



STATE OF CALIFORNIA

GRANT REQUEST FORM (GRF)

CEC-270 (Revised 12/2019)

CALIFORNIA ENERGY COMMISSION

A) New Agreement # ZVI-21-016 (to be completed by CGL office)

| B) Division | Agreement Manager: | MS- | Phone |
|-----------------------------------|---------------------------|------------|--------------|
| Fuels and Transportation Division | Alexander Wan | 27 | 916-805-7477 |

| C) Recipient's Legal Name | Federal ID # |
|----------------------------------|---------------------|
| Linde Inc. | 06-1249050 |

| D) Title of Project |
|--|
| Blueprint for High Efficiency Heavy Duty Hydrogen Refueling Infrastructure |

E) Term and Amount

| Start Date | End Date | Amount |
|-------------------|-----------------|---------------|
| 02/16/2022 | 10/1/2023 | \$ 199,996 |

F) Business Meeting Information

☐ ARFVTP agreements \$75K and under delegated to Executive Director
Proposed Business Meeting Date 02 / 16/ 2022 ☒ Consent ☐ Discussion
Business Meeting Presenter: Kate Reid Time Needed: 0 minutes
Please select one list serve. Altfuels (AB 118 -ARFVTP)

Agenda Item Subject and Description:

LINDE INC. Proposed resolution approving Agreement ZVI-21-016 with Linde Inc. for a \$199,996 grant to prepare a blueprint document that will facilitate the development of well-supplied, fast hydrogen refueling infrastructure that is easily accessible from major interstate corridors and adopting staff's determination that this action is exempt from CEQA. (General Fund funding). Contact: Kate Reid. (Staff Presentation: 5 minutes)

G) California Environmental Quality Act (CEQA) Compliance

1. Is Agreement considered a "Project" under CEQA?
☒ Yes (skip to question 2) ☐ No (complete the following (PRC 21065 and 14 CCR 15378)):

Explain why Agreement is not considered a "Project":

Agreement will not cause direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment because .

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

- a) ☒ Agreement **IS** exempt.
☐ Statutory Exemption. List PRC and/or CCR section number:
☒ Categorical Exemption. List CCR section number: 14 CCR section 15306 – Information Collection
☐ Common Sense Exemption. 14 CCR 15061 (b) (3) Explain reason why Agreement is exempt under the above section:

Cal. Code Regs, tit. 14, §15306, Information Collection, provides that projects which consist of basic data collection, research and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource are categorically exempt from the provisions of CEQA. This project

**GRANT REQUEST FORM (GRF)**

consists of developing a planning document for possible, future deployment of zero emission vehicles and related infrastructure equipment. The project will not cause direct physical changes to the environment, and there will be no physical construction. This project involves data collection, technology assessment, public outreach, administrative coordination efforts, planning, and similar activities. Therefore, the proposed project will have no significant effect on the environment and is categorically exempt under section 15306.

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

Check all that apply

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

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

| Legal Company Name: | Budget |
|----------------------------|---------------|
| Pilot Travel Centers LLC | \$15,000 |
| Fiedler Group | \$77,945 |
| Frontier Energy, Inc. | \$29,422 |

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

| Legal Company Name: |
|---|
| Center for Hydrogen Safety |
| California Fuel Cell Partnership |
| City of Moreno Valley |
| Rio Hondo Community College |
| South Coast Air Quality Management District |

J) Budget Information

| Funding Source | Funding Year of Appropriation | Budget List Number | Amount |
|-----------------------|--------------------------------------|---------------------------|---------------|
| General Fund | FY 21/22 | 601.129ZEV | \$199,996 |
| Funding Source | | | \$ |
| Funding Source | | | \$ |
| Funding Source | | | \$ |
| Funding Source | | | \$ |

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

Explanation for "Other" selection

Reimbursement Contract #:

Federal Agreement #:

K) Recipient's Contact Information

1. Recipient's Administrator/Officer

Name: Joan Geary



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Address: 175 E Park Dr,
City, State, Zip: Tonawanda NY
14150

