



**CALIFORNIA
ENERGY COMMISSION**



**California Energy Commission
June 16, 2023 Business Meeting
Backup Materials for Agenda Item No 10b:
FirstElement Fuel, Inc.**

The following backup materials for the above-referenced agenda item are available in this PDF packet as listed below:

1. Proposed Resolution
2. Grant Request Form
3. Scope of Work

STATE OF CALIFORNIA
STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION: FirstElement Fuel, Inc.

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 agreement ZVI-22-038 with FirstElement Fuel, Inc. for a \$7,747,740 grant to expand manufacturing of hydrogen refueling station (HRS) modules and cryogenic hydrogen pumps in Santa Ana, California and expand testing capabilities of the HRS equipment in Livermore, California. This project will create a new manufacturing line for light-duty vehicle HRS that will achieve an annual production capacity of 100 modules or heavy-duty vehicle HRS to an annual production capacity of 10 modules; 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 June 16, 2023.

AYE:
NAY:
ABSENT:
ABSTAIN:

Dated:

Liza Lopez
Secretariat



GRANT REQUEST FORM (GRF)

A. New Agreement Number

IMPORTANT: New Agreement # to be completed by Contracts, Grants, and Loans Office.

New Agreement Number: ZVI-22-038

B. Division Information

1. Division Name: Fuels and Transportation
2. Agreement Manager: Hieu Nguyen
3. MS-: 27
4. Phone Number: 916-237-2554

C. Recipient's Information

1. Recipient's Legal Name: FirstElement Fuel, Inc.
2. Federal ID Number: 46-4269718

D. Title of Project

Title of project: GFO-21-605 Zero-Emission Transportation Manufacturing

E. Term and Amount

1. Start Date: 6/16/2023
2. End Date: 03/31/2026
3. Amount: \$7,747,740

F. Business Meeting Information

1. Are the ARFVTP agreements \$75K and under delegated to Executive Director? No
2. The Proposed Business Meeting Date: 6/16/2023
3. Consent or Discussion? Discussion
4. Business Meeting Presenter Name: Hieu Nguyen
5. Time Needed for Business Meeting: 5 minutes.
6. The email subscription topic is: Clean Transportation Program

Agenda Item Subject and Description:

FirstElement Fuel, Inc. Proposed resolution approving agreement ZVI-22-038 with FirstElement Fuel, Inc. for a \$7,747,740 grant to expand manufacturing of hydrogen refueling station (HRS) modules and cryogenic hydrogen pumps in Santa Ana, California and expand testing capabilities of the HRS equipment in Livermore, California, and adopting staff's determination that this action is exempt from CEQA. This project will create a new manufacturing line for light-duty vehicle HRS that will achieve an annual production capacity of 100 modules or heavy-duty vehicle HRS to an annual production capacity of 10 modules. (General Fund Funding) Contact: Hieu Nguyen (Staff Presentation: 5 minutes)

G. California Environmental Quality Act (CEQA) Compliance

1. Is Agreement considered a "Project" under CEQA?

Yes

If yes, skip to question 2.



If no, complete the following (PRC 21065 and 14 CCR 15378) and explain why Agreement is not considered a "Project":

Agreement will not cause direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment because: If Agreement is considered a "Project" under CEQA skip to question 2. Otherwise, provide explanation.

2. If Agreement is considered a "Project" under CEQA answer the following questions.

a) Agreement **IS** exempt?

Yes

Statutory Exemption?

No

If yes, list PRC and/or CCR section number(s) and separate each with a comma. If no, enter "None" and go to the next question.

PRC section number: PRC section number 1, PRC section number 2. Or, "None"

CCR section number: CCR section number 1, CCR section number 2. Or, "None"

Categorical Exemption?

Yes

If yes, list CCR section number(s) and separate each with a comma. If no, enter "None" and go to the next question.

CCR section number: Cal. Code Regs., Tit. 14, Sect.15301 Existing facilities

Cal. Code Regs., title 14 Section 15301 provides that projects which consist of the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or not expansion of existing or former use, are categorically exempt from the provisions of CEQA. Work under this proposed project will consist of developing a new manufacturing line for hydrogen refueling stations (HRS) and HRS components within an existing manufacturing facility in Santa Ana, California; scaling manufacturing of hydrogen cryogenic pumps (cryopump) at the same existing facility; and expanding HRS and HRS component testing equipment capacity at an existing testing facility in Livermore, CA.

