

GRANT REQUEST FORM (GRF)

CEC-270 (Revised 02/13)

CALIFORNIA ENERGY COMMISSION

New Agreement ARV-14-051 (To be completed by CGL Office)

Division	Agreement Manager:	MS-	Phone
600 Fuels and Transportation Division	Larry Rillera	27	916-651-6178

Recipient's Legal Name	Federal ID Number
Transportation Power, Inc.	27-355766

Title of Project
Heavy-Duty Electric Refuse Trucks

Term and Amount	Start Date	End Date	Amount
	6 / 30 / 2015	3 / 29 / 2019	\$ 2,884,812

Business Meeting Information			
<input type="checkbox"/> ARFVTP agreements under \$75K delegated to Executive Director.			
Proposed Business Meeting Date	5 / 13 / 2015	<input type="checkbox"/> Consent	<input checked="" type="checkbox"/> Discussion
Business Meeting Presenter	Larry Rillera	Time Needed:	5 minutes
Please select one list serve. Altfuels (AB118- ARFVTP)			

Agenda Item Subject and Description
Proposed resolution approving Agreement ARV-14-051 with Transportation Power, Inc. for a \$2,884,812 grant to conduct a heavy-duty electric refuse truck demonstration project.

California Environmental Quality Act (CEQA) Compliance
1. Is Agreement considered a "Project" under CEQA? <input checked="" type="checkbox"/> Yes (skip to question 2) <input type="checkbox"/> No (complete the following (PRC 21065 and 14 CCR 15378)): Explain why Agreement is not considered a "Project": Agreement will not cause direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment because .
2. If Agreement is considered a "Project" under CEQA: <input checked="" type="checkbox"/> a) Agreement IS exempt. (Attach draft NOE) <input type="checkbox"/> Statutory Exemption. List PRC and/or CCR section number: <input checked="" type="checkbox"/> Categorical Exemption. List CCR 15306 (Information Collection) section number: <input checked="" type="checkbox"/> Common Sense Exemption. 14 CCR 15061 (b) (3) Explain reason why Agreement is exempt under the above section: The repowering of existing diesel fueled refuse trucks to all electric drive systems will occur at an existing permitted vehicle technology provider facility. The project will eliminate the use of existing fossil fueled vehicles and will instead use near-zero emission vehicles for the demonstration and collection of information. The project will not cause either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment because this is a demonstration and information collection project.
<input type="checkbox"/> b) Agreement IS NOT exempt. (Consult with the legal office to determine next steps.) Check all that apply <input type="checkbox"/> Initial Study <input type="checkbox"/> Environmental Impact Report <input type="checkbox"/> Negative Declaration <input type="checkbox"/> Statement of Overriding Considerations <input type="checkbox"/> Mitigated Negative Declaration

List all subcontractors (major and minor) and equipment vendors: (attach additional sheets as necessary)	
Legal Company Name:	Budget
CarbonBLU	\$ 115,000
EPC Power Corp.	\$ 110,000
	\$

List all key partners: (attach additional sheets as necessary)
Legal Company Name:
County of Sacramento
Waste Management

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Budget Information			
Funding Source	Funding Year of Appropriation	Budget List No.	Amount
ARFVTF	13/14	601.118F	\$873,512
ARFVTF	14/15	601.118G	\$2,011,300
Funding Source			\$
Funding Source			\$
Funding Source			\$
R&D Program Area:	Select Program Area	TOTAL:	\$2,884,812
Explanation for "Other" selection			
Reimbursement Contract #:		Federal Agreement #:	

Recipient's Administrator/ Officer				Recipient's Project Manager			
Name:	Mike Simon			Name:	joshua@transpowerusa.com		
Address:	13000 Danielson Street, Suite D			Address:	13000 Danielson Street, Suite D		
City, State, Zip:	Poway, CA 92064			City, State, Zip:	Poway, CA 92064		
Phone:	858-248-4255	Fax:	858-408-7457	Phone:	858-449-4629	Fax:	858-408-7457
E-Mail:	mike@transpowerusa.com			E-Mail:	joshua@transpowerusa.com		

Selection Process Used	
<input checked="" type="checkbox"/> Competitive Solicitation	Solicitation #: PON-14-605
<input type="checkbox"/> First Come First Served Solicitation	