Phone: (716)-879-7519

E-Mail: joan.geary@linde.com

2. Recipient's Project Manager

Name: Wladimir Sarmiento-Darkin

L) Selection Process Used

- ☒ Competitive Solicitation Solicitation #: GFO-20-601
☐ First Come First Served Solicitation Solicitation #: - -

M) The following items should be attached to this GRF

- | | | |
|---|---|-----------------------------------|
| 1. Exhibit A, Scope of Work | <input checked="" type="checkbox"/> | Attached |
| 2. Exhibit B, Budget Detail | <input checked="" type="checkbox"/> | Attached |
| 3. CEC 105, Questionnaire for Identifying Conflicts | <input checked="" type="checkbox"/> | Attached |
| 4. Recipient Resolution | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> Attached |
| 5. CEQA Documentation | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> Attached |

Alexander Wan

Agreement Manager

12-29-2021

Date

Elizabeth John

Office Manager

1/5/22

Date

Melanie Vail

Deputy Director

1/5/2022

Date

CALIFORNIA ENERGY COMMISSION

Address: 1950 Loveridge Rd.
City, State, Zip: Pittsburg, CA
94565

Phone: (716) 507-3382

E-Mail: Wladimir.sarmiento-darkin@linde.com

EXHIBIT A SCOPE OF WORK

TECHNICAL TASK LIST

| Task # | CPR | Task Name |
|--------|-----|---------------------------------------|
| 1 | | Administration |
| 2 | | Renewable Hydrogen Supply |
| 3 | | Fuel Cell Vehicle Deployment Analysis |
| 4 | X | Infrastructure Conceptual Design |
| 5 | | Planning and Safety |
| 6 | X | Community Impact |
| 7 | | Funding |
| 8 | | Project Fact Sheet |
| 9 | | Blueprint |
| 10 | | Data Collection |

KEY NAME LIST

| Task # | Key Personnel | Key Subcontractor(s) | Key Partner(s) |
|--------|---|---|---|
| 1 | Wladimir Sarmiento-Darkin (Linde, Inc.) | Frontier Energy, Inc. | South Coast Air Quality Management District Center for Hydrogen Safety |
| 2 | Wladimir Sarmiento-Darkin | | |
| 3 | Al Burgunder | Pilot Travel Centers LLC | California Fuel Cell Partnership |
| 4 | Daniel Wenig | Fiedler Group Pilot Travel Centers LLC | Center for Hydrogen Safety |
| 5 | Christian Rauchegger | Pilot Travel Centers LLC | Center for Hydrogen Safety City of Moreno Valley |
| 6 | Al Burgunder | Frontier Energy, Inc | Rio Hondo Community College City of Moreno Valley |
| 7 | Wladimir Sarmiento-Darkin | | |
| 8 | Wladimir Sarmiento-Darkin | | California Fuel Cell Partnership Rio Hondo Community College |
| 9 | Daniel Wenig | Fiedler Group | |

| | | | |
|--|--|--------------------------|--|
| | | Pilot Travel Centers LLC | |
|--|--|--------------------------|--|

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 |
| CBO | Community Based Organizations |
| CEC | California Energy Commission |
| CPR | Critical Project Review |
| DACs | Disadvantaged Communities |
| DC | Distribution Center |
| FCEV | Fuel Cell Electric Vehicle |
| FTD | Fuels and Transportation Division |
| GHG | Greenhouse Gas |
| H2 | Hydrogen |
| HAZID | Hazard Identification |
| LH2 | Liquid hydrogen |
| MD/HD | Medium-Duty and Heavy-Duty |
| OEM | Original Equipment Manufacturer (Trucks) |
| Recipient | Linde, Inc. |
| SAE | Society of Automotive Engineers |
| ZEV | Zero-Emission Vehicle |

Background

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

On July 14, 2020, the CEC released Grant Funding Opportunity, entitled "Blueprints for Medium- and Heavy-Duty Zero-Emission Vehicle Infrastructure." This competitive grant solicitation was to fund planning "blueprints" that will identify actions and milestones needed for implementation of medium- and heavy-duty (MD/HD) zero-emission vehicles (ZEVs) and the related electric charging and/or hydrogen refueling infrastructure. In response to GFO-20-601, the Recipient submitted application #18 which was proposed for funding in the CEC's Notice of Proposed Awards on August 16, 2021. GFO-20-601 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:

Key scientific, technological, market, institutional, environmental, cost, and financial barriers, as well as knowledge gaps, are hindering the development and widespread use of hydrogen refueling infrastructure in California, especially in the MD/HD vehicle sector.

