



**CALIFORNIA
ENERGY COMMISSION**



**California Energy Commission
November 13, 2024 Business Meeting
Backup Materials for RockeTruck, 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: 24-1113-05c

STATE OF CALIFORNIA

**STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION**

RESOLUTION: RockeTruck, 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-24-025 with RockeTruck, Inc. for a \$4,000,000 grant. This agreement will develop and demonstrate an innovative direct current power distribution architecture using a solid state transformer that enables higher efficiencies for heavy-duty electric vehicle charging and simplifies integration of distributed energy resources into the power grid at a cargo facility near the Port of Los Angeles; 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 November 13, 2024.

AYE:

NAY:

ABSENT:

ABSTAIN:

Dated:

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-24-025

B. Division Information

1. Division Name: ERDD
2. Agreement Manager: Katelynn Dinius
3. MS-:43
4. Phone Number: 916-776-3468

C. Recipient's Information

1. Recipient's Legal Name: RockeTruck, Inc.
2. Federal ID Number: 85-3583509

D. Title of Project

Title of project: Electric Vehicle Direct-Current Hub (EVDCH)

E. Term and Amount

1. Start Date: 12/2/2024
2. End Date: 12/31/2027
3. Amount: \$4,000,000.00

F. Business Meeting Information

1. Are the ARFVTP agreements \$75K and under delegated to Executive Director? No
2. The Proposed Business Meeting Date: 11/13/2024 .
3. Consent or Discussion? Discussion
4. Business Meeting Presenter Name: Katelynn Dinius
5. Time Needed for Business Meeting: 5 minutes.
6. The email subscription topic is: EPIC (Electric Program Investment Charge).

Agenda Item Subject and Description:

RockeTruck, Inc.

Proposed resolution approving agreement EPC-24-025 with RockeTruck, Inc. for a \$4,000,000 grant, and adopting staff's recommendation that this action is exempt from CEQA. This agreement will develop and demonstrate an innovative direct current power distribution architecture using a solid state transformer that enables higher efficiencies for heavy-duty EV charging and simplifies integration of distributed energy resources into the power grid at a cargo facility near the Port of Los Angeles. (EPIC funding) Contact: Katelynn Dinius

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: 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:

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 CEQA. The locations where this demonstration project will take place is at an existing facility, which has already been graded, disturbed, paved, and had structures constructed. Installation and deployment of the electric vehicle charging infrastructure will require limited alteration activities such as minor trenching for electrical conduit, delivery and placement of electric vehicle charging and power conversion equipment, electrical wiring within the facility, and minor paving and concrete activities to restore the disturbed surfaces. 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.

Cal. Code Regs., tit 14, sec. 15303 provides that projects that consist of construction and location of limited number of new, small facilities or structures, and installation of small new equipment and facilities in small structures, are categorically exempt from CEQA. This demonstration project includes the installation and construction of power conversion equipment (i.e., solid state transformer and power distribution cabinet) and four high-power charging dispensers at existing paved sites. This project will entail the construction of a limited number of small accessory structures to house the power conversion



equipment and support the charging dispensers. The project activities involve installation of small new equipment and thus fits within section 15303.

The demonstration project will not impact an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies; does not involve 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.

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

No

If yes, explain reason why Agreement is exempt under the above section: Not applicable.

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”?

Yes

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
Cal State LA University Auxiliary Services, Inc.	\$ 201,000	\$0
Zeem Solutions, LLC	\$ 0	\$200,000
The Coalition for Clean Air	\$ 99,917	\$0
Southern California Edison Company	\$ 0	\$120,000

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
TBD - Fabrication Engineering	\$12,000	\$0
TBD-Electrical Equipment	\$72,000	\$0
ARRS Technologies, LLC	\$144,000	\$0
TBD - Electrical Component Manufacturer	\$286,500	\$0
TBD - Mechanical Component Manufacturer	\$70,500	\$0
TBD - Laboratory Equipment Manufacturer	\$105,000	\$45,000
TBD - Electrical Contractor	\$95,028	\$0

