STATE OF CALIFORNIA

GRANT REQUEST FORM (GRF)

CEC-270 (Revised 12/2019) CALIFORNIA ENERGY COMMISSION

A)New Agreement # ZVI-22-008 (to be completed by CGL office)

B) Division	Agreement Manager:	MS-	Phone
600 Fuels and Transportation Division	Chris Jenks	27	916-477-1594

C) Recipient's Legal Name	Federal ID #
Hydrogen Technology Ventures, LLC	84-4621195

D) Title of Project
MD/HD Hydrogen Vehicle and Fueling Station Roll-Out Blueprint for Riverside County

E) Term and Amount

Start Date	End Date	Amount
08 / 10 / 2022	06 / 30 / 2024	$ 200,000

F) Business Meeting Information

☐ ARFVTP agreements $75K and under delegated to Executive Director

Proposed Business Meeting Date 08 / 10 / 2022 ☒ Consent ☐ Discussion

Business Meeting Presenter Chris Jenks Time Needed: 0 minutes

Please select one list serve. Altfuels (AB118- ARFVTP)

Agenda Item Subject and Description:

Hydrogen Technology Ventures, LLC.

Proposed resolution approving Agreement ZVI-22-008 with Hydrogen Technology Ventures, LLC for a $200,000 grant to develop a blueprint planning document that will outline the buildout for medium- and heavy-duty (MD/HD) hydrogen refueling infrastructure in Riverside County, California, and adopting staff's determination that this action is exempt from CEQA. (General Fund Funding) Contact: Chris Jenks

G) California Environmental Quality Act (CEQA) Compliance

1. 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 .

2. If Agreement is considered a "Project" under CEQA:

   a) ☒ Agreement **IS** exempt.

   ☐ Statutory Exemption. List PRC and/or CCR section number:

   ☒ Categorical Exemption. List CCR section number: 14 CCR section 15306 – Information Collection

   ☐ Common Sense Exemption. 14 CCR 15061 (b) (3) Explain reason why Agreement is exempt under the above section:

   Agreement is exempt under the above section: Cal. Code Regs, tit. 14, §15306, Information Collection, provides that projects which consist of basic data

collection, research and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource are categorically exempt from the provisions of CEQA. This project consists of developing a planning document for possible, future deployment of zero emission vehicles and related infrastructure equipment. The project will not cause direct physical changes to the environment, and there will be no physical construction. This project involves data collection, technology assessment, public outreach, administrative coordination efforts, planning, and similar activities. Therefore, the proposed project will have no significant effect on the environment and is categorically exempt under section 15306.

b) ☐ Agreement **IS NOT** exempt. (consult with the legal office to determine next steps)

Check all that apply

☐ Initial Study
☐ Negative Declaration
☐ Mitigated Negative Declaration
☐ Environmental Impact Report
☐ Statement of Overriding Considerations

H) List all subcontractors (major and minor) and equipment vendors: (attach additional sheets as necessary)

Legal Company Name:	**Budget**

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

Legal Company Name:
Hyzon Motors Inc.
H2B2 Electrolysis Technologies, Inc.
Clean Cities Coalition
Southern California Edison Company; United States Department of Energy

J) Budget Information

Funding Source	**Funding Year of Appropriation**	**Budget List Number**	**Amount**
General Fund	FY 21/22	601.129ZEV	$200,000
			$
			$
			$
			$

R&D Program Area: Select Program Area TOTAL: $200.00

Explanation for “Other” selection

Reimbursement Contract #: Federal Agreement #:

K) Recipient's Contact Information

1. Recipient's Administrator/Officer

Name: Amanda Askew

Address: 1345 Avenue of Americas, 33rd Floor

City, State, Zip: New York, NY 10105

Phone: 205-242-0933

E-Mail: a.f.askew@columbia.edu

2. Recipient's Project Manager

Name: Vishal Shah

Address: 830 Morris Turnpike, 4th Floor

City, State, Zip: Short Hills, NJ 07078

Phone: 212-300-6792

E-Mail: vishal@hytechvc.com

L) Selection Process Used

☒ Competitive Solicitation Solicitation #: GFO-20-601

☐ First Come First Served Solicitation Solicitation #: - -

M) The following items should be attached to this GRF

1.	Exhibit A, Scope of Work		☒ Attached
2.	Exhibit B, Budget Detail		☒ Attached
3.	CEC 105, Questionnaire for Identifying Conflicts		☒ Attached
4.	Recipient Resolution	☒ N/A	☐ Attached
5.	CEQA Documentation	☒ N/A	☐ 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		Develop Hydrogen Vehicle Supply Roadmap
3		Understand Demand for Hydrogen Vehicles
4		Identify Other Applications/ Use Cases
5	X	Understand Hydrogen Supply Opportunities and Constraints
6		Integration of Supply and Demand
7		Identification of Delivery Strategies and Recommendations
8		Project Fact Sheet
9		Blueprint