Barriers include:

- Availability of MD/HD fast fueling dispensers;
- Defining the quantity of gas hydrogen storage buffer;
- Designing station layouts to ensure efficient design, assure safe operating conditions, manage fuel deliveries, and accommodate fueling requirements;
- Readiness of MD/HD fuel cell electric vehicles (FCEV) for local distribution and trucking organizations;
- Slow ramp-up of fleet deployments;
- Conservative codes and standards;
- Permitting constraints and delays;
- Need for renewable hydrogen supply;
- Challenging business cases; and
- Lack of funding mechanisms.

To meet state climate change goals and ZEV mandates, it is important that MD/HD vehicle hydrogen fueling stations are available to support the pending commercialization of MD/HD trucks, starting as early as 2024.

Goals of the Agreement:

The goal of this Agreement is to accelerate the conversion of fleets in California to FCEVs by assuring the availability of a well-supplied, fast hydrogen refueling infrastructure that is easily accessible from major interstate corridors.

Objectives of the Agreement:

The objectives of this Agreement are to: (1) define a conceptual design of the infrastructure, accounting for traffic flow and fuel delivery; (2) produce a hydrogen safety plan and conduct a hydrogen safety review; (3) understand the permit, safety requirements and implementation process; (4) develop community and workforce development plans with municipal leaders, associations and community colleges; (5) collaborate with FCEV OEM's and trucking fleets to receive input on station design, traffic management and fueling rates; and (6) evaluate available funding options for station deployment.

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 California Energy Commission (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 1.5)

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 Energy Commission funding to complete this Agreement and to identify any needed modifications to the tasks, products, schedule or budget.

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

Meeting participants include the CAM and the Recipient and may include the CAO, the Fuels and Transportation Division (FTD) program lead, other CEC staff and Management as well as other individuals selected by the CAM to provide support to the CEC.

The CAM shall:

- Determine the location, date, and time of each CPR meeting with the Recipient. These meetings generally take place at the CEC, but they may take place at another location or remotely.
- Send the Recipient the agenda and a list of expected participants in advance of each CPR. If applicable, the agenda shall include a discussion on both match funding and permits.
- Conduct and make a record of each CPR meeting. Prepare a schedule for providing the written determination described below.
- Determine whether to continue the project, and if continuing, whether or not modifications are needed to the tasks, schedule, products, and/or budget for the remainder of the Agreement. Modifications to the Agreement may require a formal amendment (please see section 8 of the Terms and Conditions). If the CAM concludes that satisfactory progress is not being made, this conclusion will be referred to the Lead Commissioner for Transportation for his or her concurrence.
- Provide the Recipient with a written determination in accordance with the schedule. The written response may include a requirement for the Recipient to revise one or more product(s) that were included in the CPR.

The Recipient shall:

- Prepare a CPR Report for each CPR that discusses the progress of the Agreement toward achieving its goals and objectives. This report shall include recommendations and conclusions regarding continued work of the projects. This report shall be submitted along with any other products identified in this scope of work. The Recipient shall submit these documents to the CAM and any other designated reviewers at least 15 working days in advance of each CPR meeting.
- Present the required information at each CPR meeting and participate in a discussion about the Agreement.

CAM Products:

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

Recipient Product:

- CPR Report(s)

Task 1.3 Final Meeting

The goal of this task is to closeout this Agreement.

The Recipient shall:

- Meet with CEC staff to present the findings, conclusions, and recommendations. The final meeting must be completed during the closeout of this Agreement.

