

GRANT REQUEST FORM (GRF)

CEC-270 (Revised 02/13)

CALIFORNIA ENERGY COMMISSION

New Agreement ARV-13-020 (To be completed by CGL Office)

Division	Agreement Manager:	MS-	Phone
600 Fuels and Transportation Division	Andre Freeman	27	916-654-4162

Recipient's Legal Name	Federal ID Number
The Regents of the University of California (Davis Campus)	94-6036494

Title of Project
National Center for Sustainable Transportation - Emerging Technologies Project

Term and Amount	Start Date	End Date	Amount
	5 / 1 / 2014	3 / 23 / 2018	\$ 1,100,000

Business Meeting Information
 ARFVTP agreements under \$75K delegated to Executive Director.

Proposed Business Meeting Date	4 / 22 / 2014	<input type="checkbox"/> Consent	<input checked="" type="checkbox"/> Discussion
Business Meeting Presenter	Andre Freeman	Time Needed:	5 minutes

Please select one list serve. **Altfuels (AB118- ARFVTP)****Agenda Item Subject and Description**

Proposed resolution approving agreement ARV-13-020 with the Regents of the University of California (Davis Campus) for a \$1,100,000 grant to establish a National Center for Sustainable Transportation. Of the \$1,100,000 approved under this award, only \$605,000 is currently available. The remaining \$495,000 will be added to this agreement if and when additional funds become available for the purposes of this award. The center will conduct innovative research on strategies that will promote California's transition to zero-emission vehicle and fuel technologies. The major areas of focus will be passenger transportation and goods movement.

California Environmental Quality Act (CEQA) Compliance

- Is Agreement considered a "Project" under CEQA?
 - Yes (skip to question 2)
 - No (complete the following (PRC 21065 and 14 CCR 15378)): Explain why Agreement is not considered a "Project": Agreement will not cause direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment because .
 - If Agreement is considered a "Project" under CEQA:
 - a) Agreement **IS** exempt. (Attach draft NOE)
 - Statutory Exemption. List PRC and/or CCR section number: _____
 - Categorical Exemption. List CCR section number: _____
 - Common Sense Exemption. 14 CCR 15061 (b) (3)
 Explain reason why Agreement is exempt under the above section:
 Paper and research studies that will not impact the environment directly
 - 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
The Regents of the University of California,Riverside campus	\$ 150,000
University of Southern California	\$ 50,000
	\$ 0

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

Legal Company Name:

GRANT REQUEST FORM (GRF)

CEC-270 (Revised 02/13)

CALIFORNIA ENERGY COMMISSION



Budget Information			
Funding Source	Funding Year of Appropriation	Budget List No.	Amount
ARFVTF	13/14	601.118F	\$605,000
Funding Source	14/15	601.118G	\$495,000
Funding Source			\$
Funding Source			\$
Funding Source			\$
R&D Program Area:	Select Program Area	TOTAL:	\$605,000
Explanation for "Other" selection			
Reimbursement Contract #:		Federal Agreement #:	

Recipient's Administrator/ Officer		Recipient's Project Manager	
Name:	Ahmad Hakim-Elahi	Name:	Susan Handy
Address:	University of California, Davis 1850 Research Park Dr. Ste 300	Address:	University of California, Davis 1 Shields Avenue
City, State, Zip:	Davis, CA 95618-6153	City, State, Zip:	Davis, CA 95616
Phone:	530-754-7700	Fax:	- -
E-Mail:	awards@ucdavis.edu	E-Mail:	slhandy@ucdavis.edu

Selection Process Used	
<input checked="" type="checkbox"/> Competitive Solicitation	Solicitation #: PON-13-604
<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 type="checkbox"/> N/A <input checked="" type="checkbox"/> Attached
5. CEQA Documentation	<input checked="" type="checkbox"/> N/A <input 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	X	Research – Emerging Technologies
2.1		Assessment of Critical Barriers to Alternative and Renewable Fuel and Vehicle Deployment
2.2		Accelerating Commercialization of Alternative and Renewable Fuels and Vehicles
2.3		Eco-Friendly Intelligent Transportation System Technology for Freight Vehicles
3	X	Outreach and Technology Transfer

KEY NAME LIST

Task #	Key Personnel	Key Subcontractor(s)	Key Partner(s)
2.1	Dr. Andy Burke, Ms. Amy Myers Jaffe, Dr. Sonia Yeh, Dr. Joan Ogden, Dr. Lew Fulton (UC Davis)		
2.2	Dr. Tom Turrentine, Dr. Kenneth Kurani, Dr. Gil Tal (UC Davis)		
2.3		Dr. Matthew Barth (UC Riverside), Dr. Petros Ioannou (Univ. of Southern California)	
3	Mr. Anthony Eggert (UC Davis)		