The following items should be attached to this GRF			
1. Exhibit A, Scope of Work		<input checked="" type="checkbox"/>	Attached
2. Exhibit B, Budget Detail		<input checked="" type="checkbox"/>	Attached
3. CEC 105, Questionnaire for Identifying Conflicts		<input checked="" type="checkbox"/>	Attached
4. Recipient Resolution		<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Attached
5. CEQA Documentation		<input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Attached

Agreement Manager _____ Date _____ Office Manager _____ Date _____ Deputy Director _____ Date _____

Exhibit A SCOPE OF WORK

TECHNICAL TASK LIST

Task #	CPR	Task Name
1		Administration
2		Design
3		Procurement
4		Subsystem Assembly
5	X	Integration
6		Commissioning
7		Deployment
8		Outreach
9		Data Collection and Analysis

KEY NAME LIST

Task #	Key Personnel	Key Subcontractor(s)	Key Partner(s)
1	Joshua Goldman/ Michael Simon	N/A	N/A
2	Dr. Paul Scott	N/A	N/A
3	N/A	N/A	Peterbilt
4	Harold Meyer	N/A	N/A
5	Frank Falcone	N/A	N/A
6	Ameya Jathar	N/A	N/A
7	Harold Meyer	N/A	County of Sacramento
8	Michael Simon	CarbonBLU	County of Sacramento, Waste Management
9	Dr. James Burns	CarbonBLU	County of Sacramento, Waste Management

GLOSSARY

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

Term/ Acronym	Definition
AMT	Automated Manual Transmission
ARFVTP	Alternative and Renewable Fuel and Vehicle Technology Program
CAM	Commission Agreement Manager
CPR	Critical Project Review
FTD	Fuels and Transportation Division
HDERT	Heavy-Duty Electric Refuse Trucks
Recipient	Transportation Power, Inc. or TransPower
SCR	Subsystem Completion Report
DR	Deployment Report

BACKGROUND

Assembly Bill (AB) 118 (Núñez, Chapter 750, Statutes of 2007), created the Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP). The statute authorizes the California Energy Commission (Energy Commission) to develop and deploy alternative and renewable fuels and advanced transportation technologies to help attain the state's climate change, clean air, and alternative energy policies. AB 8 (Perea, Chapter 401, Statutes of 2013) re-authorizes the ARFVTP through January 1, 2024. The ARFVTP has an annual budget of approximately \$100 million and provides financial support for projects that:

- Reduce California's use and dependence on petroleum transportation fuels and increase the use of alternative and renewable fuels and advanced vehicle technologies.
- Produce sustainable alternative and renewable low-carbon fuels in California.
- Expand alternative fueling infrastructure and fueling stations.
- Improve the efficiency, performance and market viability of alternative light-, medium-, and heavy-duty vehicle technologies.
- Retrofit medium- and heavy-duty on-road and non-road vehicle fleets to alternative technologies or fuel use.

- Expand the alternative fueling infrastructure available to existing fleets, public transit, and transportation corridors.
- Establish workforce training programs and conduct public outreach on the benefits of alternative transportation fuels and vehicle technologies.

The Energy Commission issued Solicitation PON-14-605 entitled “Medium- and Heavy-Duty Advanced Vehicle Technology Demonstration” under the ARFVTP on December 19, 2014. This competitive grant solicitation was an offer to cost share the development of truck demonstrations. To be eligible for funding under PON-14-605, the projects must also be consistent with the Energy Commission’s ARFVTP Investment Plan as updated annually. In response to PON-14-605, the Recipient submitted Application #19 which was proposed for funding in the Energy Commission’s Notice of Proposed Awards on March 24, 2015. PON-14-605 is hereby incorporated by reference into this Agreement in its entirety.

In the event of any conflict or inconsistency between the terms of the Solicitation and the terms of the Recipient’s Application, the Solicitation shall control. In the event of any conflict or inconsistency between the Recipient’s Application and the terms of the Energy Commission’s Award, the Energy Commission’s Award shall control. Similarly, in the event of any conflict or inconsistency between the terms of this Agreement and the Recipient’s Application, the terms of this Agreement shall control.