This meeting will be attended by, at a minimum, the Recipient and the CAM. The technical and administrative aspects of Agreement closeout will be discussed at the meeting, which may be two separate meetings at the discretion of the CAM.

The technical portion of the meeting shall present an assessment of the degree to which project and task goals and objectives were achieved, findings, conclusions, recommended next steps (if any) for the Agreement, and recommendations for improvements. The CAM will determine the appropriate meeting participants.

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

- What to do with any equipment purchased with CEC funds (Options)
- CEC request for specific "generated" data (not already provided in Agreement products)
- Need to document Recipient's disclosure of "subject inventions" developed under the Agreement
- "Surviving" Agreement provisions
- Final invoicing and release of retention
- Prepare a schedule for completing the closeout activities for this Agreement.

Products:

- Written documentation of meeting agreements
- Schedule for completing closeout activities

Task 1.4 Monthly Calls

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

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

The CAM shall:

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

The Recipient shall:

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

Product:

- Email to CAM concurring with call summary notes.

Task 1.5 Quarterly Progress Reports

The goal of this task is to periodically verify that satisfactory and continued progress is made towards achieving the objectives of this Agreement on time and within budget.

The objectives of this task are to summarize activities performed during the reporting period, to identify activities planned for the next reporting period, to identify issues that may affect performance and expenditures, and to form the basis for determining whether invoices are consistent with work performed.

The Recipient shall:

- Prepare a Quarterly Progress Report which summarizes all Agreement activities conducted by the Recipient for the reporting period, including an assessment of the ability to complete the Agreement within the current budget and any anticipated cost overruns. Progress reports are due to the CAM the 10th day of each January, April, July, and October. The Quarterly Progress Report template can be found on the ECAMS Resources webpage available at <https://www.energy.ca.gov/media/4691>.

Product:

- Quarterly Progress Reports

Task 1.6 Final Report

The goal of the Final Report is to assess the project's success in achieving the Agreement's goals and objectives, advancing science and technology, and providing energy-related and other benefits to California.

The objectives of the Final Report are to clearly and completely describe the project's purpose, approach, activities performed, results, and advancements in science and technology; to present a public assessment of the success of the project as measured by the degree to which goals and objectives were achieved; to make insightful observations based on results obtained; to draw conclusions; and to make recommendations for further projects and improvements to the FTD project management processes.

The Final Report shall be a public document. If the Recipient has obtained confidential status from the CEC and will be preparing a confidential version of the Final Report as well, the Recipient shall perform the following activities for both the public and confidential versions of the Final Report.

The Recipient shall:

- Prepare an Outline of the Final Report.
- Prepare a Final Report following the latest version of the Final Report guidelines which will be provided by the CAM. The CAM shall provide written comments on the Draft Final Report within fifteen (15) working days of receipt. The Final Report must be completed at least 60 days before the end of the Agreement Term.
- Submit one bound copy of the Final Report with the final invoice.

Products:

- Outline of the Final Report
- 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 RENEWABLE HYDROGEN SUPPLY****Task 2.1 Renewable Hydrogen Production and Supply**

The goal of this task is to evaluate multiple pathways to source renewable hydrogen.

The Recipient shall:

- Document the potential pathways to produce renewable hydrogen.
- Analyze the optimal methods and schedule for reliable delivery of hydrogen to the station.
- Provide a summary and analysis report on potential pathways for renewable hydrogen at the site to the CAM.

Products:

- Summary and analysis report on potential pathways for renewable hydrogen at the site

Task 2.2 GHG Emissions Impact

The goal of this task is to identify targets to reduce GHG emissions for the region.

The Recipient shall:

- Understand the life-cycle GHG emissions impact of various hydrogen production and delivery pathways for MD/HD FCEV usage.
- Document demonstrable mitigation of the environmental effects of MD/HD FCEV air emissions in comparison to diesel powered alternatives.
- Provide a summary of calculations and analysis on GHG emissions reduction based on chosen hydrogen production pathway and projections of vehicle usage to the CAM.