The Santa Ana facility is approximately 30,000 square feet and is currently manufacturing HRS components. Equipment and supporting hardware account for approximately 10,000 square feet. The expansion of manufacturing capacity at the Santa Ana site will entail only installation of new manufacturing equipment within the existing building shell, electrical panel upgrades and lighting, interior layout changes, and other minor modifications within the existing building. No modifications will be made to the floors, walls, or shell of the existing building. The Livermore facility is approximately 25,000 square feet and currently functions as a HRS testing facility. A new cryogenic pump stand will be installed under this project, within the shell of the existing building. There will be no physical changes to the existing facility's footprint. For these reasons, this project will have no significant impact on the environment and falls within Class 1, section 15301.



The project will not impact an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies; does not involve any cumulative impacts of successive projects of the same type in the same place that might be considered significant; does not involve unusual circumstances that might have a significant effect on the environment; will not result in damage to scenic resources within a highway officially designated as a state scenic highway; the project site is not included on any list compiled pursuant to Government Code section 65962.5; and the project will not cause a substantial adverse change in the significance of a historical resource. Therefore, none of the exceptions to categorical exemptions listed in CEQA Guidelines section 15300.2 apply to this project, and this project will not have a significant effect on the environment.

Common Sense Exemption? 14 CCR 15061 (b) (3)

No

If yes, explain reason why Agreement is exempt under the above section. If no, enter "Not applicable" and go to the next section.

Not applicable

b) Agreement **IS NOT** exempt.

IMPORTANT: consult with the legal office to determine next steps.

No

If yes, answer yes or no to all that applies. If no, list all as "no" and "None" as "yes".

Additional Documents	Applies
Initial Study	No
Negative Declaration	No
Mitigated Negative Declaration	No
Environmental Impact Report	No
Statement of Overriding Considerations	No
None	Yes

H. Subcontractors

List all Subcontractors listed in the Budget (s) (major and minor). Insert additional rows if needed. If no subcontractors to report, enter "No subcontractors to report" and "0" to funds.

Delete any unused rows from the table

Subcontractor Legal Company Name	CEC Funds	Match Funds
No subcontractors to report	\$ 0	\$ 0

I. Vendors and Sellers for Equipment and Materials/Miscellaneous



List all Vendors and Sellers listed in Budget(s) for Equipment and Materials/Miscellaneous. Insert additional rows if needed. If no vendors or sellers to report, enter “No vendors or sellers to report” and “0” to funds. **Delete** any unused rows from the table.

Vendor/Seller Legal Company Name	CEC Funds	Match Funds
TBD (Building Lease Santa Ana)	\$ 0	\$ 2,100,000
TBD (Building Lease Livermore)	\$ 0	\$ 420,000
TBD (Tenant Improvements Santa Ana facility)	\$ 940,000	\$ 0
TBD (Tenant Improvements Livermore facility)	\$ 600,000	\$ 0
TBD (CNC Tsugami lathe installation)	\$ 14,000	\$ 0
TBD (CNC 5-axis mill installation)	\$ 10,000	\$ 0
TBD (CNC Auto-saw installation)	\$ 12,000	\$ 0
TBD (CNC Overhead crane installation)	\$ 45,000	\$ 0
TBD (QC CMM Installation)	\$ 11,000	\$ 0
TBD (QC Starrett installation)	\$ 5,000	\$ 0
TBD (QC Clean room installation)	\$ 15,000	\$ 0
TBD (Pump Assembly cells installation)	\$ 48,000	\$ 0
TBD (Pump Assembly Crane installation)	\$ 11,000	\$ 0
TBD (Pump Assembly Gantry crane installation)	\$ 75,000	\$ 0
TBD (HRS Assembly Auto-saw installation)	\$ 12,000	\$ 0
TBD (HRS Assembly orbital welder installation)	\$ 12,000	\$ 0
TBD (HRS Assembly forklift installation)	\$ 15,000	\$ 0
TBD (HRS Assembly fixturing installation)	\$ 5,000	\$ 0
TBD (Test Stand installation)	\$280,000	\$ 0

J. Key Partners

List all key partner(s). Insert additional rows if needed. If no key partners to report, enter “No key partners to report.” **Delete** any unused rows from the table.

Key Partner Legal Company Name
None

K. Budget Information

Include all budget information. Insert additional rows if needed. If no budget information to report, enter “N/A” for “Not Applicable” and “0” to Amount. **Delete** any unused rows from the table.