Problem Statement:

Heavy-duty refuse trucks are high petroleum consumers and high pollution emitters have a disproportionate negative effect on the health and welfare of individuals.

This project, the Heavy-Duty Electric Refuse Trucks (HDERT), addresses this problem by utilizing battery-electric drive systems to power up to three refuse trucks, thus eliminating petroleum consumption and emissions at the point of operation. Battery-electric power is an ideal solution for heavy-duty refuse trucks, but its widespread use in such applications has been hindered by a variety of barriers, unresolved issues, and knowledge gaps, as discussed in the following paragraphs.

Goals of the Agreement:

The goals of this Agreement are to:

- Refine and demonstrate TransPower’s technologies for up to three refuse trucks.
- Demonstrate these vehicles in disadvantaged communities with fleet partners; and
- Broaden the visibility of the demonstration and project results.

Objectives of the Agreement:

The objectives of this Agreement are to demonstrate:

- Load-carrying capability equivalent to the most capable refuse trucks (up to about 65,000 lb. of gross vehicle weight).
- Increased operating range, targeted at a minimum of 50-75 miles for heavy refuse trucks.
- Availability levels and mean times between failures comparable to those of conventional refuse trucks.
- Energy cost savings, measured as the cost of electricity used to recharge the trucks deducted from the cost of fuel that would have been incurred to do the same work with diesel trucks.
- Significant emissions benefits, measured as the amount of greenhouse gases and criteria pollutants that would have been produced with diesel trucks performing equivalent work.
- Significant displacement of fossil fuels, measured as the amount of fuel that would have been used by diesel trucks performing equivalent work.
- Reduced noise, measured in terms of decibels of noise at standard distances from operating trucks.
- Overall customer satisfaction with the electric refuse trucks.

TASK 1 ADMINISTRATION

Task 1.1 Attend Kick-off Meeting

The goal of this task is to establish the lines of communication and procedures for implementing this Agreement. The Commission Agreement Manager (CAM) shall designate the date and location of this meeting and provide an agenda to the Recipient prior to the meeting.

The Recipient shall:

- Attend a “Kick-Off” meeting with the CAM, the Commission Agreement Officer (CAO), and a representative of the Energy Commission Accounting Office. The Recipient shall bring their Project Manager, Agreement Administrator, Accounting Officer, and any others determined necessary by the Recipient or specifically requested by the CAM to this meeting.
- Discuss the following administrative and technical aspects of this Agreement:
 - Agreement Terms and Conditions
 - Critical Project Review (Task 1.2)
 - Match fund documentation (Task 1.6) No reimbursable work may be done until this documentation is in place.

- Permit documentation (Task 1.7)
- Subcontracts needed to carry out project (Task 1.8)
- The CAM's expectations for accomplishing tasks described in the Scope of Work
- An updated Schedule of Products and Due Dates
- Monthly Progress Reports (Task 1.4)
- Technical Products (Product Guidelines located in Section 5 of the Terms and Conditions)
- Final Report (Task 1.5)

Recipient Products:

- Updated Schedule of Products
- Updated List of Match Funds
- Updated List of Permits

Commission Agreement Manager Product:

- Kick-Off Meeting Agenda

Task 1.2 Critical Project Review (CPR) Meetings

CPRs provide the opportunity for frank discussions between the Energy Commission and the Recipient. The goal of this task is to determine if the project should continue to receive Energy Commission funding to complete this Agreement and to identify any needed modifications to the tasks, products, schedule or budget.

The CAM may schedule CPR meetings as necessary, and meeting costs will be borne by the Recipient.

Meeting participants include the CAM and the Recipient and may include the Commission Agreement Officer, the Fuels and Transportation Division (FTD) program lead, other Energy Commission staff and Management as well as other individuals selected by the CAM to provide support to the Energy Commission.

The CAM shall:

- Determine the location, date, and time of each CPR meeting with the Recipient. These meetings generally take place at the Energy Commission, but they may take place at another location.
- Send the Recipient the agenda and a list of expected participants in advance of each CPR. If applicable, the agenda shall include a discussion on both match funding and permits.
- Conduct and make a record of each CPR meeting. Prepare a schedule for providing the written determination described below.