Products:

- Summary of calculations and analysis on GHG emissions reduction based on chosen hydrogen production pathway and projections of vehicle usage

TASK 3 FUEL CELL VEHICLE DEPLOYMENT ANALYSIS**Task 3.1 Meetings with Vehicle OEMs and Fleet Customers**

The goal of this task is to determine the customer demand for hydrogen fueling infrastructure at the proposed location.

The Recipient shall:

- Identify fuel cell vehicle OEMs and fleet customers.

- Engage with the truck manufacturers and local dealerships on their plans for FCEV development and deployment. Linde is in discussions with most OEMs (Freightliner, Kenworth, Hyzon, Toyota/ Hino, Navistar, Nikola).
- Provide a list of FCEV OEMs and fleet customers that were engaged throughout the process to the CAM.

Products:

- List of FCEV OEMs and fleet customers that were engaged throughout the process

Task 3.2 FCEV Analysis

The goal of this task is to evaluate the projections for MD/HD vehicle usage and driving patterns and ensure that H2 fueling infrastructure at the Moreno Valley location will accelerate FCEV deployment for fleet customers. It will also support the optimal sizing of the station and the strategy for phased development.

The Recipient shall:

- Use results of interviews with fleet customers to project FCEV fueling demand in this metropolitan area.
- Estimate the numbers and types of MD/HD vehicles that may utilize the proposed station in Moreno Valley, CA.
- Provide a summary of estimation method and analysis of FCEV vehicle deployment.

Products:

- Summary of estimation method and analysis of FCEV vehicle deployment

TASK 4 INFRASTRUCTURE CONCEPTUAL DESIGN

Task 4.1 Fueling Equipment Specifications

The goal of this task is to evaluate the technology and equipment needs for the proposed hydrogen fueling infrastructure and select preferred equipment.

The Recipient shall:

- Specify the equipment details for fueling.
- Specify the equipment details for liquid hydrogen (LH2) storage and fuel dispensing for the specified site.
- Produce an equipment and technology review report and provide a copy to the CAM.

Products:

- Equipment and technology review report

Task 4.2 Siting and Placement

The goal of this task is to evaluate the site for suitability for a hydrogen fueling station.

The Recipient shall:

- Understand the existing site and vicinity conditions.
- Assess the site zoning information.
- Evaluate the site requirements for development, public improvement and utility

- installations.
- Identify the best location within the plot for the placement of infrastructure based on preliminary assessment.
- Produce site accessibility maps for surrounding freeways and highways and provide a copy to the CAM.

Products:

- Site accessibility maps for surrounding freeways and highways

Task 4.3 Station Layout

The goal of this task is to prepare a preliminary layout for a full-service hydrogen fueling station.

The Recipient shall:

- Identify the ancillary equipment and structures required for a full-service station.
- Prepare an optimized concept for the layout of dispensing islands.
- Prepare an optimized concept for incoming trucks and post fueling staging.
- Provide the conceptual site layouts with computer modeled vehicle circulation to the CAM.

Products:

- Conceptual site layouts with computer modeled vehicle circulation

Task 4.4 Timeline and Costs

The goal of this task is to set specific, realistic timelines and costs for installation and implementation of MD/HD hydrogen refueling infrastructure at the Moreno Valley location.

The Recipient shall:

- Using the Moreno Valley location, prepare a cost and schedule for implementing the blueprint design, encompassing permitting, equipment, site preparations, construction, and commissioning.
- Provide a comprehensive project schedule including Due Diligence, Entitlement, Engineering, Design, Permitting, Procurement, Construction, and Commissioning to the CAM.
- Compile preliminary cost estimates for construction of MD/HD hydrogen refueling infrastructure at the Moreno Valley location; this will include costs for Engineering, Design, Permitting, Procurement, Construction, and Commissioning.
- Provide a *Budgetary cost summary* to the CAM.

Products:

- Comprehensive project schedule including Due Diligence, Entitlement, Engineering, Design, Permitting, Procurement, Construction, and Commissioning
- Budgetary cost summary

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

TASK 5 PLANNING AND SAFETY

Task 5.1 Permitting Requirements

The goal of this task is to minimize the risks and uncertainties surrounding the permitting and planning of the proposed fueling station.

