include:
  - An outline of the objectives, goals, and activities of the case study.
  - The organization that will be conducting the case study and the plan for conducting it.
  - A list of professions and practitioners involved in the technology's deployment.
  - Specific activities the recipient will take to ensure the learning that results from the project is disseminated to those professions and practitioners.
  - Presentations/webinars/training events to disseminate the results of the case study.
- Present the draft *Project Case Study Plan* to the TAC for review and comment.
- Develop and submit a *Summary of TAC Comments* that summarizes comments received from the TAC members on the draft *Project Case Study Plan*. This document will identify:
  - TAC comments the Recipient proposes to incorporate into the final *Technology Transfer Plan*.
  - TAC comments the Recipient does not propose to incorporate with and explanation why.
- Submit the final *Project Case Study Plan* to the CAM for approval.
- Execute the final Project Case Study Plan and develop and submit a Project Case Study.
- When directed by the CAM, develop presentation materials for a CEC sponsored conference/workshop(s) on the project.
- When directed by the CAM, participate in annual EPIC symposium(s) sponsored by the California CEC.
- Provide at least (6) six High Quality Digital Photographs (minimum resolution of 1300x500 pixels in landscape ratio) of pre and post technology installation at the project sites or related project photographs.

#### **Products:**

- Project Case Study Plan (draft and final)
- Summary of TAC Comments
- Project Case Study (draft and final)
- High Quality Digital Photographs

## **V. PROJECT SCHEDULE**

Please see the attached Excel spreadsheet.