



Puget Sound Clean Cities Petroleum Reduction Project (DE-EE0002020)

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Project I.D. #: ARRAVT042

Overview

Timeline

- Start date Dec 3, 2009
- End date Dec 2, 2011
- Percent complete : 45%

Barriers/Risks

- Expiration of alt-fuel vehicle tax credit
- Municipal budget cuts
- Vehicle /equipment lead times

Budget

- DOE share \$15 M
- Recipient share \$29 M
- Total project \$44 M

Partners

- Lead: Puget Sound Clean Air Agency
- Partners: 14 municipalities, 3 universities, 8 private businesses

Relevance

Puget Sound Clean Cities Coalition Petroleum Reduction Project DE-EE0002020

Project Objectives:

- Reduce petroleum use in the Seattle-Puget Sound region through targeted deployment of alternative fuel vehicles and infrastructure.
- Create a regional sustainable market for renewable alternative fuels with low lifecycle emissions.
- Preserve and create 350 jobs nation-wide, and enhance our local economy.
- Elevate public awareness of the Clean Cities program through an innovative outreach campaign designed to reach an audience of 30 million people per year.

Approach

Vehicle Deployment:

- 223 alternative fuel and advance technology vehicles deployed in local government fleets.
- 220 compressed natural gas vehicle conversion in taxi and shuttle fleets.
- 594 pieces of battery electric ground support equipment at Seattle-Tacoma (Sea-Tac) Airport.

Infrastructure Deployment:

- Biomethane fueling facility at dairy farm in Lynden, WA.
- One biodiesel station and one ethanol station in Everett, WA.
- 130 regional electric vehicle charging stations.

Marketing, Outreach & Education.

- Video-loop about DOE Clean Cities to play continuously on 16 baggage claim terminal screens at Sea-Tac Airport.
- Green driver training, EV guidebooks, biogas workshops.

Milestones

Completed	Milestone
November 2010	25% of Vehicles Deployed
April 2011	50% of Vehicles Deployed
February 2011	50% of Vehicles Ordered
May 2010	100% of Sub-Recipient Agreements Finalized
March 2010	100% NEPA Documentation for Vehicles Approved
March 2011	100% of NEPA Documentation for Fueling Infrastructure Approved
April 2011	100% of Cost-Share Partner Agreements Finalized
April 2011	100% of NEPA Documentation for EV Infrastructure Approved
Planned Completion	Milestone
July 2011	100% of Vehicles Ordered
September 2011	75% of Vehicle Deployed
December 2011	100% of Vehicles Deployed
October 2011	50% of Fueling Infrastructure Complete and Dispensing
December 2011	100% of Fueling Infrastructure Complete and Dispensing
May 2011	50% of EV Charging Infrastructure Installed
November 2011	100% of EV Charging Infrastructure Installed
May 2011	50% of Training/Workshops Completed
December 2011	100% of Training/Workshops Completed
May 2011	50% of Marketing/Outreach Conducted
December 2011	100% of Marketing/Outreach Conducted
June 2011	100% of Airport GSEs Ordered
December 2011	100% of Airport GSEs Deployed

Technical Accomplishments

Vehicles Ordered and Deployed

- 80 CNG vehicles retro-fitted and deployed
- 12 propane vehicles deployed
- 110 OEM light-duty hybrid, electric and CNG vehicles deployed
- 44 heavy duty diesel hybrid vehicles deployed



Grant-supported CNG taxi ready for deployment

Marking and Education

- Electric vehicle outreach documents drafted, including utility bill supplement and guidebook for consumers
- Grant project website and fact sheets completed
- Bio-methane workshop curriculum developed
- Storyboard of Clean Cities-SeaTac baggage claim video complete
- 400 drivers enrolled in web-based green driver training program

Technical Accomplishments (2)

NEPA Review Completion

- 100% of EV charging station NEPA applications approved (130 units)
- 100% of fueling station NEPA applications approved
- 100% of OEM vehicle and vehicle retrofit NEPA applications approved

Fueling Infrastructure

- First fueling at CNG/biomethane station
- Contracts executed with all EV charging station partners
- Construction bid for biofuel tanks in Everett, WA awarded
- Construction started on EV charging stations



Biomethane storage array at fueling station in Lynden, WA (photo courtesy: Western Washington University)

Project Partners

Sub-Recipients:

- City of Seattle
- Port of Seattle
- WorldCNG
- Western Washington University
- Snohomish County
- Washington State University

Vehicle Purchase & EVSE Cost-Share Partners:

- Cities of Bellevue, Everett, Issaquah, Kirkland, Mercer Island, Olympia, Renton, Sammamish, Seattle, Tacoma,
- University of Washington
- King County and Snohomish County
- Bellair Airporter Shuttle. BYG Yellow Cab. MasterPark. MVP Parking. Shuttle Express. Seattle Children's Hospital. Transpro.

Future Work

- Complete electric vehicle charging station installations
- Deploy additional CNG retrofitted vehicles
- Deploy electric ground support equipment at Sea-Tac Airport
- Execute biomethane workshops
- First fueling at Everett bio-fuel stations
- Compute and publish fuel economy results from driver training
- Report on annual fuel displacement for charging stations, fueling stations, vehicles and ground support equipment



CNG tanks awaiting installation in grant-supported taxis

Summary

- The project encourages adoption of alternative fuel and advanced technology vehicles in the Puget Sound region through the purchase of over 1000 pieces of equipment
- We are on target for vehicle purchases and deployment, but the pace of infrastructure development continues to be challenging.
- This project has created direct jobs such as CNG mechanics, and has maintained regional administrative, engineering, and trade jobs.
- The project gives unprecedented exposure to the US DOE Clean Cities program through targeted marketing at Sea-Tac Airport.
- We are well positioned for planned future work.



Multiple vehicles being retro fitted for CNG fuel