KEY NAME LIST

Task #	Key Personnel	Key Subcontractor(s)	Key Partner(s)
1	Vishal Shah (HTV), Amanda Askew (HTV)		Hyzon Motors Inc.
2	Vishal Shah (HTV), Amanda Askew (HTV)		Hyzon Motors Inc.
3	Ram Ramprasad (HTV), Amanda Askew (HTV)	Consultant (TBD)	
4	Vishal Shah (HTV), Ram Ramprasad (HTV)		H2B2 Electrolysis Technologies, Inc.
5	Vishal Shah (HTV), Ram Ramprasad (HTV)	Consultant (TBD)	Hyzon Motors Inc., H2B2 Electrolysis Technologies, Inc., United States Department of Energy, Southern California Edison Company
6	Amanda Askew (HTV)		
7	Vishal Shah (HTV)	Consultant (TBD)	Clean Cities Coalition
8	Vishal Shah (HTV)		
9	Vishal Shah (HTV), Amanda Askew (HTV)		

GLOSSARY

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

Term/ Acronym	Definition
AHJ	Authorities Having Jurisdiction
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer
CEC	California Energy Commission
CTP	Clean Transportation Program
CPR	Critical Project Review
DAC	Disadvantaged Community
EV	Electric Vehicle
FTD	Fuels and Transportation Division
HTV	Hydrogen Technology Ventures, LLC
MD/HD	Medium- and Heavy-Duty
MW	Megawatt
Recipient	Hydrogen Technology Ventures, LLC
TBD	To Be Decided
ZEV	Zero-Emission Vehicle

Background

The Budget Act of 2021 (AB 128, Ting, Chapter 21, Statutes of 2021, as amended by Senate Bill (SB) 129, Skinner, Chapter 69, Statutes of 2021 and SB 170, Skinner, Chapter 240, Statutes of 2021) appropriated $785,000,000 from the General Fund to support infrastructure deployments and manufacturing projects for zero-emission light-duty and medium- and heavy-duty vehicles.

On July 14, 2020, the CEC released a Grant Funding Opportunity entitled “Blueprints for Medium- and Heavy-Duty Zero-Emission Vehicle Infrastructure.” This competitive grant solicitation was to fund planning “blueprints” that will identify actions and milestones needed for implementation of medium- and heavy-duty (MD/HD) zero-emission vehicles (ZEVs) and the related electric charging and/or hydrogen refueling infrastructure in order to accelerate the deployment of MD/HD ZEVs and ZEV infrastructure with a holistic and futuristic view of transportation planning. In response to GFO-20-601, the Recipient submitted application #14 which was proposed for funding in the CEC’s First Revised Notice of Proposed Awards on August 16, 2021. GFO-20-601 and the 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 CEC’s Award, CEC’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:

Despite the advancement of MD/HD zero-emission technology, no planning agency or private entity in Riverside County has undertaken the task of developing a blueprint for MD/HD zero-emission infrastructure. Riverside County contains busy interstate highways such as 15 and 215 and is spanned by Interstate 10 which delivers approximately 10,000 trucks to and from Arizona daily. Due to the massive investment needed to transition to zero-emission transportation at many sites, there needs to be a regional effort to prioritize affordable infrastructure deployments. By identifying those sites that are in a position to effectively leverage existing infrastructure, the region can cost effectively minimize needed capital at the beginning of this transition, and agencies, fleets, and other land use stakeholders can coordinate investments that prioritizes immediate deployments, taking advantage of existing infrastructure. This project provides critical support of market adoption for future large fleets of MD/HD hydrogen fuel-cell electric vehicles by providing a comprehensively analyzed case study that can show best practices for hydrogen fueling infrastructure.

Goals of the Agreement:

The goal of this Agreement is to develop a blueprint that will identify actions and milestones needed for the implementation of MD/HD hydrogen vehicles and the related hydrogen refueling infrastructure network along Interstate 10, specifically in Riverside County, California.

Objectives of the Agreement:

The objectives of this Agreement are to lower the cost of MD/HD infrastructure buildout by identifying use cases and thereby spreading the cost of producing green hydrogen over multiple applications.