The Recipient shall:

- Evaluate documentation currently available on the development of hydrogen fueling stations.
- Document permit approvals and processes required by local jurisdiction and actions already taken and adopted.
- Engage planning organizations on local customs.
- Document analytical tools, software applications, and data needed to improve future MD/HD ZEV infrastructure planning activities, if identified.
- Produce a summary report of permit approvals and processes required for hydrogen fueling infrastructure at the specified site, including list of organizations that were engaged throughout the permitting strategy development process as well as any identified analytical tools, software applications, and data needed to improve future infrastructure planning and provide a copy to the CAM.

Products:

- Summary report of permit approvals and processes required for hydrogen fueling infrastructure at the specified site

Task 5.2 Safety Planning

The goal of this task is to identify steps that will need to be taken to ensure a safety plan is in place for needed hydrogen refueling infrastructure.

The Recipient shall:

- Conduct an initial Hazard Identification (HAZID).
- Create a preliminary hydrogen safety plan in coordination with the Pacific Northwest National Laboratory's Center for Hydrogen Safety's Hydrogen Safety Panel, including recommendations from the Hydrogen Safety Panel, and strategy for completion.
- Provide the preliminary hydrogen safety plan to the CAM.
- Perform a project safety review with the Hydrogen Safety Panel.

Products:

- Preliminary hydrogen safety plan

TASK 6 COMMUNITY IMPACT

Task 6.1 Education and Outreach

The goal of this task is to minimize the risk around community opposition by developing an outreach strategy to educate the local community on the planning efforts, the benefits of FCEV

infrastructure and potential future impacts.

The Recipient shall:

- Determine if a community needs assessment is warranted and develop an appropriate scope.
- Develop a plan to engage regional community-based organizations, community leaders, California Native American Tribes within 10 miles, and potentially affected local residents in the planning process and education on the benefits of ZEV transportation.
- Develop a plan to engage regional workplaces, business owners, and operators in the planning process and education on the benefits of ZEV transportation.
- Document the Education and Outreach Strategy and provide a copy to the CAM.
- Engage regional community-based organizations, community leaders, California Native American Tribes within 10 miles, and potentially affected local residents in the planning process and education on the benefits of ZEV transportation.
- Engage regional workplaces, business owners, and operators in the planning process and education on the benefits of ZEV transportation.
- Produce a summary of the outreach conducted and provide a copy to the CAM.

Products:

- Documentation of Education and Outreach Strategy
- Documentation summarizing the outreach conducted

Task 6.2 Economic Activity and Workforce Development

The goal of this task is to develop a plan to directly increase the local and regional economic activity in California through the deployment of hydrogen fueling infrastructure.

The Recipient shall:

- Develop a Workforce Development Strategy, including a summary of the types of jobs that will be created for the local community. Provide a copy to the CAM.
- Work with community colleges, CBOs and community leaders to develop workforce development strategies that will enable training, education, and readiness for the local community workforce to obtain the requisite knowledge, skills, and abilities to develop, support, and maintain the MD/HD ZEV fleets and infrastructure.

Products:

- Documentation of Workforce Development Strategy

Task 6.3 Benefits for Disadvantaged Communities

The goal of this task is to develop a plan to benefit local disadvantaged communities.

The Recipient shall:

- Identify the economic benefits that would accrue to disadvantaged communities (DACs), low-income communities, priority populations, and/or tribal lands to the maximum extent possible.

- Document the Benefits to Disadvantaged Communities, and address health and safety, access and education, financial benefits, economic development, and consumer protection. Provide a copy to the CAM.

Products:

- Documentation of Benefits to Disadvantaged Communities
- [CPR WILL BE HELD IN THIS TASK. See Task 1.2 for details]**

TASK 7 FUNDING

The goal of this task is to identify available private, public, and hybrid funding mechanisms to finance hydrogen fueling infrastructure at the Moreno Valley location.

