Heavy-Duty Natural Gas Drayage Truck Replacement Program

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South Coast Air Quality Management District

June 9, 2010

Project ID #
ARRAVT045

Overview

Timeline

- Start: January 2010
- Finish: January 2014
- Anticipated 450 LNG trucks deployed by 6/30/10
- Additional LNG truck applications under review

Barriers

- Higher cost of NG vehicle
- Limited experience with NG technology
- Limited infrastructure for re-fueling
- Concerns about maintenance
- Currently only one engine manufacturer (Cummins Westport)
- Difficulty for individual owners/operators to secure financing
- Long lead time for manufacturing

Budget

- Total Project Funding: $33,740,000
  - DOE: $9,408,389
    - $7,967,550 for trucks
    - $500,000 education/outreach
    - $940,839 administrative
  - Cost Share: $24,331,611

Partners

- Project Lead: South Coast Air Quality Management District
- U.S. DOE
- California Air Resources Board
- Ports of Los Angeles and Long Beach
- U.S. EPA
- SCAG Clean Cities Coalition

Project Objectives/Relevance

The Port of Los Angeles and Port of Long Beach represent the largest Port complex in the U.S. Heavy-duty diesel trucks serving the Ports are a significant source of air pollution in the region. Replacement with alternative fuel vehicles can provide immediate and long-term air quality benefits.

- Increase the use of alternative fuels and reduce U.S. dependence on imported petroleum fuels
- Achieve significant reductions in NOx and diesel PM emissions
- Reduce toxic air emissions and associated public health risk from diesel fuel combustion
- Reduce greenhouse gas emissions
- Create jobs to stimulate the economy
- Increase end-user knowledge, experience and acceptance of alternative fuel vehicles
- Provide outreach and training to truck operators and technicians involved in maintaining alternative fuel vehicles

Approach

- Grant funds used to offset the incremental cost of a new natural gas truck
- Old diesel truck must be scrapped and replaced with the NG vehicle
- Solicit applications by issuing a Program Announcement
- Extensive outreach with the help of the Ports, trucking associations, natural gas engine manufacturers, and truck dealerships
- Translation support services
- One-on-one meetings with applicants
- Orientation and contract workshops
- Meetings with financial institutions:
  - Clarify program requirements
  - Assist individual truck owner/operators in obtaining financing for the balance not covered by the grant funds

Technical Accomplishments and Progress

- Issued program solicitation in July 2009
- Received over 1,500 applications, including diesel and LNG trucks
- 450 LNG truck projects deemed eligible
- 100 contracts executed
- All 450 LNG trucks will be in operation by June 30, 2010

	Emission Reductions (tons/yr)	
	NOx	PM
450 LNG Trucks	379.5	13.2

Source: California Air Resources Board, Proposition 1B Calculator, EMFAC2007.

- DOE Clean Cities grant funds will be used to fund a subset of the 450 LNG trucks

Technical Accomplishments and Progress (Continued)

- ✓ Emission reductions will occur over the useful life of the LNG trucks, which is estimated at ≥ 15 years
- ✓ The project will reduce consumption of diesel fuel by 5.58 million gallons per year
- ✓ The project will also result in at least a 25% reduction in greenhouse gas emissions
- ✓ This project will preserve and create jobs related to manufacturing, natural gas refueling, maintenance and operation of the natural gas vehicles
  - ➢ Based on 450 LNG trucks deployed, it is estimated there will be about 580 jobs created and retained

Collaborations/Partnerships

- AQMD is serving as the “prime” for this project
- Funding partners include:
  - U.S. Department of Energy, Clean Cities Program
  - California Air Resources Board
  - Port of Los Angeles and Port of Long Beach
  - U.S. Environmental Protection Agency
  - California Energy Commission
- Extensive outreach involving the following partners:
  - Natural gas engine/truck manufacturers
  - Truck dealerships
  - Ports Clean Truck Center
  - Trucking Associations
  - SCAG Clean Cities Coalition

Future Work

- Complete evaluation of 238 additional LNG truck projects
- Additional natural gas trucks are expected to be deployed and operational by March 31, 2011
- Performance Monitoring:
  - Review annual reports documenting fuel usage and mileage
  - Conduct random inspections/audits
  - AQMD will work closely with the Ports to verify LNG truck operations at the Ports
  - Each drayage truck is equipped with a radio frequency identification (RFID) tag that is used to track each time a truck enters or leaves the Ports

Summary – LNG Drayage Truck Project

- Relevance: The program was designed to achieve the following objectives:
  - Increase use of alternative fuels
  - Displace consumption of diesel fuel
  - Significant reductions in emissions
  - Create jobs to stimulate the economy
  - Provide outreach and training
  - Increase end-user experience with alternative fuel vehicles

Summary – LNG Drayage Truck Project

- Approach: Provide incentive for truck owners/operators to replace an old, heavy-duty diesel truck with a new natural gas vehicle
  - Grant funds are used to help offset the high cost of a new NG vehicle
  - Extensive outreach is needed to inform truck owner/operators, manufacturers, dealers, financial institutions, and other stakeholders of funding availability and program requirements
  - Close coordination with engine/truck manufacturers and dealers to ensure NG vehicles will be properly maintained
  - Close coordination with truck manufacturers to ensure NG vehicles will be delivered on-time
  - Monitor performance of NG vehicles annually and conduct random inspections

Summary – LNG Drayage Truck Project

- Technical Accomplishments:

Calendar Year	No. of LNG Trucks	Emissions Reductions (tons/yr)	
		NOx	PM
FY2010 (By 6/30)	450	379.5	13.2
FY2011 (By 3/31)	238 (estimated)	TBD	TBD

- Results:
  - Increased use of alternative fuels
  - Significant reductions in NOx and diesel PM emissions
  - Reduced air toxic emissions and associated public health risk
  - Reduced GHG emissions
  - Preservation and creation of jobs related to manufacturing, natural gas refueling, maintenance and operation of the natural gas vehicles

Summary – LNG Drayage Truck Project

- Collaborations
  - Close coordination and collaboration with funding partners, including:
    - U.S. DOE, Clean Cities Program
    - U.S. EPA
    - California Air Resources Board
    - Port of Los Angeles and Port of Long Beach
- AQMD is using a combination of grant funds to leverage sufficient funds to offset the higher cost of the natural gas vehicles
- This program has resulted in a high demand for the grant funds
- Only the most cost-effective projects can be funded
- Each funding source has specific requirements and AQMD is maximizing the use of these funds to deploy as many NG vehicles possible given the available funds