

New Agreement ARV-15-005 (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
CALSTART, Inc.	95-4375022

Title of Project
H2Ride Hydrogen Shuttle Bus Demonstration Project

Term and Amount	Start Date	End Date	Amount
	10 / 1 / 2015	3 / 31 / 2019	\$ 2,982,548

Business Meeting Information

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

Proposed Business Meeting Date	9 / 9 / 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-15-005 with CALSTART, Inc. for a \$2,982,548 grant to conduct a hydrogen fuel cell shuttle bus demonstration project. The demonstration will occur in and around disadvantaged communities in Los Angeles and the Coachella Valley.

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 14 CCR 15306 (Information Collection) section number:
 - Common Sense Exemption. 14 CCR 15061 (b) (3)

Explain reason why Agreement is exempt under the above section:
 The project activities consists of powering four hydrogen fuel cell shuttle buses at an existing vehicle technology provider facility that manufactures fuel cell technologies, and demonstrating the bus technology along various bus routes in Los Angeles and the Coachella Valley. There is no construction or alteration to buildings or facilities for the building or demonstration of the buses. Additionally, the bus will be a zero-emission bus that will be demonstrated as part of an existing public fleet for California State University Los Angeles and SunLine Transit on existing bus routes in disadvantaged communities. Data acquisition equipment and instrumentation will be installed on the buses in order to collect performance data and information. This project consists of basic data collection and research that does not result in a serious or major disturbance to an environmental resource.
 - 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
US Hybrid	\$ 2,428,655
California State University Los Angeles	\$ 234,000
SunLine Transit	\$ 60,000

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

GRANT REQUEST FORM (GRF)



Legal Company Name:

Budget Information

Funding Source	Funding Year of Appropriation	Budget List No.	Amount
ARFVTF	15/16	601.118H	\$2,982,548
Funding Source			\$
R&D Program Area:	Select Program Area	TOTAL: \$2,982,548	
Explanation for "Other" selection			
Reimbursement Contract #:		Federal Agreement #:	

Recipient's Administrator/ Officer				Recipient's Project Manager			
Name:	Andrew Papson			Name:	Scott Carano		
Address:	48 South Chester Ave.			Address:	48 South Chester Ave.		
City, State, Zip:	Pasadena, CA 91106			City, State, Zip:	Pasadena, CA 91106		
Phone:	626-744-5679	Fax:	626-744-5610	Phone:	626-744-5608	Fax:	626-744-5610
E-Mail:	apapson@calstart.org			E-Mail:	scarrano@calstart.org		

Selection Process Used

Competitive Solicitation
 First Come First Served Solicitation
 Solicitation #: PON-14-605

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 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	Design, Procure, Build, and Deploy
3	X	Demonstration
4		Outreach and Data Collection and Analysis

KEY NAME LIST

Task #	Key Personnel	Key Subcontractor(s)	Key Partner(s)
1	Andrew Papson		
2	Don Kang, Abas Goodarzi	US Hybrid	
3	Jean-Baptiste Gallo, Don Kang, Abas Goodarzi	US Hybrid	CSULA, SunLine Transit
4	Jean-Baptiste Gallo, David Blehman	CSULA	CSULA, SunLine Transit

GLOSSARY

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

Term/ Acronym	Definition
ARFVTP	Alternative and Renewable Fuel and Vehicle Technology Program
BMS	Battery Management System
CAM	Commission Agreement Manager
CPR	Critical Project Review
CSULA	California State University Los Angeles
FTD	Fuels and Transportation Division
Recipient	CALSTART
SunLine Transit	SunLine Transit Agency

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 #12 which was proposed for funding in the Energy Commission's Notice of Proposed Awards on June 18, 2015. PON-14-605 and Recipient's Application are hereby incorporated by reference into this Agreement in their entirety.

In the event of any conflict or inconsistency between the terms of the Solicitation and the terms of the Recipient's Application, the Solicitation shall control. In the event of any conflict or inconsistency between the Recipient's Application and the terms of 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 diesel buses are a large source of particulate matter and nitrogen oxides, a precursor to ozone. The problem is exacerbated when these diesel buses operate in disadvantaged areas, exposing these populations to the most harmful emissions. Buses are an especially great concern, because unlike many trucks that operate primarily in industrial areas or commercial districts, buses pass through residential neighborhoods.

Goals of the Agreement:

The goals of this Agreement are to develop zero-emission (ZE) hydrogen fuel cell shuttle buses (H2Ride™) that will be demonstrated with two separate bus fleets serving disadvantaged communities.

Objectives of the Agreement:

The objectives of this Agreement are to:

- Field demonstrate two 30-foot H₂Ride™ buses with ranges of 200 miles at SunLine Transit and two 32-foot H₂Ride™ buses with ranges of 125 miles at California State University at Los Angeles (CSULA) for a period of 18 months.
- Collect and analyze data on the performance of the buses.
- Provide information to industry and stakeholders so they can better understand technology capabilities and utilization of the technology in the marketplace.