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
No key partners to report

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	\$ 4,000,000

TOTAL Amount: \$ 4,000,000



STATE OF CALIFORNIA
CALIFORNIA ENERGY COMMISSION

Grant Request Form
CEC-270 (Revised 01/2024)

R&D Program Area: ESTB: Transportation
Explanation for “Other” selection Not applicable
Reimbursement Contract #: Not applicable
Federal Agreement #: Not applicable

M. Recipient’s Contact Information

1. Recipient’s Administrator/Officer

Name: Michael Simon
Address: 2415 Auto Park Way
City, State, Zip: Escondido, CA 92029
Phone: 760-504–3278
E-Mail: mike@rocketruck.com

3. Recipient’s Project Manager

Name: Michael Simon
Address: 2415 Auto Park Way
City, State, Zip: Escondido, CA 92029
Phone: 760-504–3278
E-Mail: mike@rocketruck.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	Yes

Approved By

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

Agreement Manager: Katelynn Dinius

Approval Date: 10/4/2024

Branch Manager: Reynaldo Gonzalez

Approval Date: 10/4/2024

Director: Delegated to Branch Manager

Approval Date: 10/4/2024

Exhibit A
Scope of Work
RockeTruck, Inc.

I. TASK ACRONYM/TERM LISTS

A. Task List

Task #	CPR ¹	Task Name
1		General Project Tasks
2		SST and CSC Design
3	X	EVDCH Architecture Layout
4		Procurement and Manufacturing
5	X	Laboratory Testing
6		System Installation
7		Field Testing and Evaluation
8		Evaluation of Project Benefits
9		Technology/Knowledge Transfer Activities

B. Acronym/Term List

Acronym/Term	Meaning
AC	Alternating Current
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer
CEC	California Energy Commission
CHB	Cascade H-Bridge
CSC	Charge Station Converter
CPR	Critical Project Review
DAB	Dual Active Bridge
DC	Direct Current
DER	Distributed Energy Resource
DOE	Department of Energy
EV	Electric Vehicle
EVDCH	Electric Vehicle Direct Current Hub
kVA	Kilovolts of Apparent Power
MVA	Megavolts of Apparent Power
MVAC	Medium Voltage Alternating Current
MVDC	Medium Voltage Direct Current
SiC	Silicon Carbide
SST	Solid-State Transformer
TAC	Technical Advisory Committee

¹ 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

RockeTruck, Inc.

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

A. Purpose of Agreement

The purpose of this Agreement is to fund the development of an innovative medium-voltage direct current (MVDC) power distribution architecture to convert medium-voltage alternating current (MVAC) power from the grid to MVDC power, which is then distributed to direct current (DC) fast chargers. The key components of the proposed Electric Vehicle Direct Current Hub (EVDCH) architecture will be a solid-state transformer (SST) using in a “Cascade H-Bridge” (CHB) design, a network of charge station converters (CSCs) to interface with the electric vehicles (EVs) being charged, and a power distribution network connecting these components via a MVDC distribution bus. This innovative architecture will then be demonstrated at a charging station serving medium- and heavy-duty vehicles.

B. Problem/ Solution Statement

Problem

More than 1.1 million electric vehicle (EV) chargers are forecast to be needed to meet the full demand of the transportation sector.² With a push towards greater EV adoption to curb carbon emissions, facilities and homes installing charging equipment and other connected clean resources are requiring extensive and costly electrical upgrades to accommodate the additional load. Additionally, the growing number and size of energization projects has overwhelmed existing interconnection processes and has contributed to delays in completing requests for charger installations.³ To address these problems, a new generation of EV chargers with improved performance is required.