This agreement will incorporate the following measurable objectives:

- Create a hydrogen vehicle supply roadmap;
- Determine future costs, challenges and feasibility of MD/HD hydrogen vehicle adoption by different fleets;
- Determine other applications and use cases of hydrogen;
- Identify hydrogen supply opportunities through existing and planned infrastructure;
- Analyze MD/HD vehicle usage and driving patterns to identify specific, optimal locations for MD/HD hydrogen refueling stations;
- Develop an integrated infrastructure plan that accounts for all feasible use cases and works seamlessly with electric vehicle (EV) infrastructure, considering the variability of solar and storage resources;
- Calculate potential carbon savings that could be achieved through the planned development;
- Meet with local jurisdictions and planning organizations to develop recommendations for implementation of the hydrogen vehicle infrastructure plan, including interventions they may require, to minimize the risks and uncertainties surrounding its design, permitting, planning, and financing and ensure that it is aligned with user needs;

- Alleviate concerns of the local community/residents through workshops and other outreach materials to educate them on the potential benefits and planning efforts associated with the hydrogen refueling infrastructure;
- Identify workforce development opportunities; and
- Identify further funding options, including grants and/or financing solutions.

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 CEC 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.
- Provide a written statement of project activities that have occurred after the notice of proposed awards but prior to the execution of the agreement using match funds. If none, provide a statement that no work has been completed using match funds prior to the execution of the agreement. All pre-execution match expenditures must conform to the requirements in the Terms and Conditions of this Agreement.
- Discuss the following administrative and technical aspects of this Agreement:
    - Agreement Terms and Conditions
    - Critical Project Review (Task 1.2)
    - Match fund documentation (Task 1.7) No reimbursable work may be done until this documentation is in place.
    - Permit documentation (Task 1.8)
    - Subawards needed to carry out project (Task 1.9)
    - The CAM's expectations for accomplishing tasks described in the Scope of Work
    - An updated Schedule of Products and Due Dates
    - Monthly Calls (Task 1.4)
    - Quarterly Progress Reports (Task 1.5)
    - Technical Products (Product Guidelines located in Section 5 of the Terms and Conditions)
    - Final Report (Task 1.6)

Recipient Products:

- Updated Schedule of Products
- Updated List of Match Funds
- Updated List of Permits
- Written Statement of Match Share Activities

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 CEC and the Recipient. The goal of this task is to determine if the project should continue to receive CEC 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 CAO, the Fuels and Transportation Division (FTD) program lead, other CEC staff and Management as well as other individuals selected by the CAM to provide support to the CEC.

The CAM shall:

- Determine the location, date, and time of each CPR meeting with the Recipient. These meetings generally take place at the CEC, but they may take place at another location or remotely.
- 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 CEC 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 and the CAM. 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 CAM.

  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 CAM will determine the appropriate meeting participants.

  The administrative portion of the meeting shall be a discussion with the CAM about the following Agreement closeout items:

  - What to do with any equipment purchased with CEC funds (Options)
  - CEC 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 Calls

The goal of this task is to have calls at least monthly between CAM and Recipient to verify that satisfactory and continued progress is made towards achieving the objectives of this Agreement on time and within budget.

The objectives of this task are to verbally summarize activities performed during the reporting period, to identify activities planned for the next reporting period, to identify issues that may affect performance and expenditures, to verify match funds are being proportionally spent concurrently or in advance of CEC funds or are being spent in accordance with an approved Match Funding Spending Plan, to form the basis for determining whether invoices are consistent with work performed, and to answer any other questions from the CAM. Monthly calls might not be held on those months when a quarterly progress report is submitted, or the CAM determines that a monthly call is unnecessary.

The CAM shall:

- Schedule monthly calls.
- Provide questions to the Recipient prior to the monthly call.
- Provide call summary notes to Recipient of items discussed during call.

The Recipient shall:

- Review the questions provided by CAM prior to the monthly call
- Provide verbal answers to the CAM during the call.

Product:

- Email to CAM concurring with call summary notes.

Task 1.5 Quarterly 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 Quarterly 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. Progress reports are due to the CAM the 10th day of each January, April, July, and October. The Quarterly Progress Report template can be found on the ECAMS Resources webpage available at https://www.energy.ca.gov/media/4691.

Product:

- Quarterly Progress Reports

Task 1.6 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 CEC 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.

In addition to any other applicable requirements, the Final Report must comply with the Americans with Disabilities Act (ADA) of 1990 (42 U.S.C. 12101 et seq.), which prohibits discrimination on the basis of disability; all applicable regulations and guidelines issued pursuant to the ADA; Cal. Gov. Code sects. 7405 and 11135; and Web Content Accessibility Guidelines 2.0, or a subsequent version, as published by the Web Accessibility Initiative of the World Wide Web Consortium at a minimum Level AA success criteria.

