DOCKETED	
Docket Number:	22-IEPR-05
Project Title:	Emerging Topics
TN #:	243617
Document Title:	Presentation - IEPR Commissioner Workshop - NorCAL ZERO Project
Description:	3C. PJ Callahan, Center for Transportation and the Enviro
Filer:	Raquel Kravitz
Organization:	Center for Transportation and the Environment
Submitter Role:	Public
Submission Date:	6/20/2022 3:05:12 PM
Docketed Date:	6/20/2022

IEPR Commissioner Workshop: NorCAL ZERO Project

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CTE - Four Service Areas

Prototype Development & Demonstration

We support technology providers through technology research, development, and demonstration.

Smart Deployment

We support early adopters by providing the best technical solutions for initial deployments.

Fleet Transition

We help fleet operators implement strategic plans for full electrification.

Education & Outreach

We help organizations of all shapes and sizes stay ahead of the technology curve.

Who We Are: 501(3)(c) non-profit engineering and planning firm
Our Focus: Zero-Emission Transportation Technologies
Our Mission: Improve the health of our communities and the planet
Portfolio - > $800 million; 117 Active Projects totaling over $316 million
National Presence - Atlanta, Berkeley, Los Angeles, Minneapolis/St. Paul

FCEV Demos Advance Commercialization

- Proterra's 1st fuel cell electric bus – 2008
- UPS Fuel Cell Hybrid Electric Delivery Van – 2016 (CEC/CARB)
- Kenworth's 1st fuel cell Class 8 Truck – 2017
- Hyster-Yale's 1st fuel cell port container handler – 2017 (CARB)
- Fuel Cell Electric Bus Commercialization Consortium (FCEBCC) – 2018 (CARB)
- UPS Next Generation Delivery Van – 2019 (CARB)
- NorCAL ZERO : Largest deployment of FCETs in North America – 2021 (CEC/CARB)
- V2B Oakland : FCEBEPS with Bi-directional charging – 2022 (CEC)