Today’s EV charging systems rely on alternating current (AC) power distribution to EV chargers, which requires installation of line frequency transformers and AC/DC power converters. AC power distribution imposes limits on efficiency and scalability, while also complicating the integration of DC-based distributed energy resources (DERs) that can support the grid. The potential to mitigate these problems by adopting DC power distribution has been recognized, but limitations on power electronics technology and reliance of existing EV chargers on AC power input have prevented DC power distribution from being implemented on a meaningful scale.

Solution

The Recipient has designed a novel EV charging architecture whose central components are a solid-state transformer (SST) using a Cascade H-Bridge design, a network of charge station converters (CSCs) to interface with the EVs being charged, and a power distribution network connecting these components via a DC distribution bus. The SST and CSC units will use the same silicon-carbide-based, dual active bridge power modules as their core building blocks to reduce costs and simplify maintenance. Use of silicon carbide (SiC) to achieve high switching

² [Electric Vehicle Charging Infrastructure Assessment - AB 2127](#).

³ [Draft 2023 Integrated Energy Policy Report](#), chapter 1.

Exhibit A

Scope of Work

RockeTruck, Inc.

frequencies and eliminate the DC-to-AC conversion step will reduce the size of the SST and CSC units. SST components, and the methods used for integrating them, are expected to reduce shutdown time in the event of a short-circuit, thereby improving system resiliency and safety.

C. Goals and Objectives of the Agreement

Agreement Goals

The goals of this Agreement are to:

- Develop EVDCH architecture and strategically integrate innovative components and technologies to maximize station efficiency and economic gains.
- Demonstrate that a DC power distribution architecture can charge EVs more efficiently and cost-effectively than an AC distribution architecture.
- Demonstrate that the benefits of DC power distribution are enhanced when DERs are integrated into the architecture to supplement or shift utilization of grid energy.

Ratepayer Benefits:⁴ This Agreement will result in benefits to the ratepayer of greater electricity reliability, lower costs, and increased safety.

The EVDCH project will implement more efficient charging solutions to reduce the amount of energy loss during the power conversion process. This will complement load flexibility by reducing overall strain on grid infrastructure. Additionally, facilitating battery energy storage integration will improve electricity infrastructure resiliency and reliability by reducing peak loads even further. The EVDCH will enable integration of DERs with less power electronics equipment, lower circuit construction costs, reduced grid harmonics, and no degradation of power factor. If desired, the EVDCH can be programmed to function as a static Volt-Amps Reactive generator to increase the capacity of the AC-side feeder circuit in certain circumstances.

Improved power conversion and distribution efficiency will reduce energy consumption and related electricity costs. It is estimated that the EVDCH architecture will result in total energy savings of 5-7%, which is consistent with benefits predicted in various studies.⁵ Energy savings come from reduced grid loss due to dynamic power factor control, SST efficiency improvement over line frequency transformers, lower distribution current, and charger efficiency improvements from DC/DC converter.

These benefits can be amplified using DERs to reduce dependence on grid power, which is an enhancement facilitated by the switch to a DC power distribution architecture because most DERs (e.g., solar PV, fuel cells, batteries) produce DC power. Furthermore, the SST design is

⁴ 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).

⁵ One representative study that predicted 5-7% benefits is documented in Vossos, V.; Gerber, D.L.; Gaillet-Tournier, M.; Nordman, B.; Brown, R.; Bernal Heredia, W.; Ghatpande, O.; Saha, A.; Arnold, G.; and Frank, S.M., “Adoption Pathways for DC Power Distribution in Buildings,” *Energies* 2022, 15, 786. <https://doi.org/10.3390/en15030786>.

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RockeTruck, Inc.

simpler and more compact than conventional transformer designs, and elimination of the AC-to-DC conversion stage at each charge dispenser will simplify these components. These simplifications are expected to reduce both capital and maintenance costs.