The Recipient shall:

- Prepare an Outline of the Final Report, if requested by the CAM.
- Prepare a Final Report complying with ADA requirements and 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 1.7 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 CEC budget for this task will be zero dollars, the Recipient may utilize match funds for this task. 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 CAM at least 2 working days prior to the kick-off meeting. If no match funds were part of the proposal that led to the CEC 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 CEC 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 CAM if during the course of the Agreement additional match funds are received.
- Notify the CAM 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 1.8 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 CEC budget for this task will be zero dollars, the Recipient may 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 CAM 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 CAM.
- As permits are obtained, send a copy of each approved permit to the CAM.
- If during the course of the Agreement permits are not obtained on time or are denied, notify the CAM 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 1.9 Obtain and Execute Subawards

The goal of this task is to ensure quality products and to procure subrecipients 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.

The Recipient shall:

- Manage and coordinate subrecipient activities.
- If requested by the CAM, submit a draft of each subaward required to conduct the work under this Agreement to the CAM for review.
- If requested by the CAM, submit a final copy of the executed subaward.
- If Recipient intends to add new subrecipients or change subrecipients, then the Recipient shall notify the CAM.

Products:

- Letter describing the subawards needed, or stating that no subawards are required
- Draft subcontracts (if requested)
- Final subcontracts (if requested)

TECHNICAL TASKS

TASK 2 DEVELOP HYDROGEN VEHICLE SUPPLY ROADMAP

The goal of this task is to develop a hydrogen vehicle supply roadmap through bilateral discussions with current and potential hydrogen vehicle manufacturers and suppliers.

The Recipient shall:

- Identify key hydrogen MD/HD vehicle manufacturers across the U.S. and potentially include international markets.
- Compile a *List of Hydrogen Vehicle Manufacturers and Suppliers* (divided by category of vehicles) and provide a copy to the CAM.
- Conduct bilateral meetings with fleet owners, vehicle manufacturers and suppliers to understand their production capacities, production timelines, order schedule timelines, etc.
- Provide *Materials from Bilateral Meetings*, including, but not limited to, agendas, attendee lists, and summaries of discussions and takeaways, to the CAM.
- Develop a *Document for Delivery of Hydrogen Vehicles*, which shall document the expected volume and schedule for delivery of hydrogen vehicles, and provide a copy to the CAM.
- Understand the performance capabilities of different MD/HD vehicles offered based on a series of operational parameters such as range, fuel economy and horsepower.
- Develop a *Document Listing Performance Metrics* of hydrogen vehicles in different segments, preferably by different vendors and suppliers, and provide a copy to the CAM.
- Develop a *Document Regarding Vehicle and Fuel Purchase/Lease Packages,* addressing the possibility that vehicle manufacturers will offer vehicle and fuel purchase/lease packages in the early stages of uptake and provide a copy to the CAM.

- Develop a *Document Regarding Pathways to Offer Vehicles*, listing different pathways through which vehicles can be offered to fleet operators, like lease financing and grants, and provide a copy to the CAM.
- Draft a *Hydrogen Vehicle Supply Roadmap*, compiling all the information collected and provide a copy to the CAM.

Products:

- List of hydrogen vehicle manufacturers and suppliers (divided by category of vehicles)
- Bilateral meetings: Agendas, materials, attendee lists, and summaries of discussions and takeaways
- Document of expected volume and schedule for delivery of hydrogen vehicles
- Document listing performance metrics of hydrogen vehicles in different segments, preferably by different vendors and suppliers
- Document with details of vehicle and fuel purchase/lease packages from different vehicle manufacturers
- Document listing different pathways through which vehicles can be offered to fleet operators, like lease financing and grants
- Hydrogen Vehicle Supply Roadmap

TASK 3 UNDERSTAND DEMAND FOR HYDROGEN VEHICLES

The goal of this task is to conduct a series of workshops and bilateral discussions with fleet operators in different vehicle segments. Fleet vehicles provide good opportunities for uptake of hydrogen vehicles as their duty cycles and refueling patterns are generally more predictable and well understood (compared to individually owned vehicles), and they are likely to be subject to corporate emissions targets. The workshops will help in assessing the potential compatibility and demand for the hydrogen vehicle within different fleets, along with refueling patterns and infrastructure requirements. Using workshop results and insights from in-house experts, the Recipient will assess future costs, challenges, and the feasibility of hydrogen vehicle adoption by different fleets to build a vehicle uptake scenario.

