GO-ing Green: Hydrogen Fuel Cell Transition Project

Stakeholder Engagement Workshop

May 17, 2023
Agenda

• Introductions
• Project Background
• About CTE
• Project Timeline
• Community Benefits
Low or No Emission (Low-No) Grant Program

- FTA’s FY22 Low- and No-Emission and Bus and Bus Facilities programs
- $1.66 billion in available funding
- $12,117,144 awarded to Gold Coast Transit
- New Flyer and CTE are named partners
- RFPs will be issued for the refueling station and maintenance facilities upgrade
About CTE

Who We Are
501(c)(3) nonprofit engineering and planning firm

Our Mission
Improve the health of our climate and communities by bringing people together to develop and commercialize clean, efficient, and sustainable transportation technologies

Portfolio
$1.2 billion
- Research, demonstration, deployment
- 115 active projects totaling $365m+

Our Focus
Zero-Emission Transportation Technologies

National Presence
Atlanta, Berkeley, Los Angeles, St. Paul
Four Service Areas

**Prototype Development & Demonstration**
We support technology providers’ cutting edge pilots.

**Smart Deployment**
We support early adopters with technical solutions.

**Fleet Transition**
We help fleet operators develop strategic plans.

**Education & Outreach**
We help organizations of all shapes and sizes stay ahead of the technology curve.
CTE Projects

[Map of the United States with markers indicating Battery Electric and Fuel Cell Electric projects.]

- Battery Electric
- Fuel Cell Electric
Hydrogen Fuel Cell Projects

CTE has supported 40+ hydrogen based projects over the past 30 years

- AC Transit FCEB Support (13 FCEBs)
- AC Transit and OCTA FCEB ($45 million – 20 buses)
- Shell Oil Light-Duty H2 Fueling Station
- Champaign-Urbana FCEB deployment, electrolysis hydrogen refueling station and full facility modifications for indoor parking and maintenance
- SamTrans FCEB Deployment (10 FCEBs)
- Winnipeg Hydrogen Fueling Station – Electrolyzer
- Foothill Transit
- North County Transit District
- Fuel Cell Electric Class 8 Drayage Truck (Kenworth)
- Fuel Cell UPS Class 6 Delivery Van (2 deployments)
- Transit Fuel Cell Electric Top Loader – POLA (Hyster-Yale)
- NorCal Zero Class 8 Trucks and Infrastructure (Hyundai)
Fuel Cell Drive System
Hydrogen Production Centers

Hydrogen Producers

1. Air Liquide (Las Vegas)
2. Air Products (Sacramento & Los Angeles)
3. Linde (Ontario, CA)
4. Plug Power (Fresno) – Proposed
5. SG2 H2 Energy (Butte & Lancaster) – Proposed
Hydrogen Storage & Distribution Centers

Distribution Center Operators
1. First Element (Livermore)
2. Shell (Los Angeles, Port of Long Beach, & Ontario)
3. Plug Power (Fresno) – Proposed
Medium/Heavy Duty Fueling Stations

1. AC Transit (Emeryville & Oakland)
2. OCTA (Santa Ana)
3. Sunline (Thousand Palms & Indio - proposed)
4. First Element (Oakland & Fresno & Livermore)
5. Golden Empire Transit (Bakersfield)
6. North County Transit (Oceanside)
7. Foothill Transit (Pomona)
8. Gold Coast Transit District
Project Plan

Planning & Initiation → Requirements Analysis → Infrastructure, Procurement, Design & Build → Bus & Infrastructure Deployment → Deployment Validation → Project Close-Out

Project Management, Administration, Reporting, and Control
Phase 1: Planning & Initiation

Task Description

- Conduct the kickoff meeting
- Finalize project scope, approach, and timeline
- Define tasks, roles, and responsibilities
- Complete the data collection

CTE Deliverable

- Project kickoff meeting agendas, presentations, and minutes
- Project workbook
Phase 2: Bus Procurement & Build

Task Description
- Develop and finalize bus specifications
- Execute New Flyer contract
- Monitor bus build
- Deliver buses

CTE Deliverable
- Technical specification review
- Bus configuration review
- Inspection reports
Phase 3:
Infrastructure Procurement, Design, & Build

Task Description

- Develop and finalize hydrogen fueling station specifications
- Review and evaluate the existing modeled fuel demands and conceptual design
- Issue refueling station RFP
- Issue facility modification RFP
- Vendor(s) selection

CTE Deliverable

- Refueling station RFP procurement support, technical evaluation, and selection
- Facility modification RFP procurement support and technical evaluation
- Technical advisory
Phase 4: Bus & Infrastructure Deployment

Task Description

• Bus and infrastructure commissioning
• Validate the performance and operation of the buses and infrastructure
• Buses enter revenue service

CTE Deliverable

• Validation test plan
• Validation test report
Phase 5: Deployment Validation

Task Description

- Collect, analyze, and report Key Performance Indicators (KPIs)

CTE Deliverable

- Deployment validation KPIs workshop
- Data collection and reporting plan
- Monthly KPI reports
Phase 6: Project Close Out

Task Description

• Summarize project results
• Close out the project with FTA

CTE Deliverable

• Issue final report
Phase 7: Project Management, Administration, Reporting, & Control

Task Description

- Coordinate regular meetings and information sharing between project partners/stakeholders
- Advocate for the transit agency’s interests
- Technical advisory
- Track project tasks, risks, budget, and timeline

CTE Deliverable

- Compile quarterly management reports (QMRs)
- Compile a final management report
- Maintain project schedule
## Timeline

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<thead>
<tr>
<th>Deliverable</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
<th>2026</th>
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<td>FTA Award and Project Consultant Contract Execution</td>
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<td>1. Planning and Initiation</td>
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<td>6. Project Close-out</td>
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*Note: Details of each deliverable are not provided in the table.*
Project Benefits

- These five FCEB buses will replace five CNG buses that are 14 years old and in poor condition.
- The refueling station will be designed with a capacity to fuel up to 50 buses.
- 58% of GCTD’s service area is a designated historically disadvantaged community (DAC) which will be served by these zero-emission vehicles.

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<tr>
<th>Miles Driven</th>
<th>CNG Saved</th>
<th>Emissions Reduced</th>
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<tr>
<td>328,020 mi</td>
<td>114,900 dge</td>
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Questions & Discussion