STATE OF CALIFORNIA

GRANT AMENDMENT REQUEST FORM (GARF)

CEC-277 (Revised 12/2019) CALIFORNIA ENERGY COMMISSION

Original Agreement # ARV-21-017 Amendment # 1

Division	Agreement Manager:	MS-	Phone
600 Fuels and Transportation Division	Alex Wan	27	916-805-7477

Recipient's Legal Name	Federal ID #
Center for Transportation and the Environment	58-2052891

Revisions: (check all that apply)	Additional Requirements
☐ Term Extension New End Date: / /	Include revised schedule and complete items A, B, C, & F below.
☒ Budget Augmentation Amendment Amount: $ 713,173	Include revised budget and complete items A, B, C, D, & F below.
☐ Budget Reallocation	Include revised budget and complete items A, B, C, & F below.
☒ Scope of Work Revision	Include revised scope of work and complete items A, B, C, E, & F below.
☐ Change in Project Location or Demonstration Site	Include revised scope of work and complete items A, B, C, E, & F below.
☐ Novation/Name Change of Prime Recipient	Include novation documentation and complete items A, B, C, & F below.
☐ Terms and Conditions Modification	Include applicable exhibits with bold/underline/ strikeout and complete items A, B, C, & F below.

A) Business Meeting Information

Business Meeting approval is not required for the following types of Agreements:

☐ Minor amendments delegated to Executive Director per December 2013 Resolution

Proposed Business Meeting Date 09 / 08 / 2021 ☒ Consent ☐ Discussion

Business Meeting Presenter Alex Wan Time Needed: 5 minutes

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

Agenda Item Subject and Description:

Center for Transportation and the Environment. Proposed resolution approving Amendment 1 to Agreement ARV-21-017 with the Center for Transportation and the Environment to: 1) augment the agreement by $713,173 for a total grant award of $9,898,218; 2) update the Scope of Work to increase the number of Class 8 zero-emission trucks deployed from 22 to 30 and expand the fueling infrastructure capacity to support the increased number of trucks; and 3) adopt staff's determination that the increased number of trucks will not alter the California Environmental Quality Act (CEQA) findings made with the original Grant Agreement ARV-21-017. (General Fund) Contact: Alex Wan

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

Legal Company Name:	Budget
Hyundai Motor America (CARB Sub)	$33,916,647
Hyundai Motor America (CEC Sub)	$50,000
FirstElement Fuel, Inc. (CEC Sub)	$11,694,000

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

Legal Company Name:
East Bay Municipal Utility District
West Oakland Environmental Indicators Project
Macquarie Equipment Capital Inc.
Hydrogen Safety Panel
FirstElement Fuel, Inc.
SSMB Pacific Holding Company, Inc.
Glovis America, Inc.
Hyundai Motor America

D) Budget Information (only include amendment amount information)

Funding Source	Funding Year of Appropriation	Budget List Number	Amount
General Fund	FY 21/22	TBD	$713,173
Funding Source			$
Funding Source			$
Funding Source			$
Funding Source			$

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

Explanation for “Other” selection

Federal Agreement #:

E) 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: Cal. Code Regs., tit 14, § 15301 for truck maintenance facility only

   ☒ Common Sense Exemption. 14 CCR 15061 (b) (3)

Explain reason why Agreement is exempt under the above section: This proposed agreement will add 8 new trucks to the demonstration. The additional trucks will not change the modification of the truck maintenance facility as originally described in the explanation of exemption for this Grant Agreement. Specifically, the scope of work under Grant Agreement ARV-21-017 includes modification to a truck maintenance facility at 1755 Adams Avenue in San Leandro, California. The facility requires third-party assessment and planning; changes to the construction of maintenance bay doors; and upgrades to existing monitoring and alarm systems, ventilation, and other electrical equipment. The CEQA exemption under California Code of Regulations, title 14, section 15301, "Existing Buildings," applies. Section 15301 covers the operation, maintenance, or minor alteration of existing public or private structures, facilities, mechanical equipment, involving negligible or no expansion of existing or former use. The modifications described in the original Grant Agreement, which remain unchanged by this Amendment, are for compliance with hydrogen-related requirements and would cause negligible or no expansion of the existing use. Therefore, the work under this Grant Agreement as amended will have no significant effect on the environment and is categorically exempt under section 15301.

Regarding the hydrogen refueling station, it is not exempt from CEQA, as determined in the original Grant Agreement approval. This Amendment does not change the staff analysis performed for the original Grant Agreement. See next section regarding EIR. The original determination regarding the hydrogen refueling station is unchanged by this Amendment, as the additional trucks will have minimal impact on construction of the hydrogen refueling station.