- **The Recipient shall:**
  - Identify key MD/HD fleet operators in Riverside County, California to determine interest in hydrogen vehicles and infrastructure.
  - Compile a *List of Fleet Operators by Segment* and provide a copy to the CAM.
  - Compile a *List of Corporate Emission Reduction Targets*, if any, amongst fleet operators and provide a copy to the CAM.
  - Conduct workshops and bilateral meetings with fleet operators to estimate and project demand for vehicles and infrastructure.
  - Provide *Materials from Workshops and Meetings*, including, but not limited to, agendas, attendee lists, and summaries of discussions and takeaways, to the CAM.

- Assess the level of existing hydrogen fueling infrastructure, if any, which is being used by the fleet operators
- Develop a *Map Identifying Existing Hydrogen Stations* already being used by fleets and provide a copy to the CAM.
- Collect information on typical driving cycles as well as experiences and lessons learned from use of low carbon vehicles
- Develop a *Document Regarding Fleet Details*, with details on duty cycles, refueling patterns and driving cycles of the fleets of different operators. The document will also plot the regular operating routes of these fleets. Provide a copy to the CAM.
- Assess the compatibility of hydrogen for different fleet segments under consideration. Determining factors include the typical duty cycles and refueling patterns of these fleets, as well as the likely costs of hydrogen.
- Use inputs from fleet operators to identify several distinct refueling strategies, which depend to some extent on the type of fleet. (Examples include public stations open to all compatible fleets; in-depot stations where fleets use their own facilities; or shared access where several fleets share one site, which is not for public use.)
- Develop a *Document Comparing Different Refueling Strategies* based on inputs from fleet operators and provide a copy to the CAM.
- Look at the number and type of MD/HD hydrogen vehicles that will be needed to support the transition to zero emission transportation in the near term (1-3 years), medium term (3-5 years) and longer term (>5 years).
- Develop *Demand Estimates and Forecasts* of MD/HD hydrogen vehicles based on discussions with different fleet operators, at the county and municipality level. Provide a copy to the CAM.

Products:

- List of fleet operators by segment
- List of corporate emission targets, if any, for the different fleet operators
- Workshops and meetings: agendas, materials, attendee lists, and summaries of discussions and takeaways
- A map identifying existing hydrogen stations already being used by the fleets
- Document with details on duty cycles, refueling patterns and driving cycles of the fleets of different operators. The document will also plot the regular operating routes of these fleets
- Document comparing different refueling strategies based on inputs from fleet operators
- Document detailing demand estimates and forecasts of MD/HD hydrogen vehicles based on discussions with different fleet operators, at the county and municipality level

TASK 4 IDENTIFY OTHER APPLICATIONS/ USE CASES

The goal of this task is to hold a series of workshops and bilateral discussions with various organizations in Riverside County to identify opportunities for using hydrogen to reduce emissions from their non-vehicle operations. Some examples may include datacenters or fuel cell forklifts in warehouses. Identifying uses for hydrogen beyond what is required for transportation can increase demand for hydrogen, leading to increased supply and contributing to economy of scale.

The Recipient shall:

- Conduct a study to identify various use cases and applications of hydrogen, such as datacenters, forklifts in warehouses or ground operations in ports and airports.
- Develop a *Document with Details of Different Possible Use Cases and Application Areas of Hydrogen* and provide a copy to the CAM.
- Identify and compile a *List of Organizations* that have warehouses, facilities or datacenters located in the vicinity of the fleet operators and provide a copy to the CAM.
- Compile a *List of Corporate Emission Reduction Targets*, if any, for these organizations and provide a copy to the CAM.
- Conduct workshops and bilateral meetings with these organizations to present the benefits of adopting hydrogen as a fuel source, and collect feedback on the prospect of a pilot project that would utilize hydrogen.
- Compile a *List of Organizations* that have expressed willingness to use hydrogen as part of a pilot project and provide a copy to the CAM.

Products:

- Document with details of different possible use cases and application areas of hydrogen
- List of organizations with warehouses, facilities or datacenters located in the vicinity of the fleet operators
- List of corporate emission targets, if any, for the organizations
- List of organizations that have expressed willingness to use hydrogen as part of a pilot project

TASK 5 UNDERSTAND HYDROGEN SUPPLY OPPORTUNITIES AND CONSTRAINTS

The goal of this task is to assess potential supply options and constraints for the generation of hydrogen throughout Riverside County, California, via bilateral discussions with project developers, infrastructure suppliers, gas/electricity grid operators and research organizations.

The Recipient shall:

- Assess hydrogen supply opportunities from current or planned hydrogen production projects in the vicinity of fleet operators.