- Determine whether to continue the project, and if continuing, whether or not modifications are needed to the tasks, schedule, products, and/or budget for the remainder of the Agreement. Modifications to the Agreement may require a formal amendment (please see section 8 of the Terms and Conditions). If the CAM concludes that satisfactory progress is not being made, this conclusion will be referred to the Lead Commissioner for Transportation for his or her concurrence.
- Provide the Recipient with a written determination in accordance with the schedule. The written response may include a requirement for the Recipient to revise one or more product(s) that were included in the CPR.

The Recipient shall:

- Prepare a CPR Report for each CPR that discusses the progress of the Agreement toward achieving its goals and objectives. This report shall include recommendations and conclusions regarding continued work of the projects. This report shall be submitted along with any other products identified in this scope of work. The Recipient shall submit these documents to the CAM and any other designated reviewers at least 15 working days in advance of each CPR meeting.
- Present the required information at each CPR meeting and participate in a discussion about the Agreement.

CAM Products:

- Agenda and a list of expected participants
- Schedule for written determination
- Written determination

Recipient Product:

- CPR Report(s)

Task 1.3 Final Meeting

The goal of this task is to closeout this Agreement.

The Recipient shall:

- Meet with Energy Commission staff to present the findings, conclusions, and recommendations. The final meeting must be completed during the closeout of this Agreement.

This meeting will be attended by, at a minimum, the Recipient, the Commission Grants Office Officer, and the Commission Agreement Manager. The technical and administrative aspects of Agreement closeout will be discussed at the meeting, which may be two separate meetings at the discretion of the Commission Agreement Manager.

The technical portion of the meeting shall present an assessment of the degree to which project and task goals and objectives were achieved, findings, conclusions, recommended next steps (if any) for the Agreement, and recommendations for improvements. The Commission Agreement Manager will determine the appropriate meeting participants.

The administrative portion of the meeting shall be a discussion with the Commission Agreement Manager and the Grants Officer about the following Agreement closeout items:

- What to do with any equipment purchased with Energy Commission funds (Options)
- Energy Commission's request for specific "generated" data (not already provided in Agreement products)
- Need to document Recipient's disclosure of "subject inventions" developed under the Agreement
- "Surviving" Agreement provisions
- Final invoicing and release of retention
- Prepare a schedule for completing the closeout activities for this Agreement.

Products:

- Written documentation of meeting agreements
- Schedule for completing closeout activities

Task 1.4 Monthly Progress Reports

The goal of this task is to periodically verify that satisfactory and continued progress is made towards achieving the objectives of this Agreement on time and within budget.

The objectives of this task are to summarize activities performed during the reporting period, to identify activities planned for the next reporting period, to identify issues that may affect performance and expenditures, and to form the basis for determining whether invoices are consistent with work performed.

The Recipient shall:

- Prepare a Monthly Progress Report which summarizes all Agreement activities conducted by the Recipient for the reporting period, including an assessment of the ability to complete the Agreement within the current budget and any anticipated cost overruns. Each progress report is due to the Commission Agreement Manager within 10 days of the end of the reporting period. The recommended specifications for each progress report are contained in Section 6 of the Terms and Conditions of this Agreement.

- In the first Monthly Progress Report and first invoice, document and verify match expenditures and provide a synopsis of project progress, if match funds have been expended or if work funded with match share has occurred after the notice of proposed award but before execution of the grant agreement. If no match funds have been expended or if no work funded with match share has occurred before execution, then state this in the report. All pre-execution match expenditures must conform to the requirements in the Terms and Conditions of this Agreement.

Product:

- Monthly Progress Reports

Task 1.5 Final Report

The goal of the Final Report is to assess the project's success in achieving the Agreement's goals and objectives, advancing science and technology, and providing energy-related and other benefits to California.

The objectives of the Final Report are to clearly and completely describe the project's purpose, approach, activities performed, results, and advancements in science and technology; to present a public assessment of the success of the project as measured by the degree to which goals and objectives were achieved; to make insightful observations based on results obtained; to draw conclusions; and to make recommendations for further projects and improvements to the FTD project management processes.