Funding Source	Funding Year of Appropriation	Budget List Number	Amount
General Fund	2021-2022	601.129 MGA	\$7,747,740

TOTAL Amount: \$7,747,740

R&D Program Area:

Explanation for "Other" selection

Reimbursement Contract #:

Federal Agreement #:

L. Recipient's Contact Information

1. Recipient's Administrator/Officer

Name: George Wu

Address: 5281 California Ave, Suite 260

City, State, Zip: Irvine, CA 92617

Phone: (949) 346-4499

E-Mail: george.wu@fefuel.com

2. Recipient's Project Manager

Name: Tim Brown

Address: 5281 California Ave, Suite 260

City, State, Zip: Irvine, CA 92617

Phone: (949) 228-5769

E-Mail: tim.brown@fefuel.com

M. Selection Process Used

There are three types of selection process. List the one used for this GRF.

Selection Process	Additional Information
Competitive Solicitation #	GFO-21-605
First Come First Served Solicitation #	Not Applicable
Other	Not Applicable

N. Attached Items

- List all items that should be attached to this GRF by entering "Yes" or "No".



Item Number	Item Name	Attached
1	Exhibit A, Scope of Work/Schedule	Yes
2	Exhibit B, Budget Detail	Yes
3	CEC 105, Questionnaire for Identifying Conflicts	Yes
4	Recipient Resolution	No
5	Awardee CEQA Documentation	Yes

Approved By

Individuals who approve this form must enter their full name and approval date in the MS Word version.

Agreement Manager: Hieu Nguyen

Approval Date: 3/7/2023

Office Manager: Charles Smith

Approval Date:

Deputy Director: Melanie Vail

Approval Date:

CEC-270 attachment for Vendor/Seller for equipment
(FirstElement Fuel ZVI-22-038)

Vendor/Seller Legal Company Name	CEC Funds	Match Funds
TBD (Software for quality management, automation)	\$ 55,000	\$ 0
Methods Machine Tools	\$ 374,000	\$ 55,000
Ellison Technologies	\$ 789,500	\$ 0
Kone Cranes	\$ 305,500	\$ 0
Kalimetrics	\$ 55,000	\$ 10,000
Accumatica	\$ 24,000	\$ 0
Go Engineer	\$ 45,000	\$ 0

Exhibit A SCOPE OF WORK

TECHNICAL TASK LIST

Task #	CPR	Task Name
1		Administration
2	X	Expand Manufacturing Capability
2.1		Expand Pump Manufacturing Capability
2.2		Create New Manufacturing Line for Hydrogen Equipment Modules
3		Workforce Internship and Job Training
4		Data Collection and Analysis
5		Project Fact Sheet

KEY NAME LIST

Task #	Key Personnel	Key Subcontractor(s)	Key Partner(s)
1	Tim Brown (FirstElement Fuel, Inc.)	N/A	N/A
2	Tim Brown (FirstElement Fuel, Inc.)	N/A	N/A
2.1	Tim Brown (FirstElement Fuel, Inc.)	N/A	N/A
2.2	Tim Brown (FirstElement Fuel, Inc.)	N/A	N/A
3	Tim Brown (FirstElement Fuel, Inc.)	N/A	N/A
4	Tim Brown (FirstElement Fuel, Inc.)	N/A	N/A
5	Tim Brown (FirstElement Fuel, Inc.)	N/A	N/A

GLOSSARY

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

Term/ Acronym	Definition
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer

CARB	California Air Resources Board
CEC	California Energy Commission
CTP	Clean Transportation Program
CPR	Critical Project Review
FCEV	Fuel Cell Electric Vehicle
FTD	Fuels and Transportation Division
HD	Heavy-Duty
HRS	Hydrogen Refueling Station
LD	Light-Duty
Recipient	FirstElement Fuel, Inc.
ZEV	Zero Emission Vehicle

Background

The Budget Act of 2021 (Assembly Bill (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. The Budget Act of 2022 (SB 154, Skinner, Chapter 43, Statutes of 2022, as amended by AB 178, Ting, Chapter 45, Statutes of 2022) appropriated an additional \$255,000,000 from the General Fund to support infrastructure deployments and manufacturing projects for zero-emission light-duty and medium- and heavy-duty vehicles.

- On March 30, 2022, the California Energy Commission (CEC) released a Grant Funding Opportunity (GFO) entitled “Zero-Emission Transportation Manufacturing.” This competitive grant solicitation was to provide funding for projects that will increase in-state manufacturing of zero-emission vehicles (ZEV), ZEV components and batteries, and ZEV charging or refueling equipment. In response to GFO-21-605, the Recipient submitted application #10 which was proposed for funding in the CEC’s Notice of Proposed Awards on August 24, 2022, as revised by the Second Revised Notice of Proposed Awards on March 15, 2023. GFO-21-605 and Recipient’s application are hereby incorporated by reference into this Agreement in their entirety.