GLOSSARY

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

Term/ Acronym	Definition
AB 118	Assembly Bill 118
AFV	Alternative Fuel Vehicle
ARFVTP	Alternative and Renewable Vehicle and Technology Program
CAM	Commission Agreement Manager
Center	The National Center for Sustainable Transportation (a consortium of research universities led by UC Davis)
CPR	Critical Project Review
DOT	U.S. Department of Transportation
ECO-ITS	Eco-friendly intelligent transportation system
EV	Electric vehicle
FCV	Fuel cell vehicle
FCHV	Fuel cell hybrid vehicle
FTD	Fuels and Transportation Division
GHG	Greenhouse gases
GIS	Geographical information systems
IEPR	Integrated Energy Policy Report
ITS-Davis	Institute of Transportation at the University of California, Davis
MPO	Metropolitan Planning Organization
NGV	Natural gas vehicle
PEV	Plug-in electric vehicle
PHEV	Plug-in electric hybrid vehicle
Recipient	Consortium led by UC Davis
UTC	University Transportation Center Program
UC Davis	University of California, Davis
UCR	University of California, Riverside
USC	University of Southern California
ZEV	Zero emission vehicle

BACKGROUND:

Assembly Bill 118 (Núñez, Chapter 750, Statutes of 2007), created the Alternative and Renewable Fuel and Vehicle Technology (ARFVT) Program. The statute, subsequently amended by AB 109 (Núñez Chapter 313, Statutes of 2008) and AB 8 (Perea, Chapter 401, Statutes of 2013), 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 policies. The Energy Commission has an annual program budget of approximately \$100 million and provides financial support for projects that:

- Develop and improve alternative and renewable low-carbon fuels;
- Optimize alternative and renewable fuels for existing and developing engine technologies;
- Produce alternative and renewable low-carbon fuels in California;
- Decrease, on a full fuel cycle basis, the overall impact and carbon footprint of alternative and renewable fuels and increase sustainability;
- Expand fuel infrastructure, fueling stations, and equipment;
- Improve light-, medium-, and heavy-duty vehicle technologies;
- Retrofit medium- and heavy-duty on-road and non-road vehicle fleets;
- Expand infrastructure connected with existing fleets, public transit, and transportation corridors; and
- Establish workforce training programs, conduct public education and promotion, and create technology centers.

The California Energy Commission issued PON-13-604 to leverage ARFVTP funds to bring federal cost-sharing projects to California that will improve air quality, reduce petroleum consumption and decrease greenhouse gas emissions (GHG). In response to the solicitation, Recipient submitted application #8 (the "Application"), which was proposed for funding in the Energy Commission's Notice of Proposed Awards issued February 27, 2014. Both the Application and the solicitation are hereby incorporated by reference into this Agreement. ARFVTP Terms and Conditions, Attachment A, are also hereby incorporated by reference into this Agreement

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. 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.

Goals of the Agreement:

The goal of this Agreement is to help accelerate the transition toward zero-emission vehicles and low-carbon fuel technologies for both passenger transportation and goods movement through research on the commercial barriers that are inhibiting the adoption of promising innovative alternative and renewable vehicle and fuel technologies. This project will evaluate emerging technologies based on lifecycle emissions and economic performance, consumer and industry behavior, and the influence of new business models and regulatory and market policies on the pace of adoption of emerging technologies and the scale of their expansion.

This project will be a critical component of the Center's overall work plan, as articulated in the federal proposal and summarized in the Application's Project Narrative document. The Center's work plan includes over twenty proposed "jump-start" research projects that build on existing expertise at the consortium institutions and address immediate critical research needs of government agencies and other stakeholders.

Objectives of the Agreement:

The objectives of this Agreement are to help support the transition toward zero-emission vehicles and low-carbon fuel technologies and to maximize benefits to California through selected research and technology transfer on critical topics by:

- Identifying environmentally and economically promising alternative fuel and vehicle emerging technologies
- Identifying and evaluating the critical business and policy barriers blocking their widespread adoption in the state and creating actionable solutions to overcome those barriers.
- Analyzing the broad range of commercial barriers and identifying strategies to increase the adoption and rapid scale-up of emerging technologies, fuels and fueling infrastructure that will help the state achieve its goals for air quality and greenhouse gas emissions.
- Implementing a market research project with a recurring survey to advise California state agencies and AFV/PEV stakeholders on the most effective ways to expand the market for alternative and renewable fuels and vehicles in California and the US.
- Developing and applying new ECO-ITS technologies specifically designed for heavy-duty vehicles and freight traffic and to translate this information into actionable strategies for public and private stakeholders.