The Recipient shall:

- Evaluate the business case for private equity investment.
- Document the hypothetical business case for a generic station and provide a copy to the CAM.
- Document local and state incentives for hydrogen refueling infrastructure. Include available funding mechanisms and brief analysis of pros and cons and provide a copy to the CAM.
- Engage financial institutions on their plans to participate in the implementation of the MD/HD ZEV infrastructure blueprint, where necessary.

Products:

- Documentation of hypothetical business case for a generic station
- Documentation of available funding mechanisms and brief analysis of pros and cons

TASK 8 PROJECT FACT SHEET

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

The Recipient shall:

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

Products:

- Initial Project Fact Sheet

- Final Project Fact Sheet
- High Quality Digital Photographs

TASK 9 BLUEPRINT

The goal of this task is to develop a blueprint plan that stakeholders can use to design and implement the construction of hydrogen refueling stations near major interstate corridors and that other regions and/or fleets can replicate. The blueprint plan will compile information and analyses collected in Tasks 2-7 into a complete and comprehensive blueprint document for public dissemination that will include recommended hydrogen safety plans, identification of costs and financial mechanisms, processes and procedures for streamlining implementation, permit and safety requirements, developing a community and workforce plan, and input from fleets and vehicle manufacturers on station design, traffic management, and fueling rates. The blueprint will also estimate GHG reduction potential and benefits to disadvantaged and low-income communities and underserved groups.

The Recipient shall:

- Consolidate analyses into a concise blueprint document with quantified goals and specific, achievable timelines for installation and deployment of MD/HD hydrogen refueling infrastructure.
- Estimate GHG emissions and criteria pollutant reduction potential and the extent to which this helps the state achieve its climate change goals.
- Identify the benefits that would accrue to disadvantaged communities, low-income communities, priority populations, and/or tribal lands.
- Identify processes to standardize, streamline, and expedite siting, permitting, and other compliance requirements such as safety protocols for hydrogen stations, and share lessons learned.
- Develop a resiliency plan for an emergency that may include flood, fire, prolonged power outage, or reduced hydrogen fuel supply.
- Provide recommendations that can facilitate an improved process for future infrastructure planning efforts.
- Complete a Draft Blueprint.
- Prepare and submit a Final Blueprint.

Products:

- Draft Blueprint Document
- Final Blueprint Document

TASK 10 DATA COLLECTION

The goal of this task is to collect data from the project and include in quarterly progress reports and the Final Report, if applicable, according to statutory requirements. Because this is a blueprint planning project, it is not expected there will be physical construction that would result in data collection, as listed below. However, if this agreement did result in physical construction, the minimum data collection requirements are listed below.

The Recipient shall:

- Collect and provide the following data:
 - Number, type, date, and location of chargers or hydrogen refueling stations installed
 - Nameplate capacity of the installed equipment, in kW for chargers and kg/day for hydrogen
 - Number and type of outlets per charger
 - Location type, such as street, parking lot, hotel, restaurant, or multi-unit housing
 - Total cost per charger or refueling station, the subsidy from the CEC per charger or refueling station, federal subsidy per charger or refueling station, utility subsidy per charger or refueling station, and privately funded share per charger or refueling station
 - Data on chargers over a twelve-month period, including:
 - Number of charging or refueling sessions
 - Average session duration
 - Average kWh or kg dispensed
 - Average charger or refueling station downtime
- Submit all data described above, if applicable, in a quarterly progress report throughout the duration of the agreement.
- Discuss data, information, and analysis described above, if applicable, in the Final Report.

Products:

- Data collection on other relevant data and information, if applicable, will be submitted electronically in a quarterly progress report.
- Data collection, analysis, and discussion, if applicable, will be included in the Final Report.

STATE OF CALIFORNIA

STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION: LINDE 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-21-016 with Linde Inc. for a \$199,996 grant to prepare a blueprint document that will facilitate the development of well-supplied, fast hydrogen refueling infrastructure that is easily accessible from major interstate corridors; 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 February 16, 2022.

AYE:

NAY:

ABSENT:

ABSTAIN:

Liza Lopez
Secretariat