The SST used in the EVDCH architecture will be able to shut down 100 times faster than a conventional medium-voltage transformer, which reduces potential arc flash energy by the same factor of 100.⁶ This will reduce the likelihood of an injury in the event of a major short-circuit or malfunction in the EVDCH system while also reducing collateral damage, thereby helping to reduce system down-time and maintenance expenses. Public safety will also be enhanced by the reductions in toxic pollutants that result if this project results in greater adoption of EVs and DERs, as expected.

Technological Advancement and Breakthroughs:⁷ 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 increasing the value proposition of distributed energy resources to customers and the grid. Conventional AC power distribution complicates the integration of DERs with the grid, which in turn creates barriers to completing the grid upgrades necessary to achieve full compliance with recent California Air Resources Board (CARB) regulations including Advanced Clean Cars II⁸ and Advanced Clean Fleets.⁹ The Recipient will demonstrate a new DC power distribution architecture that facilitates the integration of DERs that rely on DC power, such as EV chargers and battery energy storage systems, principally by developing a new SST that steps down medium voltage AC power from the distribution grid (typically about 11-14 kV) and performs conversion to 1,500 volts DC, as opposed to conventional step-down transformers that drop the grid power to 480 volts AC but do not perform the conversion to DC. The United States Department of Energy (DOE) identified improvements in SST design as a key requirement for achievement of the types of grid upgrades required to achieve California's energy goals.¹⁰ The DOE noted that the primary benefit of SST design, compared to a conventional line frequency (e.g., 60 Hz) transformer, is the ability to use a high frequency (HF) link that enables significant size and weight reductions at the same power rating.

This project's SST design will achieve this goal cost-effectively by utilizing a CHB design, which will minimize footprint and the complexity of installation and servicing. The SST will use a dual active-bridge (DAB) topology using state-of-the-art SiC electronics, which will contribute to

⁶ The prompt discharge current magnitude from DC filter capacitors in the SST power electronics will be lower than that of a typical 480V power transformer and the expected duration of discharge, less than 800 microseconds (μ s), which is about 100 times lower than the 5-cycle clearing time of a typical MVAC circuit breaker. As a result, the arc flash energy is projected to be at least 100 times lower, enabling the SST to shut down 100 times faster than a conventional medium-voltage transformer – in about 10 μ s.

⁷ 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.

⁸ [Advanced Clean Cars II](#). Requires all new passenger vehicles sold in California to be zero emissions by 2035.

⁹ [Advanced Clean Fleets](#). Requires drayage fleets, government fleets, and high-priority fleets to transition to zero-emission vehicles over the next two decades.

¹⁰ U.S. Department of Energy, Solid State Power Substation Technology Roadmap, Office of Electricity, Transformer Resilience and Advanced Components (TRAC) Program, June 2020

Exhibit A

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RockeTruck, Inc.

increased efficiency and a more compact design. The key recent technological advancement that will be incorporated in this proposed design is the application of 3300V SiC MOSFET devices that have achieved technological maturity within the last five years. This higher voltage enables an SST design with half as many higher voltage modules, thereby reducing component count and complexity.

These SST advancements, by enabling power distribution throughout a facility at 1500 VDC, will foster additional technological advancement by enabling use of smaller power distribution cables and simpler EV charge converters, which will not require AC-to-DC conversion stages. Using similar DAB power module technology in the SST and each CSC unit will increase parts commonality and thereby reduce total capital cost, while simplifying maintenance of the overall EVDCH architecture. Finally, DC power distribution will simplify the integration of DERs such as solar photovoltaic power and battery energy storage into the overall power architecture, which will help accelerate adoption of these technologies and foster additional innovations in these areas as demand increases and new entities enter the renewable power generation market.