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 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 Commission Agreement Manager Agreement Manager, the Grants Officer, and a representative of the Accounting Office. The Recipient shall bring its Project Manager, Agreement Administrator, Accounting Officer, and others designated by the Commission Agreement Manager 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 Grants Officer, the Fuels and Transportation Division (FTD) bio fuel 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, 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 RESEARCH – EMERGING TECHNOLOGIES

The goal of this task is to address investigate specific strategies and engage the stakeholders who have the ability to implement those strategies, with the ultimate aim of helping California achieve its environmental goals.

[CPR will be held during this task. See Task 1.2 for details.]

Task 2.1 Research and Hold Workshops on the Critical Barriers to Alternative and Renewable Fuel and Vehicle Deployment

The goal of this subtask is to identify environmentally and economically promising alternative fuel and vehicle emerging technologies and identify and evaluate the critical business and policy barriers blocking their widespread adoption in the State and develop solutions for those barriers. This subtask will also analyze the broad range of commercial barriers and identify strategies to increase the adoption and rapid scale-up of emerging technologies, fuels and fueling infrastructure that will help the state achieve its goals for air quality and greenhouse gas emissions.

The Recipient shall:

- Convene three Emerging Technology Workshops in a series for the same group of 60 to 100 stakeholders engaged in the commercialization of emerging technologies for the light duty, medium duty, and heavy duty transportation subsectors. Participants will include manufacturers of incumbent and emerging alternative vehicle technologies, manufacturers of traditional and alternative fueling infrastructure, traditional and alternative fuel (including electricity) producers and suppliers, financial institutions and investors, and public agencies concerned with energy, the environment transportation and the California economy.
- Prepare Emerging Technology Workshop Reports detailing the findings and discussions from the workshop, including survey results, optimum policies, business best practices and financing structures that would actively develop emerging technologies, fuels and infrastructure and remove obstacles to achieving success in emerging technologies, and new insights into the current and future rollout of these emerging technologies and barriers to their success.

- Develop an Assessment of Emerging Technologies Barriers to prioritize the barriers which currently limit the commercialization of emerging technologies. The emerging technologies will be categorized by fuel pathway, light, medium and heavy duty subsectors, and short, medium, and long term potential. The criteria for assessment will include quantification of:
 - Investments in vehicles and infrastructure needed to launch AFV pathways
 - Buy-down, life cycle, and social costs
 - Potential benefits from removing barriers including:
 - Reductions in GHG emissions,
 - Reductions in petroleum consumption,
 - Improvements in air quality,
 - Acceleration of the development of alternative fuels and vehicles,
 - Expansion of economic opportunities in California.

Products:

- Workshop Report 1: Current and emerging technologies and barriers to commercial success
- Workshop Report 2: Current and emerging technologies and barriers to commercial success
- Workshop Report 3: Current and emerging technologies and barriers to commercial success
- Draft Assessment of Emerging Technology Barriers
- Final Assessment of Emerging Technology Barriers

Task 2.2 Research and Hold Workshops on the Commercialization of Alternative and Renewable Fuels and Vehicles

The goal of this subtask is to implement a recurring market survey research to advise California state agencies and AFV/PEV stakeholders on the most effective ways to expand the market for alternative and renewable fuels and vehicles in California and the US.

The Recipient shall:

- Conduct a recurring survey to measure and test the impacts of incentives, infrastructure deployment, vehicle and fuel prices and other efforts, costs, and technologies developments on consumer knowledge, beliefs, consideration, intentions, and actions towards alternative fuels and zero-emission vehicles over time and market development stages.