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

F) The following items should be attached to this GARF (as applicable)

1.	Exhibit A, Scope of Work	☐ N/A	☒ Attached
2.	Exhibit B, Budget Detail	☐ N/A	☒ Attached
3.	CEQA Documentation	☒ N/A	☐ Attached
4.	Novation Documentation	☒ N/A	☐ Attached
5.	CEC 105, Questionnaire for Identifying Conflicts		☒ Attached

Alexander Wan 8-30-2021

Agreement Manager **Date**

_____ _____

Office Manager **Date**

_____ _____

Deputy Director **Date**

Exhibit A
SCOPE OF WORK

TECHNICAL TASK LIST

Task #	CPR	Task Name
1		Administration
2		Truck Procurement
3	X	Hydrogen Station Development
4		Maintenance Facility Upgrades
5		Community Outreach
6	X	ZEV Workforce Plan
7		Vehicle Deployment Planning
8		Vehicle Operation
9		Hydrogen Station Operation
10	X	Data Collection and Analysis
11		Project Fact Sheet

KEY NAME LIST

Task #	Key Personnel	Key Subcontractor(s)	Key Partner(s)
1	Jaimie Levin – CTE		
2	Jaimie Levin – CTE Mike Jeong - Hyundai Motor America Ben Happek – Hyundai Motor America Kristian Hansen – Glovis America, Inc.	Hyundai Motor America, Glovis America, Inc.	Macquarie Equipment Capital Inc.
3	Jaimie Levin – CTE Shane Stephens – FirstElement Fuel Inc. (FEFuel)	FEFuel	East Bay Municipal Utility District (EBMUD), Hydrogen Safety Panel (HSP)
4	Jaimie Levin – CTE Harry Mamizuka – SSMB Pacific Holding Company, Inc. (NorCal Kenworth) Patrick Fiedler – Fiedler Group	NorCal Kenworth, Fielder Group	

5	Jaimie Levin – CTE	Regents of the University of California, on behalf of the Berkeley Campus (UC Berkeley)	EBMUD, WOEIP
6	Jaimie Levin – CTE Mike Jeong – Huyndai Motor America Ben Happek – Hyundai Motor America Harry Mamizuka – NorCal Kenworth Kristian Hansen – Glovis America, Inc.	Hyundai Motor America, NorCal Kenworth, Glovis America, Inc.	
7	Jaimie Levin – CTE Mike Jeong – Hyundai Motor America Ben Happek – Hyundai Motor America Shane Stephens – FEFuel Harry Mamizuka – NorCal Kenworth Kristian Hansen – Glovis America, Inc.	Hyundai Motor America, FEFuel, NorCal Kenworth, Glovis America, Inc.	
8	Jaimie Levin – CTE Mike Jeong – Hyundai Motor America Ben Happek – Hyundai Motor America Kristian Hansen – Glovis America, Inc. Harry Mamizuka – NorCal Kenworth	Hyundai Motor America, Glovis America, Inc., NorCal Kenworth	
9	Jaimie Levin – CTE Shane Stephens – FEFuel Kristian Hansen – Glovis America, Inc.	FEFuel, Glovis America, Inc.	EBMUD

10	Jaimie Levin – CTE Tim Lipman – UC Berkeley	UC Berkeley	Hyundai Motor America, FEFuel, NorCal Kenworth, Glovis America, Inc.
11	Jaimie Levin – CTE		

GLOSSARY

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

Term/ Acronym	**Definition**
AHJ	Authority Having Jurisdiction
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CI	Carbon Intensity
Clean Transportation Program	Formerly known as the Alternative and Renewable Fuel and Vehicle Technology Program
CPR	Critical Project Review
CTE	Center for Transportation and the Environment, Inc.
CUPA	Certified Unified Program Agency
EBMUD	East Bay Municipal Utility District
EVITP	Electric Vehicle Infrastructure Training Program
FTD	Fuels and Transportation Division
GHG	Greenhouse Gas
HSP	Hydrogen Safety Panel
H2	Hydrogen
NFPA	National Fire Protection Association
NREL	National Renewable Energy Laboratory
Recipient	Center for Transportation and the Environment
UC Berkeley	Regents of the University of California, on behalf of the Berkeley Campus
WOEIP	West Oakland Environmental Indicators Project
ZEV	Zero-Emission Vehicle