The net result of these advancements is a grid-interfacing SST that can be installed in a facility with a 33% smaller footprint than a conventional transformer. Because the interfacing voltage is 1500VDC instead of 480VAC, the cost of the distribution circuit between the transformer and the charging stations is significantly reduced. Furthermore, because the higher distribution voltage reduces cable losses and electricity cost, the facility designer has the flexibility to locate the SST and the medium voltage grid interface further away from the actual charging dispenser locations. Finally, since the equipment at the charging dispenser does not have to convert AC power to DC power, the charging point equipment does not take up as much space. In areas with high property values, the reduced equipment footprint can reduce facility purchase or lease expenses, as well as enabling high power charging stations to be installed in congested urban locations where conventional stations might not fit. These features will increase the availability of high-power charging stations and help California achieve its transportation electrification goals.

Agreement Objectives

The objectives of this Agreement are to:

- Design and produce an EVDCH architecture, including a solid state transformer and charge station converter, that comply with all relevant regulations and industry standards.
- Install EVDCH equipment to charge heavy-duty battery-electric vehicles at a high-power charging facility in a disadvantaged community that will environmentally and economically benefit from project activities.
- Demonstrate improvements in system safety and reliability compared to conventional high-power charging station architectures.
- Demonstrate that the installed EVDCH architecture reduces equipment footprint by one-third and improves charging efficiency by 5% without DERs and 10% with DERs.
- Develop and execute knowledge transfer and commercialization plans, demonstrating a pathway to commercial adoption at a total installed cost that is either competitive with that of competing systems, or whose operational benefits justify a higher installed cost.

Exhibit A
Scope of Work
RockeTruck, 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 RockeTruck, 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;

Exhibit A Scope of Work RockeTruck, Inc.

- Travel;
 - Equipment purchases;
 - 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.

Exhibit A Scope of Work RockeTruck, Inc.

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 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.

Exhibit A

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RockeTruck, Inc.

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.
- 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.

Exhibit A Scope of Work RockeTruck, Inc.

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.

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)

Exhibit A Scope of Work RockeTruck, Inc.

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 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

Exhibit A Scope of Work RockeTruck, Inc.

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 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*)

Exhibit A Scope of Work RockeTruck, Inc.

- 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:
 - 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.

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- 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:

- 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;

Exhibit A Scope of Work RockeTruck, Inc.

- 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.
- 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.

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- 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 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.

Exhibit A Scope of Work RockeTruck, Inc.

Products:

- TAC Performance Metrics Summary
- Project Performance Metrics Results

IV. TECHNICAL TASKS

*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. **Subtask 1.1 (Products)** describes the procedure for submitting products to the CAM.*

TASK 2 SOLID STATE TRANSFORMER (SST) AND CHARGE STATION CONVERTER (CSC) DESIGN

The goals of this task are to complete the design work, engineering analyses, and trade studies necessary for final selection of components for the SST and CSC. Following these selections, designs will be refined to the detail necessary to design the EVDCH architecture under Task 3 and to manufacture and procure SST and CSC components under Task 4.

The Recipient shall:

- Develop electrical schematics at all levels of assembly.
- Conduct initial validation of electrical performance via Simulink modeling. Modelling will verify performance in steady-state operation, dynamic loading effects, input power line transients, startup and fault recovery where appropriate.
- Perform mechanical, electrostatic, and thermal analyses, including
 - Tabular inventory of mass properties and power losses.
 - Temperature rise of critical components.
 - Cooling system performance.
 - Strength and stiffness of critical component mounts and enclosure.
 - Suitability of insulation for continuous and transient electrical stress.
 - FEA will be employed where handbook analysis is insufficient.
- Develop detailed mechanical and electrical drawings.
- Review design documentation at both the concept and detailed level with project stakeholders such as TAC members, the local utility, and selected engineering support contractors.
- Develop information required to procure printed circuit boards.
- Maximize design process efficiencies by using common components in the SST and CSC designs.
- Produce a *Summary SST Design Package* covering non-proprietary details of the SST design.
- Produce a *Summary CSC Design Package* covering non-proprietary details of the CSC design.
- Develop software required for SST and CSC functionality.

Products:

- Summary SST Design Package
- Summary CSC Design Package

Exhibit A Scope of Work RockeTruck, Inc.

