



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

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Puget Sound Clean Air Agency

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Project I.D. #: ARRAVT042

Overview

Timeline

- Start date Dec 3, 2009
- End date Dec 2, 2013
- Percent complete: 60% (budget); 85% (projects)

Barriers/Risks

- Complexity of airport project & participating airlines
- Lower than expected fuel sales at Lynden, WA station

Budget

- DOE share \$15 M
- Recipient share \$22 M
- Total project \$37 M

Partners

- Lead: Puget Sound Clean Air Agency
- Partners: 14 municipalities, 3 universities, 9 private businesses

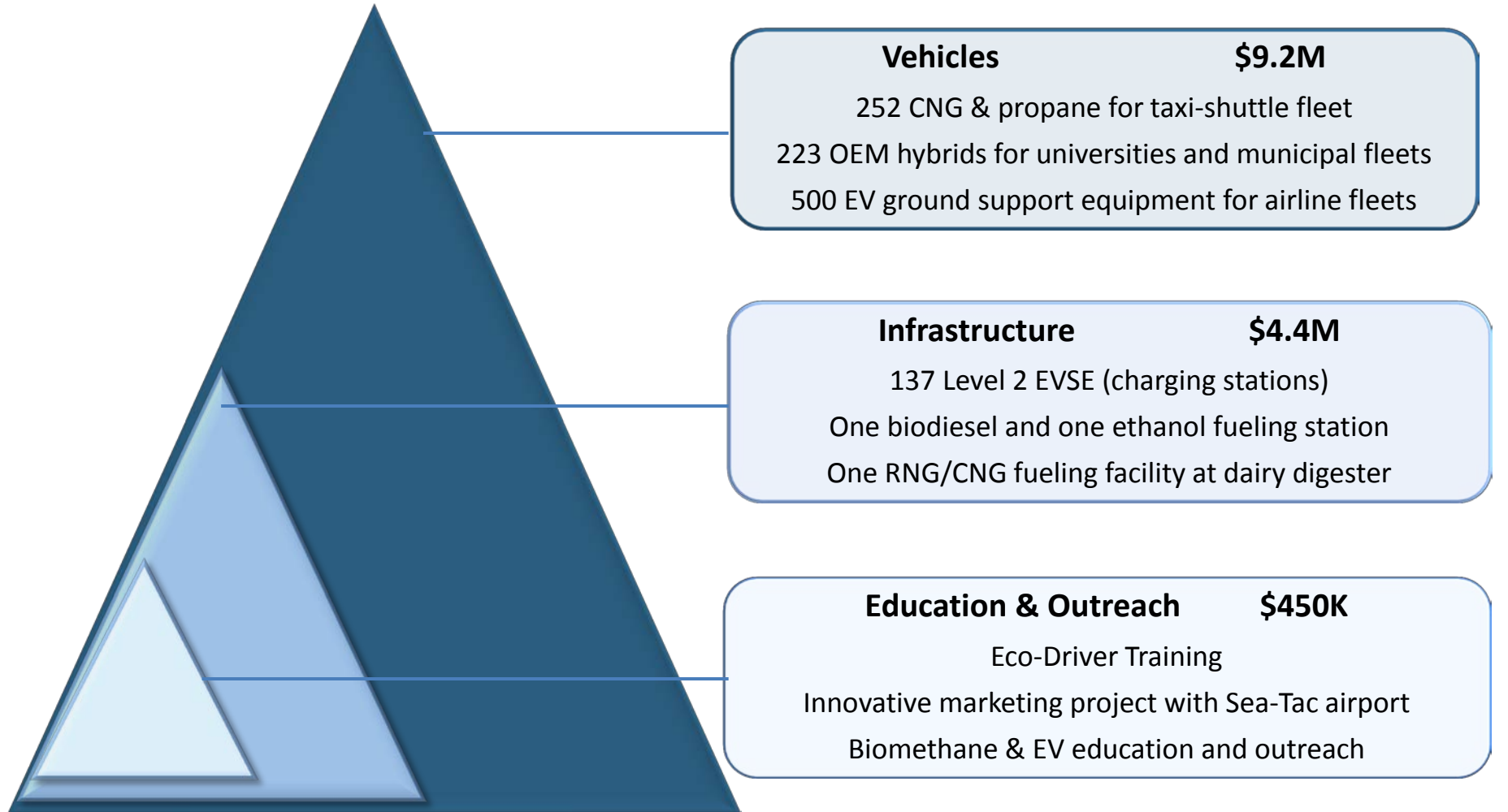
Relevance

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



Approach - Milestones

Completed	Milestone
March 2010	100% NEPA Documentation for Vehicles Approved
September 2011	100% of Vehicles Ordered
May 2012	100% of Vehicle s Deployed
May 2010	100% of Sub-Recipient Agreements Finalized
April 2011	100% of Cost-Share Partner Agreements Finalized
March 2011	100% of NEPA Documentation for Fueling Infrastructure Approved
October 2011	100% of NEPA Documentation for EV Infrastructure Approved
December 2011	100% of Fueling Infrastructure Complete and Dispensing
March 2012	100% of EV Charging Infrastructure Installed
May 2011	50% of Marketing/Outreach Conducted
April 2012	100% of Training/Workshops Completed
Planned Completion	Milestone
July 2012	100% of Marketing/Outreach Conducted
December 2012	100% of Airport eGSEs Ordered
December 2013	100% of Airport eGSEs Deployed