The Final Report shall be a public document. If the Recipient has obtained confidential status from the Energy Commission and will be preparing a confidential version of the Final Report as well, the Recipient shall perform the following activities for both the public and confidential versions of the Final Report.

The Recipient shall:

- Prepare an Outline of the Final Report, if requested by the CAM.
- Prepare a Final Report following the latest version of the Final Report guidelines which will be provided by the CAM. The CAM shall provide written comments on the Draft Final Report within fifteen (15) working days of receipt. The Final Report must be completed at least 60 days before the end of the Agreement Term.
- Submit one bound copy of the Final Report with the final invoice.

Products:

- Outline of the Final Report, if requested
- Draft Final Report
- Final Report

Task 1.6 Identify and Obtain Matching Funds

The goal of this task is to ensure that the match funds planned for this Agreement are obtained for and applied to this Agreement during the term of this Agreement.

The costs to obtain and document match fund commitments are not reimbursable through this Agreement. Although the Energy Commission budget for this task will be zero dollars, the Recipient may utilize match funds for this task. Match funds shall be spent concurrently or in advance of Energy Commission funds for each task during the term of this Agreement. Match funds must be identified in writing and the associated commitments obtained before the Recipient can incur any costs for which the Recipient will request reimbursement.

The Recipient shall:

- Prepare a letter documenting the match funding committed to this Agreement and submit it to the Commission Agreement Manager at least 2 working days prior to the kick-off meeting. If no match funds were part of the proposal that led to the Energy Commission awarding this Agreement and none have been identified at the time this Agreement starts, and then state such in the letter. If match funds were a part of the proposal that led to the Energy Commission awarding this Agreement, then provide in the letter a list of the match funds that identifies the:
 - Amount of each cash match fund, its source, including a contact name, address and telephone number and the task(s) to which the match funds will be applied.
 - Amount of each in-kind contribution, a description, documented market or book value, and its source, including a contact name, address and telephone number and the task(s) to which the match funds will be applied. If the in-kind contribution is equipment or other tangible or real property, the Recipient shall identify its owner and provide a contact name, address and telephone number, and the address where the property is located.
- Provide a copy of the letter of commitment from an authorized representative of each source of cash match funding or in-kind contributions that these funds or contributions have been secured. For match funds provided by a grant a copy of the executed grant shall be submitted in place of a letter of commitment.
- Discuss match funds and the implications to the Agreement if they are reduced or not obtained as committed, at the kick-off meeting. If applicable, match funds will be included as a line item in the progress reports and will be a topic at CPR meetings.
- Provide the appropriate information to the Commission Agreement Manager if during the course of the Agreement additional match funds are received.

- Notify the Commission Agreement Manager within 10 days if during the course of the Agreement existing match funds are reduced. Reduction in match funds must be approved through a formal amendment to the Agreement and may trigger an additional CPR meeting.

Products:

- A letter regarding match funds or stating that no match funds are provided
- Copy(ies) of each match fund commitment letter(s) (if applicable)
- Letter(s) for new match funds (if applicable)
- Letter that match funds were reduced (if applicable)

Task 1.7 Identify and Obtain Required Permits

The goal of this task is to obtain all permits required for work completed under this Agreement in advance of the date they are needed to keep the Agreement schedule on track.

Permit costs and the expenses associated with obtaining permits are not reimbursable under this Agreement. Although the Energy Commission budget for this task will be zero dollars, the Recipient shall budget match funds for any expected expenditures associated with obtaining permits. Permits must be identified in writing and obtained before the Recipient can make any expenditure for which a permit is required.

The Recipient shall:

- Prepare a letter documenting the permits required to conduct this Agreement and submit it to the Commission Agreement Manager at least 2 working days prior to the kick-off meeting. If there are no permits required at the start of this Agreement, then state such in the letter. If it is known at the beginning of the Agreement that permits will be required during the course of the Agreement, provide in the letter:
 - A list of the permits that identifies the:
 - Type of permit
 - Name, address and telephone number of the permitting jurisdictions or lead agencies
 - The schedule the Recipient will follow in applying for and obtaining these permits.
- Discuss the list of permits and the schedule for obtaining them at the kick-off meeting and develop a timetable for submitting the updated list, schedule and the copies of the permits. The implications to the Agreement if the permits are not obtained in a timely fashion or are denied will also be discussed. If applicable, permits will be included as a line item in the Progress Reports and will be a topic at CPR meetings.