TASK 3: ELECTRIC VEHICLE DIRECT CURRENT HUB (EVDCH) ARCHITECTURE LAYOUT

The goal of this task is to generate a complete layout of EVDCH architecture components, in sufficient detail, to guide the procurement of integration hardware under Task 4 and the process of installing EVDCH components under Task 5.

The Recipient shall:

- Review the physical and other relevant characteristics of the field demonstration site to support selection of locations for installation of all EVDCH components. Characteristics include but are not limited to:
 - Location of utility connection.
 - Locations of EV chargers.
 - Facility space available for installation of battery energy storage or other DERs.
 - Utility input power characteristics (e.g., power level, voltage).
 - Any relevant physical constraints.
- Develop layout drawings and installation guidelines in sufficient detail to support internal design reviews, discussions with other team members involved in the design process (e.g. demonstration site partner, TAC members, CEC reviewers, engineering contractor) and to guide internal personnel, external contractors, and inspectors involved in the EVDCH installation process. These drawings and guidelines include but are not limited to:
 - Master layout drawing for the overall architecture.
 - Detailed layout drawings for individual components.
 - Supporting notes and calculations.
 - Recommended installation steps including safety precautions and required installation tools.
- Prepare a *Summary EVDCH Layout Report* to capture essential elements of the proposed layout. Elements include, but are not limited to, the SST, EV charging hardware, power distribution cabling, any separate controls or data distribution hardware, and any DERs to be integrated into the architecture.
- Prepare a *CPR Report #1* in accordance with subtask 1.3 (CPR Meetings).
- Participate in a CPR meeting (CPR #1).

Products:

- Summary EVDCH Layout Report (draft and final)
- CPR Report #1

TASK 4: PROCUREMENT AND MANUFACTURING

The goals of this task are to procure all externally sourced parts and materials required to manufacture the SST, CSC units, and all other EVDCH components to be produced in-house.

The Recipient shall:

- Develop detailed documentation to guide procurement and manufacturing. Documentation includes, but is not limited to, the following:
 - Project Work Breakdown Structure.
 - Bill of Material for each major EVDCH component.
 - Assembly instructions for each product to be manufactured in-house.

Exhibit A

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RockeTruck, Inc.

- Execute required procurement and inventory management activities. Activities include, but are not limited to, the following:
 - Collect supplier identification and qualification.
 - Issue Purchase Orders.
 - Receive, inspect, and approve purchased parts and materials.
 - Manage inventory, including parts tracking.
- Develop a *Measurement & Verification Plan* for laboratory testing and field testing that includes, but is not limited to, the following:
 - Tests being conducted.
 - Critical metrics being validated.
 - Measurement tools for verification.
 - Desired certifications.

Products:

- Measurement & Verification Plan (draft and final)

TASK 5: LABORATORY TESTING

The goal of this task is to complete laboratory testing of all EVDCH components at Recipient and utility facilities in accordance with the M&V Plan developed under Task 4, prior to their installation at the field demonstration site under Task 6. This task will also encompass any testing performed at certification laboratory facilities for the purposes of securing industry certifications.

The Recipient shall:

- Procure and set up all test equipment required for in-house testing. Equipment includes, but is not limited to, the following:
 - 1.3 MVA MVAC stepwise variable power source.
 - Load simulator.
 - Hipot testing equipment.
 - Miscellaneous test equipment (e.g., oscilloscopes).
- Conduct in-house laboratory testing of the SST and CSC. Testing includes, but is not limited to, the following:
 - Dielectric testing.
 - Application of control power and verification of all protective circuits.
 - Low voltage input testing.
 - Testing at progressively higher voltages, leading to operation from no load to full load at maximum voltage.
 - Performance and validation testing of the SST at full load for 24-48 hours and each CSC at full power for 8 hours.
 - Testing of one CSC in connection with SST, followed by testing of multiple CSCs with the SST.
 - Monitoring and documentation of SST and CSC temperature increases at key points.
 - Verification of multiple points on regulation curves for charging batteries at voltages ranging from 400 volts DC to 800 volts DC.
- Test key EVDCH components (such as the SST and CSC) at partner utility laboratory, utilizing equipment not available in-house.