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, 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:

- Letter describing the subcontracts needed, or stating that no subcontracts are required
- Draft subcontracts
- Final subcontracts

TECHNICAL TASKS**TASK 2 DESIGN, PROCURE, BUILD, AND DEPLOY**

The goals of this task are to design, procure, build and deploy two 30-foot H₂Ride™ shuttle buses to California State University Los Angeles (CSULA) and two 32-foot H₂Ride™ shuttle buses to SunLine Transit.

The Recipient shall:

- Finalize computer aided design schematics and design per specifications for the four shuttle buses including the hydrogen fuel system, battery, hybrid drive, and advanced controls systems.
- Finalize specifications for:
 - Fuel cell powertrain including balance of plant
 - Hydrogen fueling interface and communication control
 - Power conversion systems
 - Cooling systems
 - Charging systems
 - Telematics and controls
 - Fast charging system
 - Bus additions such as Americans with Disability Accessibility, seating, and decals.
- Prepare design specification report.
- Develop, order, and procure materials and equipment for all buses including:
 - Electric traction drive motors and motor controller units
 - Fuel cell power plant
 - Battery pack and management systems
 - Balance of plant
 - Power converters
 - Pumps and compressors for cooling systems

- iDrive and controls software
- Wiring and interconnections
- Bus additions
- Procure shuttle bus platforms
- Integrate all buses with specified components
- Prepare test plan with CSULA and SunLine Transit that includes: testing performance over a representative driving cycle for launch, range, gradeability, acceleration, top speed and data acquisition for power, torque, energy consumption, battery state of charge, fuel consumption, and critical component temperature states.
- Test buses according to test plan.
- Prepare test report for each bus with the first bus to be used as benchmark for performance.
- Prepare and deliver buses for deployment to CSULA and SunLine Transit.
- Prepare Operation Manual and a Service and Maintenance Manual.
- Provide training and support to bus operators in service and maintenance of the buses.
- Prepare and submit a Summary Report with photographs containing information from the Design Specification Report, Test Plan, Test Report, Operation Manual, and Service and Maintenance Manual.

Products:

- Summary Report with Photographs

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

TASK 3 DEMONSTRATION

The goals of this task are to demonstrate each bus to validate operability, functionality, and to integrate each bus into the duty cycles for CSULA and SunLine Transit operations for an 18 month period.

The Recipient shall:

- Develop data acquisition system for the buses, provide training on data acquisition deployment at CSULA and SunLine Transit, and make adjustment as needed.
- Prepare a demonstration project test plan that includes:
 - a description of the process to be tested;
 - predicted performance based on calculations or other analyses;
 - test objectives and technical approach;

- a description of the equipment and instrumentation required to conduct the tests;
 - a description of test procedures, including parameters to be controlled and how they will be controlled; parameters to be measured and instrumentation to measure them; calibration procedures to be used; recommended calibration interval; and maintenance of the test log;
 - a description of the data analysis procedures;
 - a description of quality assurance procedures;
 - contingency measures to be considered if the test objectives are not met;
 - selection of transit routes;
 - procedures to track bus reliability and maintenance costs; and
 - procedures to collect data on driver and technician feedback (along with drafts of surveys to be used).
- Place buses into service, provide support, and field demonstrate buses for 18 months.
 - Prepare and submit a summary report with photographs containing information from the demonstration.

Products:

- Summary Report with Photographs

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

Task 4 OUTREACH AND DATA COLLECTION AND ANALYSIS

The goals of this task are to conduct outreach, collect operational data from the project, analyze that data for economic and environmental evaluation, and include the data and analysis in the Final Report.

The Recipient shall:

- Train student assistants for day-to-day operations, data collection, and prepare project information materials.
- Organize and conduct three demonstration technology outreach events to stakeholders that will showcase technologies, data collected, and demonstration findings.
- Using the data collected, evaluate the vehicles in terms of fuel economy (kWh/mi), reduction in greenhouse gases, petroleum and criteria pollutants, vehicle reliability and maintenance costs, and feedback from drivers and technicians on bus performance.
- Conduct comparative analysis of the demonstration buses and existing buses operating at SunLine Transit and CSULA.

- Develop data collection test plan.
- Troubleshoot any issues identified.
- Collect 18 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:

- Copies of outreach materials and 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: CALSTART, INC

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

RESOLVED, that the Energy Commission approves Agreement ARV-15-005 with CALSTART, Inc. for a \$2,982,548 grant to conduct a hydrogen fuel cell shuttle bus demonstration project. The demonstration will occur in and around disadvantaged communities in Los Angeles and the Coachella Valley; 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 September 9, 2015.

AYE: [List of Commissioners]

NAY: [List of Commissioners]

ABSENT: [List of Commissioners]

ABSTAIN: [List of Commissioners]

Tiffany Winter,
Secretariat