BACKGROUND

Assembly Bill (AB) 118 (Núñez, Chapter 750, Statutes of 2007), created the Clean Transportation Program (formerly known as the Alternative and Renewable Fuel and Vehicle Technology Program). The statute authorizes the California Energy Commission (CEC) to develop and deploy alternative and renewable fuels and advanced transportation technologies to help attain the state's climate change policies. AB 8 (Perea, Chapter 401, Statutes of 2013) re-authorizes the Program through January 1, 2024, and specifies that the CEC allocate up to $20 million per year (or up to 20 percent of each fiscal year's funds) in funding for hydrogen station development until at least 100 stations are operational. The Program 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 CEC and the California Air Resources Board (CARB) issued GFO-20-606 entitled "Zero-Emission Drayage Truck and Infrastructure Pilot Project" under the CEC's Clean Transportation Program and CARB's FY 2019-20 Funding Plan for Clean Transportation Incentives (FY 2019-20 Funding Plan). CEC funding will support zero-emission vehicle infrastructure and installation, and workforce training and development. CARB funding will be allocated towards the purchase of on-road zero-emission Class 8 trucks. Other costs associated with administrative and data collection tasks will be supported by either CEC or CARB. To be eligible for funding under GFO-20-606, the projects must also be consistent with the CEC's current Clean Transportation Program Investment Plan and CARB's FY 2019-20 Funding Plan for Clean Transportation Incentives (FY 2019-20 Funding Plan). In response to GFO-20-606, the Recipient submitted Proposal #6, which was proposed for funding in the CEC's Notice of Proposed Awards on April 5, 2021. GFO-20-606 is hereby incorporated by reference into this Agreement in its entirety.

In the event of any conflict or inconsistency between the terms of the Solicitation and the terms of the Recipient's Application, the Solicitation shall control. 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.

NOTE: Designation of agency by task. "CEC Task" or "CEC Sub-task" means a task or sub-task for which the Recipient's grant agreement with CEC governs; where Recipient's performance is due to the CEC; and where Recipient's reimbursable costs fall under the budget for the CEC-funded work. "CARB Task" or "CARB Sub-task" means a task or sub-task for which the Recipient's grant agreement with CARB governs; where Recipient's performance is due to CARB; and where Recipient's reimbursable costs fall under the budget for CARB-funded work. "Joint CEC and CARB Task" or "Joint CEC and CARB Sub-task" means a task or sub-task for which the Recipient's performance is due to both the CEC and CARB. Cost allocation for joint tasks is specified in the budgets.

Problem Statement:

High-throughput clusters, like marine ports, concentrate harmful criteria pollutants like diesel particulate matter and oxides of nitrogen. Drayage and other freight movement activities prevalent at these clusters rely predominately on the use of diesel-fueled heavy-duty vehicles. A zero-emission alternative is needed for these high-output, high-utilization vehicles that is cost-competitive with diesel engines and operates with the same level of performance for a demanding duty cycle (high payload, long range, multiple shifts), to accelerate widespread adoption in commercial fleets thereby resulting in significant reductions in these harmful emissions. In order to meet California's emission reduction goals, these high performance, zero-emission vehicles must be placed on an accelerated timeline to commercial deployment.

The total cost of ownership for zero-emission alternatives to diesel engines needs to approach parity for increased utilization in commercial fleets that often operate on thin margins. For commercial vehicles with high-output and high-utilization, the cost of fuel can constitute approximately half of the total cost of ownership. The low initial utilization of hydrogen refueling infrastructure prior to sufficient demand from hydrogen fuel cell-powered vehicles makes it difficult to offer cost-competitive hydrogen fuel, yet the scarcity of affordable hydrogen fuel creates a barrier to adoption for operators managing commercial fleets. By scaling both the demand for and supply of hydrogen fuel in unison, this project can significantly reduce operating costs of hydrogen fuel cell equipment and take a major step towards diesel cost parity.

From the outset, the commercial deployment of zero-emission trucks and hydrogen refueling infrastructure must consider continued operation, scalability, and expansion to ensure long-term commercial viability and make material contributions to state emission reduction goals. This project could represent a major tipping point due to the

significant potential of marine ports to serve diverse and synergistic applications, including on-road vehicles, locomotives, marine vessels, and cargo handling equipment. Each of these applications can be served by the same primary refueling station resulting in continuously reduced operating costs as demand scales.

It is critical to demonstrate the effective operation of a tightly integrated zero-emission ecosystem now, starting with drayage trucks at the major marine ports in Northern California, to accelerate the establishment of a comprehensive hydrogen refueling network and associated competitive cost structure to support increased adoption of zero-emission hydrogen fuel cell electric trucks statewide. At a minimum, the proposed project will operate the fuel cell electric trucks and hydrogen refueling infrastructure for six years, and expanded adoption of these vehicles statewide will provide local air quality benefits and help achieve state emission reduction goals.