Exhibit A

Scope of Work

RockeTruck, Inc.

- Determine EVDCH components requiring third-party certification and complete certification testing and associated activities at Nationally Recognized Testing Laboratory.
- Prepare a draft *Measurement & Verification Report* that includes, but is not limited to, the following:
 - High-level executive summary discussing:
 - Process and general results of the laboratory testing.
 - Major technical or certification issues encountered and methods employed to resolve them.
 - Broad lessons learned from the laboratory testing phase of the project.
 - Detailed sections discussing:
 - Specific results of testing of each EVDCH component and sub-assembly.
 - Specific technical or certification issues encountered, and methods employed to resolve them.
 - Detailed lessons learned from the laboratory testing phase of the project.
- Prepare a *CPR Report #2* in accordance with subtask 1.3 (CPR Meetings).
- Participate in a CPR meeting (CPR #2).

Products:

- Measurement & Verification Report (draft and final)
- CPR Report #2

TASK 6: SYSTEM INSTALLATION

The goals of this task are to transport all EVDCH components to the project demonstration site, acquire all permits required for their installation, and complete the installation and commissioning of the EVDCH.

The Recipient shall:

- Deliver all required documentation to installation contractor, including the engineering drawings and plans and installation procedures.
- Obtain all necessary permits and approvals for EVDCH installation with the support of installation contractor.
- Transport all EVDCH equipment to the field demonstration site.
- Install EVDCH equipment in coordination with demonstration site partner.
- Test ECDCH equipment on site and make any changes or upgrades necessary to achieve desired functionality.
- Generate *Photographic Documentation* of the EVDCH installation.
- Certify that installed equipment is ready for field testing and evaluation.
- Develop a *Final Installation Report* documenting installation and commissioning activities including, but not limited to, a high-level summary of installation procedures, permits received, and changes or upgrades needed to achieve functionality.

Products:

- Photographic Documentation
- Final Installation Report

TASK 7: FIELD TESTING & EVALUATION

Exhibit A

Scope of Work

RockeTruck, Inc.

The goal of this task is to perform field validation of the EVDCH architecture, including at least six months of utilization under real-world operating conditions.

The Recipient shall:

- Provide field demonstration partner with all documentation necessary to support the field demonstration. Documentation includes but is not limited to:
 - Training manuals.
 - Maintenance manuals.
- Designate a field engineer as fleet operator's main point of contact for the field demonstration.
- Conduct weekly reviews with field demonstration partner to monitor progress and resolve issues.
- Utilize data loggers to monitor all aspects of EVDCH performance, including but not limited to:
 - Power levels (total architecture and each charger).
 - Energy consumption.
 - Power conversion and overall grid-to-EV charging efficiency.
 - System and component reliability.
 - Charger availability.
- Prepare a draft *Field Demonstration Report* that includes, but is not limited to:
 - High-level executive summary discussing:
 - Process and general results of the field testing.
 - Major technical or certification issues encountered, and methods employed to resolve them.
 - Broad lessons learned from the field testing phase of the project, including broad efficiency and economic benefits achieved.
 - Detailed sections discussing:
 - Specific results of testing each EVDCH component and sub-assembly.
 - Specific technical or certification issues encountered, and methods employed to resolve them.
 - Lessons learned from the field testing phase of the project, including efficiency and economic benefits achieved.

Products:

- Field Demonstration Report (draft and final)

TASK 8: 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

Exhibit A Scope of Work RockeTruck, Inc.

- 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), 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), 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 9: TECHNOLOGY/KNOWLEDGE TRANSFER ACTIVITIES

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:

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- 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.