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

California has a history of aggressively leading the effort toward the transition to ZEVs. The latest Executive Order by Governor Newsom, N-79-20, calls for the phase out of in-state sales of internal combustion engines by 2035 for light-duty vehicles, 2035 for drayage trucks, and

2045 for all vehicles where feasible. Combined with the California Air Resources Board (CARB) Mobile Source Strategies and the 2022 Scoping Plan Update¹, which emphasize the increased use of hydrogen as a transportation fuel for both light-duty (LD) and heavy-duty (HD) vehicles, hydrogen refueling stations (HRS) will be an important resource to reach the state's aggressive goals for zero-emission transportation.

Major equipment and component manufacturing is critical for HRS to ensure sufficient quality and quantity of spare parts and components for hydrogen station operators to increase the availability, reliability, and performance for fuel cell electric vehicle (FCEV) drivers to have a better refueling experience. Currently, the Recipient purchases hydrogen cryogenic pumps from overseas. A key component of this agreement is for the Recipient to make their own hydrogen cryogenic pumps. This will make the transition to FCEVs more seamless and akin to the existing gasoline experience, thereby taking away one of the barriers of switching to a FCEV and accelerating the technology's deployment.

Goals of the Agreement:

The goals of this Agreement are to:

- Scale ZEV/HRS infrastructure manufacturing capacity within California.
- Accelerate the deployment of HRS infrastructure to contribute to California's ZEV and infrastructure goals, including Executive Order B-48-18 and N-79-20.
- Grow California-based direct and indirect job opportunities in hydrogen fueling infrastructure manufacturing.
- Provide significant economic benefits and impacts to the state.
- Support the reduction of California's use and dependence on petroleum transportation fuel.
- Support California-based supply chains.
- Engage with workforce development organizations, local educational institutions, and community-based groups to support HRS infrastructure job training and placement.

Objectives of the Agreement:

The objectives of this Agreement are to:

- Expand manufacturing of HRS equipment and components by Recipient in Santa Ana, California.
- Expand HRS testing equipment capabilities in Livermore, California.
- Expand existing precision manufacturing capability of high-pressure cryogenic hydrogen pumps by 100 units per year, including fielded spares and limited heavy-duty vehicle HRS module manufacturing.
- Create a new manufacturing line to enable the production of the entire hydrogen refueling station modules. The production capacity of the modules will be 100 light-duty vehicle or 10 heavy-duty vehicle hydrogen refueling stations per year.
- Create at least 38 direct jobs and 130 indirect jobs in California.
- Reduce greenhouse gas emissions by up to 588,015 metric tons of CO₂e in the first year of operation and an additional 588,015 metric tons of carbon each year of operation after the first year.

¹ CARB. 2022 Scoping Plan Update. https://ww2.arb.ca.gov/sites/default/files/2022-12/2022-sp_1.pdf.

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 and is limited to 25-pages. 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 Final Report in Microsoft Word format or similar electronic format as approved by the CAM.

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 EXPAND MANUFACTURING CAPABILITY

The goal of this task is to expand Recipient’s manufacturing capability in California. This includes expanded cryogenic pump manufacturing for complete hydrogen equipment modules at the existing Santa Ana facility. For the Livermore facility, Recipient will purchase and install additional quality assurance testing equipment and a HRS test stand.

The Recipient shall:

- Develop and submit to the CAM a *Manufacturing Equipment List* to include milling machine, lathes, and other machine tools.
- Develop and submit to the CAM a *Manufacturing Site Capability Report* for the manufacturing expansion feasibility at the existing manufacturing facility located at 660 E. Dyer, Santa Ana, CA.
- Develop and submit to the CAM the *Pre-Construction Site Plans* for both facilities (660. E. Dyer, Santa Ana, CA. and 7810 National Drive, Livermore, CA)
- Upon approval from the CAM, proceed with facility expansion modification including but not limit to the following:
 - Installing manufacturing and testing equipment all within the existing building footprint.
 - Installation or moving equipment and materials to support expansion of manufacturing capacity for HRS and hydrogen cryogenic pumps at the Santa Ana facility.

Products:

- Manufacturing Equipment List
- Manufacturing Site Capability Report
- Pre-Construction Site Plans

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

Task 2.1 Expand Pump Manufacturing Capability

The goal of this task is to expand Recipient’s cryogenic pump manufacturing capability.