Goals of the Agreement:

The goals of the CEC and CARB Grant Agreements are to advance zero-emission Class 8 on-road technology and understanding of fleet dynamics when deploying many zero-emission trucks and supporting infrastructure. The CEC agreement will fund the construction of a hydrogen refueling station capable of providing 700-bar fuel to support the trucks and implement workforce development and training activities that will support the successful deployment of a commercial fleet of ~~22~~**30** fuel cell electric Class 8 trucks in northern California that are being funded under a separate agreement from CARB. The project will eliminate the footprint of hydrogen fuel generation by producing hydrogen via onsite generation using biogas feedstock from the East Bay Municipal Utility District (EBMUD), displace 100% of greenhouse gas (GHG) and criteria pollutants associated with vehicle operations, and provide economic and public health benefits to the West Oakland disadvantaged community.

Objectives of the Agreement:

The objectives of the CEC and CARB Grant Agreements are to:

- Introduce Hyundai Motor America as another competitive OEM into the California and U.S. zero-emission markets, which is a necessary step to reduce cost and to commercialize zero-emission Class 8 trucks. The Hyundai Xcient 6x4 Fuel Cell Tractor has shown exceptional performance in the European and Asian markets.

- Operate ~~22~~**30** Hyundai Xcient fuel cell electric trucks in commercial operation in northern California for a period of at least 6 years. These trucks feature competitive performance to diesel trucks with respect to total cost of ownership, operating range, available payload capacity, cargo volume, vehicle performance parameters, refueling speed, reliability, and longevity.

- Demonstrate economies of scale for future fuel cell electric truck deployments. Hyundai Motor America's fuel cell electric trucks are unilaterally and vertically

integrated by Hyundai Motor America, including steel manufacturing, fuel cell design, truck integration, and final validation testing. Vertical integration is a key ebnabler of significant cost reductions and approaching diesel truck cost parity.

- Build and operate a hydrogen refueling station capable of supporting a ~~22~~**30**-truck deployment at 700-bar pressure. The refueling station will be located just outside of the Port of Oakland and is essential to enabling expansion of the operation of fuel cell electric vehicles in the face of a growing influx of freight in northern California.

- Conduct a Workforce Training program and demonstrate benefits to local employment. NorCal Kenworth is a Bay Area company with an excellent reputation leasing, servicing, and repairing trucks in northern California. This proposal features a comprehensive advanced technology training program in support of Bay Area employees.

- Collect and analyze project data detailing vehicle performance, maintenance and repair, fueling infrastructure, and operations. This data is critical to understand the current state of zero-emission equipment at the micro- and macro-level, and the insights garnered will help steer the industry toward more rapid commercial deployments.

TASK 1 ADMINISTRATION (Joint CEC and CARB Task)

Task 1.1 Attend Kick-off Meeting (Joint CEC and CARB Sub-task)

The goal of this task is to establish the lines of communication and procedures for implementing this Agreement. The Commission Agreement Manager (CAM) and CARB project liaison 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 CARB project liaison, 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 or CARB project liaison 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 and CARB'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
- Schedule for obtaining CARB Executive Order(s) for each vehicle make and model during pilot, if not already issued

CAM Product:

- Kick-Off Meeting Agenda

Task 1.2 Critical Project Review (CPR) Meetings (Joint CEC and CARB Sub-task)

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

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

Meeting participants include the CAM, the CARB project liaison, 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 or CARB project liason to provide support to the Energy Commission and CARB.

The CAM and CARB 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 and the CARB project liaison 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, CARB, 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 and CARB Products:

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

Recipient Product:

- CPR Report(s)

Task 1.3 Final Meeting (Joint CEC and CARB Sub-task)

The goal of this task is to closeout this Agreement.

The Recipient shall:

- Meet with Energy Commission staff and the CARB project liaison 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, CAM, and the CARB project liaison. 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 and the CARB project liaison.

  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 and the CARB project liaison will determine the appropriate meeting participants.

  The administrative portion of the meeting shall be a discussion with the CAM, the CARB project liaison, and the Grants Officer about the following Agreement closeout items:

  - What to do with any equipment purchased with CEC and CARB funds (Options)
  - CEC's and CARB'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 (Joint CEC and CARB Sub-task)

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 CAM and the CARB project liaison 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 (Joint CEC and CARB Sub-task)

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 CARB and FTD project management processes.