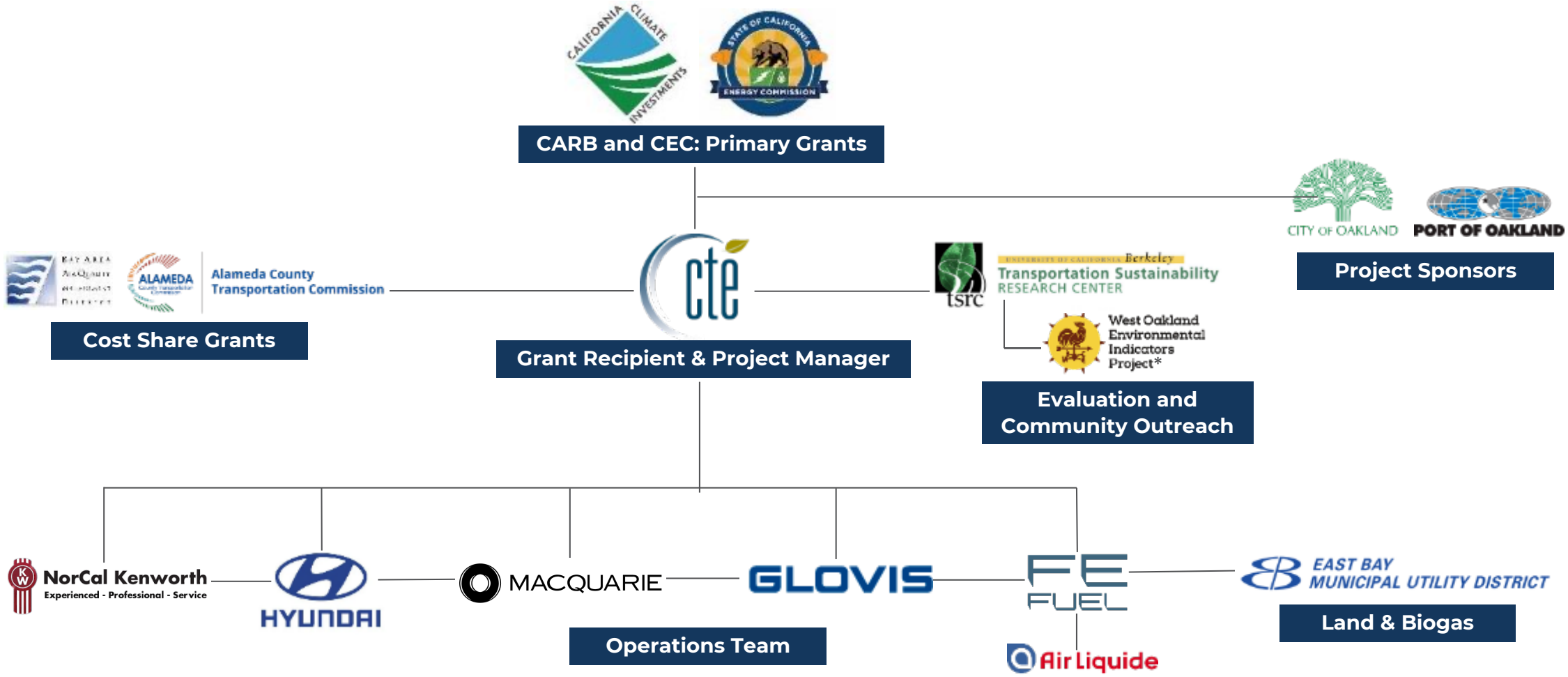
Fuel Cell Electric Truck Benefits

NorCAL ZERO Project Overview

- **Project Timeline:** Fall 2021 – Spring 2025
- **CEC Grant Amount:** $9,898,218 (Clean Transportation Program)
- **Co-Funded Amount (CARB grant and cost share):** $44,683,735*
- **Project Location:** West Oakland, California
- **Fueling Station Location:** East Bay Municipal Utilities District, Oakland, CA

*Additional funding provided by BAAQMD and ACTC

NorCAL ZERO Project Team



H2 Station Refueling and Parking

NorCAL ZERO Project Benefits

- **Demonstrate Commercial Viability to Fleet Operators:** Range up to 500 miles
- **Expand Hydrogen Refueling Network:** 10- to 20-minute 60 kg fills; Up to 60 trucks
- **Provide Local Workforce Benefits:** Service and Repair Facility at NorCal Kenworth in San Leandro
- **Reduce Harmful Emissions:** 54% renewable fuel content with zero CI score

Date	Milestone
June 15, 2023	Trucks fully deployed
June 14, 2024	Conclude 1-Year Performance Evaluation
June 14, 2029	Six Years of Truck Service

NorCAL ZERO Project Progress

Truck Build & Deployment:

- CARB Executive Order to operate in CA *(complete)*
- Vehicle Production Plan *(complete)*
- Prototype Testing in California *(active/ongoing)*

Infrastructure Development:

- Preliminary Hydrogen Safety Plan *(complete)*
- Demolition of Existing Site *(active/ongoing)*
- Station Construction Permitting *(active/ongoing)*

Maintenance Facility Upgrades:

- Facilities Assessment *(complete)*
- Facility Upgrade Permitting *(active/ongoing)*

Community Outreach:

- Draft Community Outreach Plan with WOEIP *(active/ongoing)*

Key Industry Challenges & Opportunities

- **Lack of Commercially Available FCEV Options:**
  - *Investment in trucks/port/off-road vehicle demonstrations*
- **Lack of Available Refueling Infrastructure:**
  - *Investment in refueling infrastructure to support larger vehicle deployments*
- **High TCO:**
  - *Scaling vehicle, fuel production*
- **Technology Readiness:**
  - *Range improvements, weight reductions*

DOE H2Hub Initiative

- 4+ Regional Clean Hydrogen Hubs to incentivize deployment of:
  - Renewable hydrogen production
  - Refueling infrastructure
  - **Transportation end-uses**
- Leverage California's strength in transportation/goods movement:
  - Early adopting transit agencies (AC Transit, OCTA, Sunline, etc.)
  - Scaling projects like NorCAL ZERO
- CA is positioned to establish a self-sustaining commercial market
- Reduce criteria pollutants to benefit air quality in Disadvantaged Communities and address climate change

Thank You!

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