Approach – Address Barriers

- Negotiate eGSE contracts directly with airlines and re-negotiate go/no-go phased contract for charging infrastructure with Seattle-Tacoma International Airport
- Continue baggage claim video outreach work independently
- Focus CNG-RNG fueling station efforts on user fleet satisfaction and limit grant project scope to pipeline CNG fueling infrastructure



Technical Accomplishments

Vehicles Deployed

- 237 CNG vehicles retro-fitted and deployed
- 35 propane autogas vehicles deployed
- 146 light duty OEM HEVs deployed
- 51 medium/heavy-duty diesel hybrid vehicles deployed
- Vehicles displacing over 50,000 gallons of traditional petroleum per month



Grant-supported CNG taxi ready for deployment

Fleet Experience

- Hybrid bucket trucks offer improved economy, operator safety, and neighborhood acceptance
- Residents enjoy the reduced pollution and noise from CNG refuse trucks
- Visibility of 200 taxis with Clean Cities logo raising awareness of program

Technical Accomplishments (2)

Fueling Infrastructure

- Biomethane-capable station operational
- 137 EV charging stations installed
- Biodiesel infrastructure operational
- E85 station operational
- 21,000+ GGE fuel dispensed (to Dec 2011)

Experience

- Close collaboration with EV Project & other grants led to successful infrastructure deployment approach
- Biomethane fueling station became CNG-RNG station to accommodate project delays
- Biodiesel fuel sourced from unique local economic development project



CNG fueling infrastructure at VanderHaak Dairy

Technical Accomplishments (3)

Economic Benefits

- \$1,100,000 estimated fuel savings to date. Expected to grow significantly higher in 2012
- Over 50 direct contractors, vendors, & manufacturers used
- Sustained 8 direct jobs in 2011
- 2,500 hours of contract labor funded in 2011 (or 312 contractor days)
- New minority-owned company created as a result of the grant
- Local vehicle conversion company (WorldCNG) grew from 3 employees to 19



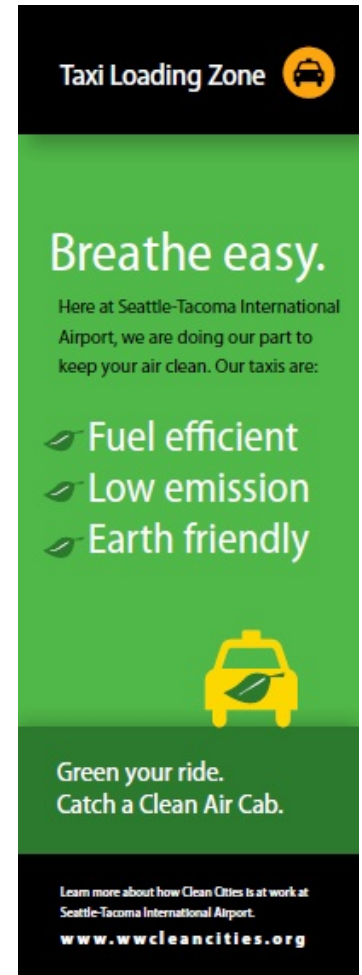
CNG for Hire taxis near Seattle, WA

Technical Accomplishments (4)

Marketing, Media & Outreach

Seattle-Tacoma International Airport:

- Educational video to play at baggage terminals and news screens throughout airport promoting the electrified ground support equipment project
- Clean Taxi way-finding & educational signage at airport



Technical Accomplishments (5)

Outreach & Education

Electric Vehicles

- General consumer guide to dispel myths and promote electric vehicles
- Guide encourages use of our public access charging stations
- QR code at all public stations linked to website

Biomethane

- Washington State biomethane for transportation opportunity analysis
- Webinars and presentations to raise awareness

Driver Training

- 100 drivers enrolled in web-based green driver training



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, Pierce County, and Snohomish County
- Bellair Airporter Shuttle, BYG Yellow Cab, MasterPark, MVP Parking, Shuttle Express, CNG for Hire, Eastside for Hire, Waste Management, CleanScapes
- Alaska Airlines

Project Partners



Future Work

- Deploy electric ground support equipment and supporting infrastructure at Sea-Tac Airport
- Report on annual fuel displacement for charging stations, fueling stations, vehicles and ground support equipment
- Complete marketing for clean taxi program, airport baggage claim video, and other grant project promotion



Video monitor at Sea-Tac baggage claim

Project Summary

- Encourages adoption of alternative fuel and advanced technology vehicles in the Puget Sound region through the purchase of over 1000 pieces of equipment
- Offers millions of gallons of fuel displacement per year, with more expected via airport project
- Regional economic benefits will continue via fuel savings and new market development
- Created direct jobs such as CNG mechanics, and has maintained regional administrative, engineering, and trade jobs
- Gives unprecedented exposure to the US DOE Clean Cities program through targeted marketing at Sea-Tac Airport



Snohomish County biodiesel fueling