

SoCalGas CNG Drayage Truck Demonstration

Technology Manufacturer

Cummins Westport

Autocar LLC

Co-Participants

Port of Long Beach, Port of Los Angeles, SoCalGas Company, California Cartage Company, South Coast Air Quality Management District



Project Objective

Under the TAP, the Ports embarked upon a collaborative effort with Southern California Gas Company (SoCalGas) and their partners, California Cartage Company and Autocar LLC, to develop and demonstrate the nation's first drayage trucks powered by compressed natural gas (CNG). Four trucks were delivered June 2008 and used to move containers between the Ports and nearby freight consolidation yards.

Technology Demonstration

The trucks were manufactured by Autocar LLC and are powered by the Cummins Westport ISL G engine. The Cummins Westport ISL G is currently the cleanest heavy-duty internal combustion engine commercially available, with certified NO_x levels one-half that of U.S. EPA's stringent 2010 on-road heavy-duty emissions standard.

To demonstrate the viability of the ISL G CNG engine in port drayage operations, California Cartage Company (CCC), the largest trucking company operating at the Ports, operated the four CNG-powered trucks in regular revenue drayage operations for a one-year demonstration period. This period covered calendar year 2009. During this period, the trucks underwent continuous monitoring to assess performance capabilities, operability, driver impressions, and vehicle reliability.

Results

The CNG trucks operated throughout 2009. Initially, the trucks were used exclusively in local drayage service around the Ports in an effort to familiarize the drivers with the new vehicles and to build confidence in the local, public CNG infrastructure. In early May 2009, CCC's management decided they had the comfort level with the TAP-funded CNG truck to begin running it on longer inland routes. Beginning on May 4, 2009, the TAP-funded CNG truck began running one inland route from CCC to Ontario each morning. The truck ran local routes each afternoon. The CNG truck continued running this single daily inland route for most of May 2009 through September 2009. After September, the CNG truck was returned to in-service operation until reclaimed by SoCalGas for further research purposes in 2010. The SoCalGas demonstration proved the feasibility and capability of using CNG fuel in commercially available heavy-duty engines for port drayage operations. This provides port drayage operators an additional low emission technology choice when replacing or upgrading their fleet vehicles. This project's final report is available for download on the TAP website.

Benefits

The certified NO_x emission levels of the Cummins Westport ISL G engine are about 90 percent below a model year 2007 diesel drayage truck. The use of “low carbon content” natural gas will also help California achieve its goals under its Low-Carbon Fuel Standard and reduce greenhouse gas emissions by approximately 20 percent as compared to diesel fuel. The Cummins Westport ISL G engine is commercially available today, and an increasing number of heavy-duty truck chassis manufacturers are offering vehicles equipped with the ISL G in a compressed natural gas configuration. The 8.9L engine is marketed as meeting 2010 U.S. EPA and CARB emission standards. In addition, the relatively low cost of CNG, as compared to diesel fuel, makes this engine an attractive option for port drayage operators.

Project Costs

The combined TAP funding from both Ports was \$223,155, which was applied to the capital purchase cost of one demonstration vehicle. The remaining three demonstration trucks were purchased by SoCalGas. The SCAQMD co-funded the construction of a temporary CNG refueling station to support the demonstration trucks’ daily refueling needs. The SCAQMD also contributed \$421,250 towards the purchase of capital equipment for the temporary refueling station.



Updated: April, 2011.