The Final Report shall be a public document. If the Recipient has obtained confidential status from the Energy Commission and CARB 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 and CARB project liaison 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 to the CAM and one bound copy of the Final Report to the CARB project liaison.

Products:

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

Task 1.6 Identify and Obtain Matching Funds (Joint CEC and CARB Sub-task)

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 and CARB 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 and CARB 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 CAM and the CARB project liaison 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 and CARB 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 and CARB 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 and CARB project liaison if during the course of the Agreement additional match funds are received.
- Notify the CAM and CARB project liaison 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 (Joint CEC and CARB Sub-task)

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 and CARB 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 CAM and CARB project liaison 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 CARB Executive Order(s) and the schedule for obtaining them at the kick-off meeting should the vehicle manufacturer not already have them for each vehicle make and model being piloted.
- 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 and CARB Executive Order(s) become necessary, provide the appropriate information on each permit and an updated schedule to the CAM and CARB project liaison.
- As permits and CARB Executive Order(s) are obtained, send a copy of each approved permit to the CAM and CARB project liaison.
- If during the course of the Agreement permits are not obtained on time or are denied, notify the CAM and CARB project liaison 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)
- A copy of the CARB Executive Order for each vehicle make and model.

Task 1.8 Obtain and Execute Subcontracts (Joint CEC and CARB Sub-task)

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 and CARB 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 CAM and CARB project liaison for review.
- Submit a final copy of the executed subcontract.
- If Recipient decides to add new subcontractors, then the Recipient shall notify the CAM and CARB project liaison.
-

Products:

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

TECHNICAL TASKS

TASK 2 TRUCK PROCUREMENT (CARB Task)

The goal of this task is procure ~~22~~**30** commercial fuel cell electric Class 8 trucks through Hyundai Motor America. These trucks will be financed through Macquarie who will provide a monthly lease agreement to Glovis America, Inc.. Macquarie Equipment Capital Inc. and Glovis America, Inc. will be responsible for vehicle registration at the

California Department of Motor Vehicles.

TASK 2.1 Purchase Fuel Cell Electric Trucks (CARB Sub-task)

The goal of this subtask is complete the purchase of ~~22~~**30** commercial fuel cell electric Class 8 trucks through Hyundai Motor America.

The Recipient shall:

- Finalize vehicle specifications and place orders.
- Finalize truck delivery schedule.
- Order and receive ~~22~~**30** fuel cell electric Class 8 trucks from Hyundai.
- Provide Department of Motor Vehicles (DMV) registrations and Vehicle Identification Numbers, and odometer readings.
- Provide high-quality photographs of each fuel cell electric truck (clearly labeled with unique identification numbers and funding agencies' decals placed on driver side).

Products:

- Photographs
- Vehicle Registrations
- Odometer Readings
- Vehicle Identification Numbers

TASK 2.2 Manufacture and Deliver Trucks (CARB Sub-task)

The goal of this subtask is to manufacture and deliver ~~22~~**30** "Hyundai Xcient 6x4 Fuel Cell Tractor" fuel cell electric Class 8 trucks to Glovis America, Inc. for deployment into typical revenue service operation. These commercial vehicles will be manufactured unilaterally by Hyundai Motor America at their manufacturing center in Seoul, South Korea.

The Recipient shall:

- Prepare the Vehicle Production Plan. The Production Plan shall include, but is not limited to:
    - Confirmation that vehicle specifications are appropriate for intended duty cycle.
    - Pathway to Federal Motor Vehicle Safety Standards (FMVSS) conformity.
    - Expected timelines for vehicle procurement, build, validation, and delivery.
    - Vehicle performance validation procedures

- Customer acceptance requirements and procedures
- Provide a draft and final Vehicle Production Plan to the CARB Liaison.
- Complete procurement of major and minor equipment necessary for vehicle build.
- Manufacture ~~22~~**30** fuel cell electric Class 8 trucks to meet the operational requirements of the customer.
- Complete validation testing (or other Quality Assurance) and customer acceptance of the vehicles.
- Provide an Impact Report to the CARB Liaison, if there is significant impact to the project scope, schedule, or budget
- Confirm receipt of vehicles by Glovis America, Inc.. Provide a Notification of Customer Acceptance and Notification of Customer Receipt of Vehicles to the CARB Liaison.