The Recipient shall:

- Develop *Manufacturing Floor Plans* of expanded and upgraded manufacturing facilities within existing FirstElement space at 660 E. Dyer Rd, Santa Ana and provide to CAM.
- Document progress with *Photographs* and provide to CAM.
- Purchase, install, and commission additional manufacturing equipment including milling machine, lathes, and other machine tools at Recipient's Santa Ana HRS manufacturing facility. Provide *CAM Detailed Equipment List and Commissioning Calibration Reports* for all relevant manufacturing tools.
- Construct and outfit additional "clean room" pump assembly areas and provide CAM with *Photographs and Specification Lists*.
- Purchase, install, and commission additional HRS testing equipment at Recipient's Livermore testing facility and provide *Photographs* to CAM.
- Provide *CAM Test Reports* for first cryogenic pump production units.

Products:

- Manufacturing Floor Plans
- Photographs
- Detailed Equipment List and Commissioning Calibration Reports
- Photographs and Specification Lists for "clean room" pump assembly areas
- Photographs of upgraded Livermore testing facility
- Test Reports

Task 2.2 Create New Manufacturing Line for Hydrogen Equipment Modules

The goal of this task is to create Recipient's HRS manufacturing line for complete hydrogen station equipment modules.

The Recipient shall:

- Develop *Equipment List* and provide to CAM.
- Purchase, install, and commission all manufacturing and fabrication equipment and provide *Commissioning Calibration Reports* to CAM.
- Develop *Floor Plans* for upgraded manufacturing facilities within existing Recipient space at 660 E. Dyer Rd, Santa Ana and provide to CAM.
- Construct and outfit assembly areas. Provide *Photographs and Specification Lists* for assembly areas to CAM.
- Provide *Photographs* to CAM of completed upgraded facility which includes assembly areas and the initial manufactured HRS units.
- Develop *Test Reports* for first production units and provide to CAM.

Products:

- Equipment List
- Commissioning Calibration Reports

- Floor Plans
- Photographs and Specification Lists
- Photographs of upgraded facility
- Test Reports

TASK 3 WORKFORCE INTERNSHIP AND JOB TRAINING

The goal of this task is to develop Recipient’s HRS infrastructure workforce internship and job training program.

The Recipient shall:

- Collaborate with Cal. State L.A. University Auxiliary Services, Inc. (California State University, Los Angeles, or CalState LA) to develop a new HRS workforce internship training program.
- Assist CalState LA to engage with workforce development organizations, local educational institutions, and community-based groups.
- Develop and formalize a new HRS training program for Recipient workforce to support HRS infrastructure manufacturing production, including both job training and an internship program. Prepare and submit to the CAM a *Workforce Training and Internship Summary Report* that includes, but is not limited to:
 - Summary of the development of the workforce training and internship programs
 - Summary of the hiring and selection of the interns and trainees
 - Number of direct and indirect jobs resulting from internship and training program
 - If internships and jobs are benefiting members from priority population or disadvantaged communities
 - Development and finalization of the program scope for the HRS training program
 - Development and finalization of the program’s training curriculum
 - Key results accomplished during the training program (e.g., a description of training processes developed for assembly team and applicability towards the HRS infrastructure production process).

Products:

- Workforce Training and Internship Program Summary Report

Task 4 DATA COLLECTION AND ANALYSIS

The goal of this task is to collect operational data from the project and to analyze that data for economic and environmental impacts.

The Recipient shall:

- Develop a *Data Collection Outline and Plan*.

- Identify key project issues encountered and resolution of the issues.
- Collect a minimum of 6 months of project and operations data.
- Identify the number and description of units produced from product beta testing and validation through commercial production. The Recipient shall also characterize the use of these products after the project.
- Describe the market(s) for the manufactured products and compare the market status from the time of the original project proposal to the time of the project's completion.
- Provide a projection of the number of units to be manufactured per year, for the products identified in the original application, 3 years after the completion of the project. The Recipient shall also provide assumptions for projected growth.
- Compare project performance and expectations provided in the original project proposal with actual project performance, results, and accomplishments.
- Provide data on specific jobs and economic impact as a direct result of the project, including:
 - Number and type of short-term jobs created or retained by the project
 - Number and type of sustained, long-term jobs created or retained by the project
 - Estimates and descriptions of future jobs resulting from the project
 - Estimates of local economic impacts and revenues to state and local governments
 - Number of employees participating in training programs, and types of training programs
 - Number of indirect jobs resulting from the project.
- Provide a *Data Collection Information and Analysis Report* that lists and analyzes all the data and information described above.

Products:

- Data Collection Outline and Plan
- Data Collection Information and Analysis Report

TASK 5 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) 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