- Compile a *List of Existing and Planned Hydrogen Production Projects* in the vicinity of fleet operators, including the megawatt capacities of the projects and expected amount of hydrogen to be produced. Provide a copy to the CAM.
- Create a *Map Identifying Locations* (at the broad cluster level) with high suitability for hydrogen production sites due to their proximity to anticipated hydrogen refueling infrastructure and/or fleet operators. Provide a copy of the map to the CAM.
- Work closely with local utilities to assess constraints with the potential to influence hydrogen production locations, such as how much water and renewable power will be available.
- Identify and have bilateral discussions with project developers, infrastructure suppliers, and gas/electricity grid operators, including the nine utilities in Riverside County.
- Based on inputs from previous tasks around estimates of demand from fleet operators and other organizations, develop an *Excel Model* to calculate the amount of hydrogen required (per hour and per day) to meet the refueling needs of Riverside County fleets and for other end use cases. Provide a copy to the CAM.
- Develop a *Plan for the Development of a Hydrogen Generation Plant*.
- Conduct discussions with developers and local authorities to identify all suitable locations in Riverside County for hydrogen generation projects.
- Develop a *Model Detailing New Hydrogen Production Projects* that are required to meet the estimated hydrogen demand. Provide a copy to the CAM.
- Conduct discussions with electrolyzer vendors, experts from the Department of Energy, engineering firms and developers to identify the most cost-effective technology that will produce renewable hydrogen at appropriate purity levels.
- Conduct research on the existing landscape of renewable electricity generation projects, including solar and wind, which could be used to power new hydrogen production plants.
- Estimate a price range in which hydrogen could be supplied to refueling stations and/or other applications
- Analyze station design based on on-site production, gaseous hydrogen delivery via truck, gaseous hydrogen delivery via pipeline, and liquid hydrogen delivery. Identify and compare different approaches of transporting hydrogen from the production plant to the refueling stations.
- Develop a *Schematic Map* showing how hydrogen will be transferred to the fueling stations, including a comparison of different approaches to supply hydrogen based on cost, safety and efficiency. Provide a copy to the CAM.
- Develop a *Model Detailing the New Hydrogen Production* that is required, including, but not limited to:
    - Volume of hydrogen required to meet the refueling needs of the fleets.
    - Volume required by other use cases identified in Task 4.

- Capacities of existing hydrogen production projects that can be used (if any).
- Inputs from vendors around technology/technical specifications of electrolyzers.
- Price of renewable electricity that can be procured to power the electrolyzers.
- Price at which hydrogen can be supplied to the fueling stations and for other use cases.

- Work closely with large infrastructure capital providers and conduct a series of workshops designed to educate infrastructure providers about how to participate in the MD/HD ZEV infrastructure blueprint.
- Conduct a *Detailed Analysis of Workshop Results*, analyzing what would be required to reduce the financial risk profile of implementing the blueprint. Provide a copy to the CAM.

Products:

- List of existing and planned hydrogen production projects in the vicinity of the fleet operators, including the megawatt capacities of the projects and expected amount of hydrogen to be produced
- Map with locations (at the broad cluster level) with high suitability for hydrogen production sites due to their proximity to anticipated hydrogen refueling infrastructure and/or fleet operators
- An Excel model showing the estimated amount of hydrogen required (per hour and per day) to meet the refueling needs of Riverside County fleets and for other end use cases
- A plan for the development of a hydrogen generation plant
- A model detailing the new hydrogen production projects that are required to meet the estimated hydrogen demand
- A schematic map showing how hydrogen will be transferred to the fueling stations that will also compare different approaches to supply hydrogen based on cost, safety and efficiency
- Detailed analyses from workshops with large infrastructure capital providers on how to reduce the financial risk of implementing the blueprint

[CPR WILL OCCUR DURING THIS TASK. See Task 1.2 for details.]

TASK 6 INTEGRATION OF SUPPLY AND DEMAND

The goal of this task is to assess user needs, vehicle demand, and supply opportunities, and develop an integrated infrastructure plan. This plan will be a combination of phased maps for roll-out of infrastructure over time, technology choice considerations, and a series of identified market trigger points that will be strong determinants for vehicle uptake and the level of infrastructure required. The infrastructure plan will also provide an indication of the potential carbon savings that could be achieved if this level of uptake is achieved.