These surveys will produce longitudinal (time series) measurement and analysis of market variables, including:

- Distribution and development of knowledge and beliefs among the general

market about PEV and AFV technologies and social goals of these technologies including:

- A special attention to the results of public education efforts;
 - Knowledge about the social benefits of AFVs and PEVs;
 - Response of public to the evolving renewables aspects of fuels.
 - Distribution and development of experience with AFVs and PEVs across the buying public with driving, fueling or charging.
 - Knowledge and response to financial and other incentives:
 - Do incentives affect beliefs and purchase decisions? Were available incentives scaled or targeted properly?
 - Distributions and development of valuations of vehicle attributes, in particular attention to evolving variables, such as range, energy storage, performance, charging speed, PHEV design variations, FCHV designs.
 - Distribution and development of infrastructure options for buyers (trip origin locations such as workplace, multi-unit dwelling, route and destination locations such as corridors, recreational destinations) Distribution of cost of fueling perceptions and knowledge.
-
- Conduct a focused study within this survey on workplace and employee programs, e.g., fleet vehicle and fuel deployments and workplace plug-in electric vehicle (PEV) charging, on market acceleration. The goal of this focused study is to understand in detail how this sector can be mobilized to accelerate the market.
 - Host a workshop to present the market survey results to interested stakeholders.

Products:

- State of the Market Report 1 summarizing change in actual and potential markets for alternative fuels and vehicles.
- State of the Market Report 2 summarizing change in actual and potential markets for alternative fuels and vehicles.

Task 2.3 Develop Models on Eco-Friendly Intelligent Transportation System Technology for Freight Vehicles

The goal of this subtask is to develop new eco-friendly intelligent transportation system (ECO-ITS) technologies that can be applied to freight vehicles (e.g., heavy-duty trucks) associated with goods movement to improve energy efficiency and reduce emissions. These technologies will then be evaluated in a number of different operating scenarios using state-of-the-art simulation modeling tools. The results and recommendations will be provided to key stakeholders and policy makers to inform the adoption of policies and practices to promote improved efficiency and reduced emissions in the freight sector

The Recipient shall:

- Develop concepts and simulation models for ECO-ITS technologies including, but not limited to, connected eco-driving, connected eco-routing,

truck platooning, eco-freight signal priority, truck-based ramp metering, and truck-based variable speed limits.

- Carefully evaluate the different ECO-ITS technologies using state-of-the-art microscopic simulation tools for a number of different scenarios associated with the Ports of Long Beach and Los Angeles.
- Compile results of the simulation-based evaluation (including sensitivity analyses) and develop recommendations for policies and practices.

Products:

- Concept of Operations report for ECO-ITS technologies;
- Report on Simulation-based evaluation results for ECO-ITS technologies;
- Policy Brief on Eco-Friendly ITS Technology for Freight Vehicles

TASK 3 Hold Webinars on the Sustainable Transportation Center's Completed Research

The goal of this task will be to host a series of forums and online webinars that engage the researchers and other key stakeholders to help inform decision-making. Forums will be offered in Sacramento at the UC Sacramento Center and other locations convenient to the Energy Commission and other agencies and stakeholders. Webinars will be streamed online, allowing for active participation, and archived for playback. Summary briefs will be provided for each forum and webinar and will focus on research updates from the subtasks described in Task 2.

The Recipient shall:

- Develop the forum/webinar content including updates on each of the Research subtasks described in Task 2.
- Provide notice of the forum/webinars to key public/private stakeholders
- Host the forum/webinars

Products:

- Summary Report on Forum/Webinar 1, including latest research findings, presentations and related references
- Summary Report on Forum/Webinar 2, including latest research findings, presentations and related references
- Summary Report on Forum/Webinar 3, including latest research findings, presentations and related references

[CPR will be held during this task. See Task 1.2 for details.]

**Exhibit A
Attachment A-1**

Schedule of Products and Due Dates

Task Number	Task Name	Product(s)	Due Date	
1.1	Attend Kick-off Meeting	Updated Schedule of Products	5/21/2014	
		Updated List of Match Funds	5/21/2014	
		Updated List of Permits	5/21/2014	
		Kick-Off Meeting Agenda (CEC)	5/15/2014	
1.2	Critical Project Review Meetings	CPR Report	6/15/2014	
		Written determination (CEC)	6/30/2014	
		CPR Report	8/30/2014	
		Written determination (CEC)	8/15/2014	
		CPR Report	11/27/2014	
		Written determination (CEC)	12/15/2014	
		CPR Report	7/25/2015	
		Phase 1 Complete / Assess Phase 2	Written determination (CEC)	8/15/2015
		Phase 2 - Q1 through Q12 Review	CPR Report - Design Review	The 30th calendar day of each quarter during Phase 2 of this Agreement
			Written determination (CEC)	The 15th calendar day after each CPR.
1.3	Final Meeting	Written documentation of meeting agreements	6/15/2018	
		Schedule for completing closeout activities	5/30/2017	
1.4	Monthly Progress Reports	Monthly Progress Reports	The 10th calendar day of each month during the approved term of this Agreement	
1.5	Final Report	Final Outline of the Final Report	3/15/2018	
		Draft Final Report (no less than 60 days before the end term of the agreement)	5/15/2018	
		Final Report	7/30/2018	
1.6	Identify and Obtain Match Funds	A letter regarding match funds or stating that no match funds are provided	4/1/2014	
		Copy(ies) of each match fund commitment letter(s) (if applicable)	4/1/2014	
		Letter(s) for new match funds (if applicable)	Within 10 days of identifying new match funds	
		Letter that match funds were reduced (if applicable)	Within 10 days of identifying reduced funds	
1.7	Identify and Obtain Required Permits	Letter documenting the permits or stating that no permits are required	4/31/2014	
		A copy of each approved permit (if applicable)	Within 10 days of receiving each permit	
		Updated list of permits as they change during the term of the Agreement (if applicable)	Within 10 days of change in list of permits	