Products:

- Draft Vehicle Production Plan
- Final Vehicle Production Plan
- Impact Report(s), if necessary
- Proof of vehicle shipping
- Notification of Customer Acceptance
- Notification of Customer Receipt of Vehicles

TASK 2.3 Develop Commercial Leasing Terms (CARB Sub-task)

The goal of this subtask is to develop and execute the commercial leasing terms required for Glovis America, Inc. to operate ~~22~~**30** fuel cell electric trucks under a monthly lease for a period of six (6) years.

The Recipient shall:

- Develop commercial leasing terms between Macquarie Equipment Capital Inc. and Glovis America, Inc. for ~~22~~**30** fuel cell electric trucks in an operational period of six years.
- Execute commercial leasing terms between Macquarie Equipment Capital Inc. and Glovis America, Inc..
- Provide a Notification of executed Commercial Leasing Terms to the CARB Liaison.

Products:

- Notification of executed Commercial Leasing Terms

TASK 3 HYDROGEN STATION DEVELOPMENT (CEC Task)

The goal of this task is plan for, develop, construct and commission the proposed hydrogen refueling station at the Port of Oakland to be used by the proposed Hyundai Class 8 trucks commercial service operations.

Task 3.1 Hydrogen Safety Plan (CEC Sub-task)

The goal of this subtask is to develop a Hydrogen Safety Plan for the project's hydrogen fueling infrastructure that will provide fuel for the fleet of fuel cell electric Class 8 trucks. This Plan will demonstrate that hydrogen safety has been incorporated into project planning and execution and to ensure appropriate procedures are in place to safely operate hydrogen technologies. The Project Team will develop the Hydrogen Safety Plan and all Hydrogen Safety Design Reviews in close coordination with the HSP.

The Recipient shall:

- Prepare the preliminary Hydrogen Safety Plan. The Hydrogen Safety Plan shall include, but is not limited to:
    - A description of the technologies to be operated
    - The Project Team's approach to ensure safe operation of all hydrogen technologies
    - Results of a functional hazard analysis to be conducted by the Project Team
    - A conformity plan for relevant codes and standards, e.g. NFPA 2
    - The Project Team's safety reporting policies and procedures
    - A detailed description about how the Project Team will provide safety training for the hydrogen fueling infrastructure's initial operation and safety training for all operators
- Submit the preliminary Hydrogen Safety Plan for review by the HSP and incorporate feedback into the final Hydrogen Safety Plan.
- Submit the final Hydrogen Safety Plan to CARB and CEC.
- Complete a hydrogen safety design review.
- Report unintended hydrogen releases to the Certified Unified Program Agency (CUPA), the CEC, and CARB.
- Report safety incidents.

Products:

- Hydrogen Safety Plan (draft and final)
- Safety Incident Report(s) using the NREL Data Collection Tool (if and when applicable)

Task 3.2 Hydrogen Station Commissioning (CEC Sub-task)

The goal of this subtask is develop, construct and commission a hydrogen refueling station at the Port of Oakland to be used by ~~22~~**30** Hyundai Class 8 trucks commercial service operations.

The Recipient shall:

- Define fueling protocols and procedures.
- Procure the Station Equipment.
- Construct the proposed hydrogen refueling station, including arranging and completing utility connections.
- Commission the proposed hydrogen refueling station.
- Provide Notification of Hydrogen Station Commissioning to the CAM when completed.

Products:

- 50% Completion Progress Report
- Notification of Hydrogen Station Commissioning

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

TASK 4 MAINTENANCE FACILITY UPGRADES (CEC Task)

The goal of this task is to complete the necessary work to bring the NorCal Kenworth maintenance facility into compliance for hydrogen vehicle service and operation. This includes third-party assessment and planning, construction of maintenance bay doors, and upgrades to existing monitoring and alarm systems, ventilation, and other electrical equipment.

The Recipient shall:

- Complete a third-party assessment of the current maintenance facility to determine current status of hydrogen compliance per relevant codes and standards.
- Provide a copy of facility assessment results and recommendations to the CAM.
- Procure construction services to install maintenance bay doors.
- Construct maintenance bay doors to enclose current maintenance facility.
- Provide Verification of completed bay door construction to the CAM.
- Complete necessary upgrades to existing facility systems to bring them within hydrogen compliance, such as heating, ventilation, or other electrical equipment.

- Provide Verification of completed facility upgrades for hydrogen compliance to the CAM.

Products:

- Copy of facility assessment results and recommendations
- Verification of completed bay door construction
- Verification of completed facility upgrades for hydrogen compliance

TASK 5 COMMUNITY OUTREACH (CEC Task)

The goal of this task is to conduct public outreach on the benefits of the project, including emissions reductions, local economic benefits, and commercial product goals. Public outreach efforts will be conducted in close collaboration between the Recipient, UC Berkeley, and the West Oakland Environmental Indicators Project (WOEIP).