- If during the course of the Agreement additional permits become necessary, provide the appropriate information on each permit and an updated schedule to the Commission Agreement Manager.
- As permits are obtained, send a copy of each approved permit to the Commission Agreement Manager.
- If during the course of the Agreement permits are not obtained on time or are denied, notify the Commission Agreement Manager within 5 working days. Either of these events may trigger an additional CPR.

Products:

- Letter documenting the permits or stating that no permits are required
- A copy of each approved permit (if applicable)
- Updated list of permits as they change during the term of the Agreement (if applicable)
- Updated schedule for acquiring permits as changes occur during the term of the Agreement (if applicable)
- A copy of each final approved permit (if applicable)

Task 1.8 Obtain and Execute Subcontracts

The goal of this task is to ensure quality products and to procure subcontractors required to carry out the tasks under this Agreement consistent with the Agreement Terms and Conditions and the Recipient's own procurement policies and procedures. It will also provide the Energy Commission an opportunity to review the subcontracts to ensure that the tasks are consistent with this Agreement, and that the budgeted expenditures are reasonable and consistent with applicable cost principles.

The Recipient shall:

- Manage and coordinate subcontractor activities.
- Submit a draft of each subcontract required to conduct the work under this Agreement to the Commission Agreement Manager for review.
- Submit a final copy of the executed subcontract.
- If Recipient decides to add new subcontractors, then the Recipient shall notify the CAM.

Products:

- Draft subcontracts
- Final subcontracts

TECHNICAL TASKS

TASK 2 DESIGN

The goal of this task is to design a variant of the existing ElecTruck™ drive system customized for use in heavy-duty refuse trucks.

The Recipient shall:

- Design new battery enclosures, system interfaces, and any other elements required to adapt existing ElecTruck™ components to refuse trucks.
- Design electrically-driven lifting and compacting accessories.
- Review the performance of existing prototype electric drayage trucks and yard tractors and identify additional incremental design changes that could enhance the performance of electric refuse trucks.
- Review operating requirements and desired truck specifications provided by Sacramento County and identify any drive system design changes required to accommodate its needs.
- Document new designs and projected benefits of the design changes. The Recipient shall prepare summary of design changes and benefits.

Products:

- Summary Report

TASK 3 PROCUREMENT

The goal of this task is to acquire three diesel-powered refuse trucks that can be repowered with electric drive systems.

The Recipient shall:

- Work with fleet operator partner to define specifications for the base trucks.
- Submit a truck order to vendors reflecting the specifications generated in consultation with the fleet operator.
- Negotiate favorable prices and payment terms with vendor.

Products:

- Specification List

TASK 4 SUBSYSTEM ASSEMBLY

The goal of this task is to build each of the major subsystems to be installed into the three refuse trucks to be converted to electric drive.

The Recipient shall:

- Procure all materials required to build and install subsystems for three electric truck conversions.
- Assemble standard ElecTruck™ subsystems, including motive drive, energy storage, and power control and accessory.
- Assemble new subsystems required for lifting and compacting of refuse.
- When necessary perform basic subsystem and component-level bench-testing to assure proper functionality.
- Store completed subsystems in inventory until needed for truck installation.
- Prepare a Subsystem Completion Report upon completing assembly of the subsystems.

Products:

- Subsystem Completion Report

TASK 5 INTEGRATION

The goals of this task are to: 1) install ElecTruck™ drive systems; 2) install subsystems built under Task 4; and 3) validate the updated design concepts developed under Task 2.

The Recipient shall:

- Remove engines, transmissions, and any other unneeded components from the base trucks.
- Install ElecTruck™ subsystems, components, and parts into the first base truck.
- Identify and document lessons learned during integration of the first truck, and modify drive system packaging and installation procedures as appropriate.
- Install ElecTruck™ subsystems, components, and parts into subsequent trucks.
- Prepare summary of integration issues.

Products:

- Summary Report

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

TASK 6 COMMISSIONING

The goal of this task is to commission three converted trucks and prepares them for delivery to fleet operator partners.