**Exhibit A
Attachment A-1**

Task Number	Task Name	Product(s)	Due Date
		Updated schedule for acquiring permits as changes occur during the term of the Agreement (if applicable)	Within 10 days of change in schedule for obtaining permits
		A copy of each approved final permit (if applicable)	Within 10 days of receiving each final permit
1.8	Obtain and Execute Subcontracts		
		Letter describing the subcontracts needed, or stating that no subcontracts are required	4/31/2014
		Draft subcontracts	15 days prior to the scheduled execution date
		Final subcontracts	Within 10 days of execution
2.1	Final Vehicle Specification and Development of Acceptance Plan		
		Draft requirements definition & vehicle specification	5/7/2014
		Final requirements definition & vehicle specification	5/11/2014
		Draft Acceptance Plan	5/16/2014
		Final Acceptance Plan	5/22/2014
2.2	Fuel Cell Hybrid Powertrain Sub-system Design Confirmation and Schematics		
		Design Review Meeting	5/23/2014
		Mechanical Design Drawings	6/1/2014
		Electrical Design Drawings	6/1/2014
2.3	Order Long-lead Time Components		
		Purchase order for H2 storage components	7/1/2014
		Purchase order for fuel cell power electronics components	7/1/2014
		Purchase order for any additional major, long-lead components required	7/1/2014
2.4	Battery Pack Build & Test		
		Traction battery pack test results	6/25/2014
		Shipping receipts for battery pack	7/1/2014
2.5	Base Electric Drive Van (EVI-WI) Assembly and Commissioning at EVI		
		Base electric vehicle test results	9/1/2014
2.6	Base Vehicle Delivered to CEM		
		Base vehicle delivery confirmation to CEM	9/15/2014
2.7	Vehicle Hydrogen Storage System Integration		
		Hydrogen storage system test results	10/8/2014
		Updated mechanical assembly drawings	10/15/2014
		Updated electrical drawings	10/15/2014
		Hydrogen system P&ID	10/15/2014
2.8	Vehicle Fuel Cell Power System Integration		
		Confirmation of vehicle completion with integrated fuel cell power system	10/15/2014
2.9	Vehicle Commissioning and Specification Validation at CEM & EVI		
		Fully tested fuel cell hybrid delivery van test results	11/27/2014
2.10	Vehicle Delivered to Operation Site		
		Vehicle delivery confirmation at demonstration site	12/10/2014
3.1	Operations Manual Development		

**Exhibit A
Attachment A-1**

Task Number	Task Name	Product(s)	Due Date
		Draft Operators Manual	10/27/2014
		Final Operators Manual	11/11/2014
3.2	Operations Training Plan Development		
		Draft Operations and Fueling Training Plan	11/27/2014
		Final Operations and Fueling Training Plan	12/10/2014
3.3	Complete Operations Training		
		Operations training session(s) schedules	12/24/2014
		List of drivers/attendees from training session(s)	12/24/2014
3.4	Complete Hydrogen Fueling Training		
		Fueling training session schedules	12/24/2014
		List of drivers/staff that were trained in fueling the vehicle	12/24/2014
4.1	Maintenance and Support Plan Development		
		Draft plan for maintenance and support	11/27/2014
		Final plan for maintenance and support	12/10/2014
4.2	Vehicle Operational Support		
		Technical support report, if any	6/24/2015
4.3	In-service Vehicle Data Collection and Evaluation		
		Raw operations, maintenance, and fueling data	6/24/2015
		Monthly summary reports	The 10th calendar day of each month during the approved term of this Agreement
4.4	Assessment for Phase 2 Go/No-Go Requirements		
		Draft phase I performance assessment report	5/11/2015
		Final phase I performance assessment report	5/25/2015
5.1	See DOE Scope of Work		
5.2	Complete Project Management Plan		
		Draft project management plan	5/15/2014
		Final project management plan	5/22/2014
5.3	Develop Safety Plan		
		Project level hazard analysis report	7/12/2014
		System Safety Plan	7/26/2014
		Maintenance Facility Audit Report for Hydrogen Readiness	7/26/2014
5.4	See DOE Scope of Work		
5.5	Complete Status Reporting		
		Quarterly Status Reports	The 10th calendar day of the first month of each quarter during the approved term of this Agreement
6.1	Design Review and Updates as Needed		
		Updated electrical and mechanical drawings	9/1/2015