The Recipient shall:

- Develop a Community Outreach and Engagement Plan. This plan will include, but is not limited to:
  - Community outreach materials that accurately describe the project and technology benefits
  - Pathways to engage with the WOEIP and other community-based organizations to disseminate outreach materials to local community groups and leaders
  - A schedule for outreach and engagement activities
- Provide Community Outreach and Engagement Plan to the CAM.
- Update the Community Outreach and Engagement Plan and adapt outreach materials as necessary to maximize outreach benefits.

Products:

- Community Outreach and Engagement Plan

TASK 6 ZEV WORKFORCE PLAN (CEC Task)

The goal of this task is to develop and implement a Zero-Emission Workforce Training and Development Plan (ZEV Workforce Plan). The ZEV Workforce Plan is for planning, curricula development, and training of maintenance, operations, and service staff for both vehicles and infrastructure.

The Recipient shall:

- Finalize and publish the ZEV Workforce Plan. The ZEV Workforce Plan shall include, but is not limited to:

- Purpose of the ZEV Workforce Plan
- Overview of workforce partnerships
- Job creation details and hiring plan, if necessary
- Training approach, including target participants, development of training curricula, and training methodology
- Program evaluation metrics for performance and cost

- Provide a copy of the ZEV Workforce Plan to the CAM.
- Conduct workforce training as detailed by the ZEV Workforce Plan.
- Collect workforce training data, including but not limited to:
  - Total number of workforce training participants and participant job titles or role and status of each participant at the end of each project.
  - Job creation details including number of workers hired and roles hired for
  - Trainee feedback on training curricula and materials
  - Number of hours of training provided for each trainee
  - Itemized cost expenditures for workforce training
- Provide a copy of the Workforce training and curricula and materials to the CAM.
- Evaluate training program as detailed by the ZEV Workforce Plan and publish a ZEV Workforce findings and recommendations report.
- Provide verification that the workforce training data is in compliance with the EVITP requirements to the CAM.
- Provide a copy of the ZEV Workforce Findings and Recommendations report to the CAM.

Products:

- Final ZEV Workforce Plan
- Copy of Workforce training curricula and materials
- Workforce training data in compliance with the EVITP including certification data of allowable personnel.
- ZEV Workforce Findings and Recommendations report

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

TASK 7 VEHICLE DEPLOYMENT PLANNING (Joint CEC and CARB Task)

The goal of this task is to complete all of the supporting activities necessary to prepare for safe and successful operation of the fuel cell electric vehicles and hydrogen refueling infrastructure. These activities include development of the vehicle operating manual, preparing for maintenance and support of the vehicles and infrastructure, preparing a training plan and curriculum, conducting training for operations and maintenance personnel, and notifying local first responders of hydrogen operations.

The Recipient shall:

- Develop a Maintenance and Support Plan. The Maintenance and Support Plan will include, but is not limited to:
    - Processes for reporting issues with vehicles and refueling infrastructure
    - Assignment of maintenance and support responsibilities
    - Communication procedures between members of the Project Team
    - Emergency events and procedures
    - Preventative Maintenance schedule for vehicle and infrastructure components
- Provide a copy of the Maintenance and Support Plan to the CAM.
- Develop a Vehicle Operating Manual and provide a copy to the CAM.
- Notify local first responders of hydrogen operations and provide emergency situation or other safety-related materials. Provide a copy of the notification to the CAM.

Products:

- Maintenance and Support Plan
- Vehicle Operating Manual
- Copy of notification to local first responders

TASK 8 VEHICLE OPERATION (CARB Task)

The goal of this task is to deliver and operate ~~22~~**30** fuel cell electric Class 8 trucks in revenue service with Glovis America, Inc. for a period of at least 12 months during the Grant term. The vehicles are expected to continue operating outside of the Grant term for a total period of 6 years.

The Recipient shall:

- Operate each of the ~~22~~**30** vehicles for a period of at least 12 months during the Grant term.
- Notify the CARB Liaison when operations begin.
- Provide technical support to Glovis America, Inc. to maximize equipment reliability, efficiency, and performance.
- Complete all vehicle service and maintenance, as required.

Products:

- Notification of vehicle operations

TASK 9 HYDROGEN STATION OPERATION (CEC Task)

The goal of this task is to operate the proposed hydrogen refueling station at the Port of Oakland for the Hyundai Class 8 trucks in commercial service operations through March 31, 2025, reporting data as required for Task 10. The station is expected to continue operating outside of the Grant term for a total period of 6 years.