The Recipient shall:

- Validate basic functionality of each vehicle before attempting test drives.
- Perform test driving of each vehicle, monitoring and optimizing ElecTruck™ subsystems, components, and parts throughout the process.
- Validate that each vehicle performs safely and reliably prior to delivering it to its intended fleet operator.
- Prepare summary of commissioning for each tractor.

Products:

- Summary Report

TASK 7 DEPLOYMENT

The goals of this task are to: 1) complete all preparations at the fleet operator sites required for support of the converted trucks; 2) deliver the trucks to the fleet operator partners; and 3) train the fleet operators' personnel on how to operate and maintain the trucks.

The Recipient shall:

- Assist fleet operators in installing the electrical service required for truck battery charging.
- Deliver trucks to fleet operators.
- Train fleet personnel on operation and maintenance of the trucks.
- Supervise initial test driving of trucks adjust electric drive settings as required to achieve acceleration and other performance characteristics desired by the fleet operator.
- Select a demonstration site for the third truck and repeat the above steps with the fleet operator. The Recipient shall provide battery charging capability to the third demonstration refuse truck.
- Prepare a Deployment Report following the deployment of each vehicle including photos and identification of issues generated during deployment.

Products:

- Deployment Report

TASK 8 OUTREACH

The goal of this task is to promote electric yard tractors and components through outreach and information sharing to fleet owner/operators

The Recipient shall:

- Continuously update its Business Plan, reflecting progress on this project as well as in other related pursuits.
- Promote yard tractor products demonstrated under this project including:
 - Presentations at trade shows and technical symposia.
 - Maintenance of a state-of-the-art website and digital media campaign.
 - Direct outreach to major vehicle fleet owners and operators.
 - Demonstration of components and vehicles at trade shows and other industry events involving exhibits.
 - Issuance of news releases.
 - Distribution of product literature.
 - Advertising in industry publications.

Products:

- Business Plan
- Presentation Materials

TASK 9 DATA COLLECTION AND ANALYSIS

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

The Recipient shall:

- Develop data collection test plan.
- Troubleshoot any issues identified.
- Collect 6 months of throughput, usage, and operations data from the project including, but not limited to:
 - Maximum capacity of the new fueling system
 - Gallons of gasoline and/or diesel fuel displaced (with associated mileage information)
 - Expected air emissions reduction, for example:
 - Non-methane hydrocarbons

- Oxides of nitrogen
 - Non-methane hydrocarbons plus oxides of nitrogen
 - Particulate Matter
 - Formaldehyde
- Duty cycle of the current fleet and the expected duty cycle of future vehicle acquisitions
- Specific jobs and economic development resulting from this project
- Identify any current and planned use of renewable energy at the facility.
- Identify the source of the alternative fuel.
- Describe any energy efficiency measures used in the facility that may exceed Title 24 standards in Part 6 of the California Code Regulations.
- Provide data on potential job creation, economic development, and increased state revenue as a result of expected future expansion.
- Provide a quantified estimate of the project's carbon intensity values for life-cycle greenhouse gas emissions.
- Compare any project performance and expectations provided in the proposal to Energy Commission with actual project performance and accomplishments.
- Collect data, information, and analysis described above and include in the Final Report.

Products:

- Data collection information and analysis will be included in the Final Report (see task 1.5)

STATE OF CALIFORNIA

STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION - RE: TRANSPORTATION POWER, INC.

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

RESOLVED, that the Energy Commission approves Agreement ARV-14-051 from PON-14-605 with **Transportation Power, Inc.** for a **\$2,884,812** grant to demonstrate a heavy-duty electric refuse truck. The two year demonstration project will occur in disadvantaged communities in the Sacramento region under rigorous duty cycles commensurate with refuse and waste collection activities; and

FURTHER BE IT RESOLVED, that the Executive Director or his/her designee shall execute the same on behalf of the Energy Commission.

CERTIFICATION

The undersigned Secretariat to the Commission 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 California Energy Commission held on May 13, 2015.

AYE: [List of Commissioners]

NAY: [List of Commissioners]

ABSENT: [List of Commissioners]

ABSTAIN: [List of Commissioners]

Harriet Kallemeyn,
Secretariat