The Recipient shall:

- Identify the number of hydrogen refueling stations that will be required based on the demand/supply opportunities/constraints, along with their economics and deployment time frame.
- Identify the exact locations of these stations, based on the duty cycles, driving cycles, preferred refueling strategies by feet owners (including public, in-depot or shared), and operational routes for fleets.
- Develop a *Schematic Map* of hydrogen stations incorporating the information from the two points above, and overlay the map with duty cycles, driving cycles, and operational routes of the fleets under consideration to assess the utilization of the stations. Provide a copy to the CAM.
- Conduct bilateral meetings with each owner of a site close to a potential hydrogen refueling station or renewable power supply source to ascertain their willingness to lease or sell the site for a hydrogen station and to understand the ownership structure, lot lines, easements, and deed restrictions on the proposed property.
- Provide *Meeting Documentation*, including, but not limited to, copies of meeting agendas, lists of participants, meeting summaries, and key takeaways, to the CAM.
- Conduct pre-application meetings or workshops with Authorities Having Jurisdiction (AHJs) or reviewing entities (often a city or county), community leaders and other stakeholders in the proximity of proposed hydrogen supply sites to inform of the broad effort to deploy hydrogen vehicles and refueling infrastructure.
    - At these meetings, Recipient will discuss the overall plan, describe the proposed path forward, learn which permits or approvals will be required to complete the project, and gain a clear understanding of the level of detail each department would like to see in the permit application submittal package.
    - Meetings will provide an opportunity to identify potential issues that may delay the permitting process or lead to the denial of an application, such as:
        - Problems with the proposed site, such as parking, circulation, right-of-way, or clearances
        - Specific requirements the project must meet to achieve approval
        - Issues with similar projects in the jurisdiction
        - Neighborhood concerns
        - Environmental issues
- Compile a *Document With Input From AHJs and Other Stakeholders* on the feasibility, issues and requirements of each site, and recommendations for the building phase of the stations and deployment timeframes. Provide a copy to the CAM.

- Undertake a ‘planning review’, which will ensure that the proposed stations fit within a community’s zoning codes, General Plan, and overall aesthetics; conduct due diligence, addressing both the California Fire Code (2013 CFC Section 2309 – Hydrogen Motor Fuel Dispensing and Generation Facilities) and the reference standard NFPA 2 (2011 version).
- Conduct a *Financial Assessment* of the estimated economic impact of each station under consideration, including the following:
    - Price range of hydrogen.
    - Information on financing for fleet of MD/HD commercial vehicles and innovative products such as lease financing to corporate entities or grants.
    - Quantifiable measures like the dollar impact on the Gross Domestic Product of the state.
    - Dollar value of estimated private investment resulting from the infrastructure development.
    - Number of new companies establishing their presence in the number and quality of employment created.
- Provide a copy of the financial assessment to the CAM.
- Create a blueprint for different pilot projects that can be undertaken for other applications of hydrogen, e.g., data centers, forklifts etc.
- Develop a *Document Calculating Potential Carbon Savings* from MD/HD hydrogen vehicle infrastructure at the station and fleet level. Provide a copy to the CAM.
- Create a *List of Tools* identifying analytical tools, software applications, and data needed to improve future MD/HD ZEV infrastructure planning activities. Provide a copy to the CAM.

Products:

- Schematic map of all hydrogen stations and an overlay of the map with duty cycles, driving cycles, and operational routes of the fleets under consideration to assess the utilization of the stations
- Meeting agendas, list of participants, and meeting summaries and key takeaways
- Document with input from AHJs and other stakeholders on the feasibility, issues and requirements of each site, and recommendations for the building phase of the stations and deployment timeframes.
- Financial assessment for each station detailing the total economics
- Document with detailed carbon savings at the station and fleet level
- List of analytical tools, necessary data, and software applications that will enable an efficient deployment of the proposed infrastructure

TASK 7 IDENTIFICATION OF DELIVERY STRATEGIES AND RECOMMENDATIONS

The goal of this task is to develop a series of recommendations for implementation of the

infrastructure plan. Interventions that may be required by the various government agencies and local authorities, to ensure that the hydrogen vehicle refueling infrastructure is aligned with user needs, will also be identified. The task will also review job creation for the local community and perform outreach to educate the local community about the benefits of the proposed infrastructure project. Further, this task also aims to create a plan that would ensure that the project benefits disadvantaged communities, low-income communities, priority populations, and/or tribal lands.