The Recipient shall:

- Operate the hydrogen refueling station, including ensuring safe refueling and providing hydrogen supply with 0 carbon intensity (CI). Notify the CAM when hydrogen station operations begin.
- Complete all necessary maintenance and service work in response to unplanned station downtime.
- Provide technical support to ensure station reliability and operator satisfaction.

Products:

- Notification of hydrogen station operations

Task 10 DATA COLLECTION AND ANALYSIS (CEC Task)

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

Data and analysis for this hydrogen refueling project will be submitted to the CEC and CARB quarterly using the National Renewable Energy Laboratory (NREL) Data Collection Tool, to perform and report hydrogen quality test results, and to collect and analyze data from the project for economic and environmental impacts and include in the Final Report.

The Recipient shall:

- Develop data collection test plan and/or submit the NREL Data Collection Tool once the hydrogen refueling station becomes operation and continue to do so every quarter until the end of the agreement.
- Perform and submit results of purity using hydrogen collected, at the nozzle for each hose at each open retail station. Purity tests for the station will be performed:
    - at the time the station becomes operational
    - every six months after the station becomes operational during the approved term of this agreement; and,
    - as needed when the hydrogen lines are potentially exposed to contamination due to maintenance or other activity.

  Hydrogen purity readings shall be collected according to CCR Title 4 Business Regulations, Division 9 Measurement Standards, Chapter 6 Automotive Products Specifications, Article 8 Specifications for Hydrogen Used in Internal Combustion Engines and Fuel Cells, Sections 4180 and 4181.
- Troubleshoot any issues identified.
- Identify the source of hydrogen.
- Duty cycle of the current fleet and the expected duty cycle of future vehicle acquisitions.
- Collect 12 months of throughput, usage, and operations data from the project monthly using the data collection requirements detailed in Attachment 20.
- Maximum capacity of the new fueling system.
- Gallons of gasoline and/or diesel fuel displaced (with associated mileage information).
- Estimated reductions of the metrics below using the methodology and calculations shown in CARB's *Methodology for Determining Emission Reductions and Cost-Effectiveness*.
    - Greenhouse gas
    - Oxides of nitrogen
    - Particulate matter (less than 10 microns in diameter)
    - Carbon intensity values for life-cycle greenhouse gas emissions
    - Reactive organic gas

- Identify any current and planned use of renewable energy at the facility.
- 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 (both temporary and permanent), economic development, and increased state revenue as a result of expected future expansion.
- Specific jobs (both temporary and permanent) and economic development resulting from this project
- Compare and contrast any project performance and expectations provided in the proposal to CEC and CARB with actual project performance and accomplishments.
- Collect data, information, and analysis described above and include in the Final Report.
- Data collection and analysis for infrastructure will include:
    - Installation and capital costs for hardware, installation, electrical upgrades.
    - Aggregated/average price of hydrogen fuel.
    - Performance metrics/analysis of station reliability.
- Conduct project stakeholder surveys, interviews and data reviews with fleet operators, OEMs, and utilities to identify challenges, successes, lessons learned and best practices during beginning, mid-point, and end of the project.

Products:

- Data Collection Test Plan
- Monthly data collection
- Quarterly NREL Data Collection Tool (for hydrogen refueling projects)

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

TASK 11 PROJECT FACT SHEET (CEC Task)

The goal of this task is to develop an initial and final project fact sheet that describes the CEC and CARB 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 six High Quality Digital Photographs (minimum resolution of 1300x500 pixels in landscape ratio) of pre and post technology installation at the project sites or related project photographs.

Products:

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

RESOLUTION NO: 21-0908-1a

STATE OF CALIFORNIA

STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION CENTER FOR TRANSPORTATION AND THE ENVIRONMENT

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

RESOLVED that the CEC approves Amendment 1 to Agreement ARV-21-017 with the Center for Transportation and the Environment to: 1) augment the agreement by $713,173 for a total grant award of $9,898,218; 2) update the Scope of Work to increase the number of Class 8 zero-emission trucks deployed from 22 to 30 and expand the fueling infrastructure capacity to support the increased number of trucks; and 3) adopt staff's determination that the increased number of trucks will not alter the California Environmental Quality Act (CEQA) findings made with the original Grant Agreement ARV-21-017; and

FURTHER BE IT RESOLVED, that the Executive Director or his/her 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 September 8, 2021.

AYE:
NAY:
ABSENT:
ABSTAIN:

Liza Lopez
Secretariat