

Connecticut Clean Cities Future Fuels Project

Clean Cities Recovery Act: Vehicle & Infrastructure Deployment

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Overview

Timeline

- 1 February 2010 start
- 31 January 2014 end
- 10% complete (30 April 10)

Budget

- \$26,778,788.70 Total
 - \$13,195,000 DOE
 - \$13,583,788.70 Recipient

Barriers

- Lack of available AFVs and AF infrastructure
- Lack of consumer acceptance due to lack of widespread education

Partners

- GNHCCC – Lead
- All CT Clean Cities Coalitions
- State and Local Governments
- Private Industry
- Nonprofits and Academia

Objectives

- Increase the use of alternative fueled vehicles and advanced technology vehicles throughout the state as a means to reduce U.S. dependence on imported petroleum, increase fuel economy and reduce emissions
- Install infrastructure that supports alternative fuel and advanced technology vehicles
- Ensure that vehicles capable of using alternative fuel do so to the greatest extent possible
- Provide appropriate training for individuals associated with this project and in the larger community about the benefits of alternative fuel and advanced technology vehicles and provide them with strategies that will help them to maximize these benefits
- Collect data on the success of the project through collection of vehicle, infrastructure and training information and disseminate to appropriate agencies and organizations

Approach

- Direct and manage project-related activities
- Complete and commission multiple alternative fuel infrastructures, and deploy > 180 AFVs in Connecticut
- Implement a semi-automated data collection and reporting system for petroleum and emissions displacement, and fuel sales/distribution
- Provide training for relevant personnel, First Responders and technicians, including Safety and Operations
- Develop and implement: Education, Outreach and Marketing programs and Business Cases for fleets and public consumers

Milestone Slide

- PMP update -All subcontracts signed / Vehicle NEPA's submitted and approved
- PMP update - All subcontracts finalized / 100% infrastructure NEPA requirements complete
- PMP update - 50% vehicles ordered
- PMP update - 25% vehicles deployed
- Vehicles Ordered– 100% ordered, 50% deployed
- PMP update – 75% vehicles deployed
- PMP update – 100% vehicle deployed, 50% infrastructure completed
- Auto Report and Alert Generators Deployed
- PMP update - Training Complete, 50% infrastructure completed
- AFV and Fueling Infrastructure Showcase Year 4 – Completion of outreach/education activities

Technical Accomplishments

- Project Kickoff Meeting Conducted
- Sub-recipient Agreements signed with 22 of 31
- NEPA Documentation Submitted for
 - ✓ 100% of vehicle purchases
 - ✓ 100% of vehicle conversions
 - ✓ 75% of infrastructure locations
- 100% of Vehicle NEPA's approved by DOE
- Orders Placed for
 - ✓ 4 Heavy Duty CNG conversions
 - ✓ 18 Heavy Duty LNG conversions
 - ✓ 2 Light Duty CNG Sedans
 - ✓ 1 Light Duty Hybrid Sedan

Vehicles

The project will deploy 183 AFVs across the state, including:

- 22 Heavy-Duty Tractors
- 152 Light-Duty Vehicles
- 7 Medium-Duty Shuttle Buses
- 2 Hybrid Sedans
- Provide fuel for over 20 AFVs procured outside of project funding

Displacements

- **Petroleum Fuels (Diesel/Gasoline)**
 - More than **5.8 Million Gallons** during in-fleet life span
 - Equivalent to over 1,000 fuel tanker trucks!
- **Emissions**
 - Almost **11 Million pounds** of Greenhouse Gases (GHG)
 - Nearly **500 Thousand pounds** of Carbon Monoxide (CO)
 - Over **300 Thousand pounds** of Nitrogen Oxides (NOx)
 - Over **50 Thousand pounds** of Volatile Organic Compounds (VOC), and,
 - Over **3 Thousand pounds** of Fine Particulate Matter (PM2.5)

Fueling Locations Map



P = Public Station

- Bridgeport- 1 LNG/CNG Station **P**
- West Haven- 1 CNG Station **P**
- Bloomfield- 1 CNG Station **P**
- Windsor Locks- 1 CNG Station, Electric Charger, & B20 **P**
- Glastonbury- 1 CNG Station
- Fairfield- 1 CNG Station
- Meriden- 1 CNG Station
- Norwich — CMEEC; 2 Electric Chargers
- Norwich — NPU; B20, efficiency upgrade to existing CNG, and 8 Electric Chargers
- Hartford- 1 Hydrogen Station

Project Team

- Greater New Haven Clean Cities
 - Capital Clean Cities
 - Norwich Clean Cities
 - Southwestern CT Clean Cities
 - Innovation Drive
 - Sabre Engineering
 - Big Fish Ad/PR
 - National Alternative Fuels Training Consortium
 - Signature Transportation Parts & Service, Inc.
 - CONNDOT
 - City of Bridgeport
 - Town of Glastonbury
 - City of Meriden
 - Town of Fairfield
 - CTTRANSIT
 - Avalence
 - Metro Taxi
 - Enviro Express
 - Nana Corporation
 - Yellow Cab
 - Executive Valet Parking
 - R&G Services
 - Norwich Public Utilities (NPU)
 - CMEEC
 - Clean Energy (CE)
 - Air & Gas Technologies (AGT)
 - Southern Connecticut Gas Company
 - Connecticut Natural Gas Corporation
 - Bonner Electric, Inc.
 - Manchester Honda
 - Matthews Bus
- Supporting Organizations
- Connecticut DECD
 - Connecticut DEP

Future Work

- Complete PMP Update and ARRA Reporting (Quarterly)
- Conduct one or more public outreach/marketing events each year
- Finalize all Infrastructure NEPA Requirements
- 50% of Vehicles Ordered
- 100% of Vehicles Ordered
- Conduct Public Openings for all Station and Fleet Commissioning
- Complete Training Curricula and Deliver Training
- Deploy SCADA as part of Data Collection System
- Complete Manuals for Web ERP
- Complete Interactive Graphical User Interface
- Deploy Web Based RDM
- Deploy Automated Report Generator
- Deploy Automated Alert Generator
- 100% Fueling Infrastructures Completed/Commissioned
- 100% Vehicles Delivered and in Service

Summary

- The project will facilitate wide-scale adoption of AFVs through the diverse geographical offerings being implemented as part of the project
- Our approach offers fuel, vehicle and operational diversity with verifiable results via automated and semi-automated data collection
- The project is well within planned timelines with some elements ahead of the original schedule
- Connectivity within the state along major corridors offers exceptional opportunities for exponential growth in the utilization of alternative fuels and AFVs in the near, mid and longer term