**Exhibit A
Attachment A-1**

Task Number	Task Name	Product(s)	Due Date
6.2	Develop Manufacturing Plan		
		Draft manufacturing plan	8/18/2015
		Final manufacturing plan	9/1/2015
6.3	Vehicle Assembly at EVI		
		Confirmation of completed 4 fuel cell hybrid delivery vans	7/1/2016
6.4	Vehicles Commissioning		
		Confirmation of 4 commissioned fuel cell hybrid delivery vans	7/18/2016
6.5	Vehicles Delivered		
		Vehicle delivery confirmation	7/30/2016
7.1	Complete Operations Training		
		Operations training session(s) schedule(s)	7/30/2016
		List of drivers/staff from training session(s)	7/30/2016
8.1	Vehicle Operational Support		
		Technical support report, if any	7/30/2018
8.2	In-service Vehicle Data Collection and Evaluation		
		Raw operations, maintenance, and fueling data	The 1st calendar day of each month during the approved term of this Agreement
		Monthly summary reports	The 10th calendar day of each month during the approved term of this Agreement
9.1	See DOE Scope of Work		
9.2	Fueling Station Coordination		5/1/2016
		List/map of proposed fueling station locations	4/18/2016
		List/map of final fueling station locations	5/1/2016
9.3	See DOE Scope of Work		
9.4	Complete Status Reporting		
		Quarterly status reports	The 10th calendar day of the first month of each quarter during the approved term of this Agreement
9.5	Complete Economic/Market Opportunity Assessment		
		Economic/Market Opportunity Assessment Report	7/29/2018
10	DATA COLLECTION AND ANALYSIS FOR ENERGY COMMISSION		
		Final Report including data collection and analysis	7/30/2018

STATE OF CALIFORNIA
STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION REGARDING:

GRANT AWARD to Regents of the University of California, Davis Campus
ARV-13-020
PON-13-604

WHEREAS, the Regents of the University of California, Davis Campus, seeks a grant in the amount of \$1,100,000.00 from the State Energy Resources Conservation and Development Commission (Energy Commission) to establish a National Sustainable Transportation Center (Center); and

WHEREAS, the Center will conduct innovative research on strategies that will promote California's transition to zero-emission vehicle and fuel technologies; and

WHEREAS the Energy Commission finds that this grant is a "project" under the California Environmental Quality Act (CEQA);

WHEREAS the Energy Commission finds that the project is strictly a research and analysis study that will not cause a significant effect on the environment, a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment;

WHEREAS the Energy Commission has concluded that the project is exempt under CEQA pursuant to the "Common Sense" exemption, CEQA Guideline 15061 (b) (3) (California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15061 (b) (3));

WHEREAS, the amount of funds appropriated by the Budget Act for FY 2013-2014 allows the Energy Commission to commit to only \$605,000.00 of the \$1,100,000.00 amount;

THEREFORE, BE IT RESOLVED, that the Energy Commission approves **Grant Award # ARV-13-020** to the Regents of the University of California, Davis Campus, in the amount of **\$1,100,000.00**, to establish a National Sustainable Transportation Center, subject to the funding condition set forth below.

BE IT FURTHER RESOLVED, that until the Energy Commission provides further written notice, \$605,000 is the maximum amount that can be reimbursed under this Agreement. The Energy Commission shall approve the remaining \$495,000 for reimbursement if and when a new Budget Act provides sufficient funds to do so.

BE IT FURTHER RESOLVED, that this document authorizes the Executive Director or his/her designee to execute the grant agreement 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 April 22, 2014:

AYE: [*List Commissioners*]

NAY: [*List Commissioners*]

ABSENT: [*List Commissioners*]

ABSTAIN: [*List Commissioners*]

Harriet Kallemeyn,
Secretariat