The Recipient shall:

- Conduct meetings with workforce development board and local community colleges in Riverside County around development of hydrogen training programs for the workforce.
- Compile a *List of Participants* from the workforce development board and community colleges, and a list of training programs for the workforce already developed. Provide a copy to the CAM.
- Assess existing university and vocational programs to understand where opportunities lie and what additional curricula may be needed.
- Develop and distribute *Materials Regarding Benefits* to the workforce development board and local community members at community outreach workshops describing the environmental and social benefits of MD/HD hydrogen refueling infrastructure. Provide a copy to the CAM.
- Conduct community outreach through a series of workshops with the purpose of answering questions about the technology and generate public support for this project, noting any concerns of the local communities. Attendees invited to participate will include Community-Based Organizations, California Native American Tribes, local permit agencies, local elected officials, businesses, and residents.
- Develop a Project Safety Plan to address potential risks and impacts to personnel, equipment, and the environment and provide a copy to the CAM. The plan will describe the following items, including, but not limited to:
    - A communication plan for operating staff, neighboring occupancies, and local emergency response officials that employs regular dissemination of safety procedures and practices to avoid potential safety incidents and assuring proper incident response.
    - Documentation of bilateral meetings with Pacific Northwest National Laboratory, Center for Hydrogen Safety's Hydrogen Safety Panel and other agencies and consulting firms to get inputs for the project safety plan.
- Create a plan to ensure that the blueprint benefits disadvantaged communities, low-income communities, priority populations, and/or tribal lands to the maximum extent possible. Provide a copy to the CAM.
- Create a *Document Detailing Jobs* that summarizes the types of jobs that will be created for the local community, along with the level of skillset required and average salaries, and the overall economic impact on Riverside County and the state of California. Provide a copy to the CAM.
- Develop recommendations for replicating the project for other fleets and regions

within California.

- Develop a *List of Recommendations and Best Practices*, which shall include, but not be limited to, the detailed process flow of setting up a hydrogen station (including best practices and recommendations to be followed during the planning review, building review, construction and commissioning). Provide a copy to the CAM.

Products:

- Participants from the workforce development board and community colleges, and a list of training programs already developed
- Materials provided to local community members describing the environmental and social benefits of MD/HD hydrogen fueling infrastructure.
- Project safety plan
- Document detailing the types of jobs that will be created for the local community, along with the level of skillset required and average salaries, and the overall economic impact on Riverside County and the state of California
- Document detailing benefits for disadvantaged communities, low-income communities, priority populations, and/or tribal lands
- List of recommendation and best practices

TASK 8 PROJECT FACT SHEET

The goal of this task is to develop an initial and final project fact sheet that describes the CEC-funded project and the benefits resulting from the project for the public and key decision makers.

The Recipient shall:

- Prepare an *Initial Project Fact Sheet* at start of the project that describes the project and the expected benefits. Use the format provided by the CAM.
- Prepare a *Final Project Fact Sheet* at the project's conclusion that describes the project, the actual benefits resulting from the project, and lessons learned from implementing the project. Use the format provided by the CAM.
- Provide at least (6) six *High Quality Digital Photographs* (minimum resolution of 1300x500 pixels in landscape ratio) from the project.

Products:

- Initial Project Fact Sheet
- Final Project Fact Sheet
- High Quality Digital Photographs

TASK 9 BLUEPRINT

The goal of this task is to develop a comprehensive blueprint that will identify actions and milestones needed for the implementation of MD/HD hydrogen vehicles and the related hydrogen refueling infrastructure network along Interstate 10, specifically in Riverside County, California. The blueprint will include quantitative goals and specific, realistic timelines for installation and implementation of MD/HD hydrogen vehicle and refueling infrastructure. It will also provide details on potential sites, maps, and accessibility to travel routes identified for proposed MD/HD refueling. Finally, it will have a section on recommendations and best practices.

The Recipient shall:

- Combine the inputs from all the other tasks into a comprehensive blueprint document.
- The blueprint will have the following sections:
    - Introduction (background, objectives, scope, approach);
    - Hydrogen vehicle supply roadmap;
    - Demand estimation;
    - Infrastructure plan (technology options, siting opportunities for hydrogen refueling stations, maps with locations, planning and safety requirements, station economics);
    - Recommendations and best practices.
- Complete the *Draft Blueprint* and provide a copy to the CAM.
- Incorporate feedback as provided by the CAM.
- Complete the *Final Blueprint* and provide a copy to the CAM.

Products:

- Draft Blueprint
- Final Blueprint

RESOLUTION NO: 22-0810-1b

STATE OF CALIFORNIA

STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION: Hydrogen Technology Ventures, LLC

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

RESOLVED, that the CEC approves Agreement ZVI-22-008 with Hydrogen Technology Ventures, LLC for a $200,000 grant to develop a blueprint planning document that will outline the buildout for medium-and heavy-duty (MD/HD) hydrogen refueling infrastructure in Riverside County, California; and

FURTHER BE IT RESOLVED, that the Executive Director or their designee shall execute the same on behalf of the CEC.

CERTIFICATION

The undersigned Secretariat to the CEC does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the CEC held on August 10, 2022.

AYE:
NAY:
ABSENT:
ABSTAIN:

_____
Liza Lopez
Secretariat