

# Final Report

July 13, 2012

## Advanced Technology Heavy-Duty Alternative Fuel Engine Program

**Contract Number:** MS10008

**Contractor Organization:** Republic Services, Inc.



*Prepared for the Mobile Source Air Pollution Review Committee (MSRC) under  
the AB 2766 Discretionary Fund Work Program.*

## **Acknowledgements**

Republic Services, Inc. thanks the Mobile Source Air Pollution Reduction Review Committee (MSRC) and Clean Energy for their individual and combined efforts that made this project possible.

This report was submitted in fulfillment of MSRC Contract MS10008, Republic Services Compressed Natural Gas (CNG) Refuse Collection Vehicles (x4). Work was completed as of August 2011.

## **Disclaimer**

The statement and conclusions in this report are those of the contractor and not necessarily those of the Mobile Source Air Pollution Reduction Review Committee (MSRC) or the South Coast Air Quality Management District (SCAQMD). The mention of commercial products, their sources or their uses in connection with material reported is not to be constructed as either an actual or implied endorsement of such products.

## **Project Description**

This contract provides \$123,354 in funding to offset the costs of purchasing and placing into service four (4) heavy-duty CNG solid waste collection trucks (\$30,838 per truck). Republic Services provided the remaining capital for this purchase, a total of \$953,118. Republic Services partnered with Clean Energy to purchase, deploy and fuel the new fleet of CNG solid waste collection trucks.

## **Work Performed**

Vehicle purchasing and placement into service began in 2011. All vehicles were purchased and deployed by February 2012.

### Task 1: Order Vehicles

All vehicles were ordered from McNeilus and Los Angeles Truck Center.

### Task 2: Submit Public Outreach Plan

Republic Services and Clean Energy developed a public outreach plan to publish an article in the Alhambra local newspaper, "Around Alhambra" that included information about compressed natural gas, the MSRC, and the air quality benefits created through the use of CNG by fleet vehicles. Each new refuse truck was clearly labeled with a decal noting the use of CNG and the support of the MSRC. The Public Outreach Plan was submitted and approved by the MSRC.

### Task 3: Take Delivery of Vehicles and Place into Service

The four (4) vehicles funded under the terms of this award were received Republic Services and placed into service.

### Task 4: Implement Public Outreach Plan

After the MSRC approved the public outreach plan, Republic Services published an article in the Alhambra local newspaper "Around Alhambra". In addition, MSRC decals were placed in a prominent, visible location on vehicles to publicize the MSRC and CNG fuel.

### Task 5: Progress Reports

Republic submitted all quarterly reports as required under the terms of this contract.

### Task 6: Final Report

This report will act as the final report for this project. Task 6 is completed upon acceptance of this report.

## Problems Encountered

Republic Services has not encountered any major problems with the CNG vehicles since their deployment. The new vehicles have provided reliable performance and have received positive feedback from Republic drivers and customers.

## Emissions Benefits

Natural gas is the cleanest choice of fuel available today for this market. Natural gas powered vehicles produce up to 23% fewer greenhouse gas emissions (GHG)<sup>1</sup> than comparable diesel models<sup>2</sup>. The four repowered CNG trucks are expected to travel a combined total of 105,232 miles per year (based on fleet data in application). Based on this use, these 4 CNG trucks reduce 9,932 pounds of Criteria pollutants and Greenhouse Gas (GHG) emissions each year<sup>3</sup>! They will reduce over 99,316 pounds of criteria pollutant & greenhouse gas emissions would be reduced over a 10-year operational life<sup>4</sup>!

4 CNG Trucks: Annual Emission Reductions (Pounds)					
Criteria Pollutants				GHG	TOTAL
Carbon Monoxide (CO)	Volatile Organic Compound (VOC)	Nitrogen Oxide (NOx)	Fine Particulate Matter (PM2.5)	Greenhouse Gas	Criteria Pollutants & GHG
503.4	55.9	2611.9	33.6	6726.8	9931.6

## Outreach

<sup>1</sup> "Detailed California-Modified GREET Pathway for Compressed Natural Gas (CNG) from North American Natural Gas" California Air Resources Board, January 12, 2009.

<sup>2</sup> "Detailed California-Modified GREET Pathway for Ultra Low Sulfur Diesel (USLD) from average Crude Refined In California" California Air Resources Board, January 12, 2009.

<sup>3</sup> Emissions reductions were determined utilizing the Department of Energy Clean Cities Area of Interest 4: Alternative Fuel and Advanced Technology Vehicles Pilot Program Emissions Benefits Tool. Assumptions: Each Heavy Duty CNG Truck travels 13,557mi/yr.

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East Alhambra Little League Major Softball All-Stars.



East Alhambra Little League Alleycats.

Softball champions  
honored by City Council

## Republic Services adds natural gas vehicles to fleet

A long-time leader in protecting the environment, Republic Services, Inc. announced that it is beefing up its Sun Valley truck fleet with the addition of four compressed natural gas vehicles. Sun Valley's fleet currently operates 52 of these vehicles, bringing the total to 56.

Republic Services received \$123,354 in funding to offset the cost to purchase and deploy four new compressed natural gas refuse collection vehicles. The company has successfully purchased and deployed all four vehicles.

The company fuels its natural gas vehicle fleet at a compressed natural gas fueling station at 9200 Glenoaks Blvd., San Valley, Calif. Clean Energy, (Nasdaq:CLNE), the leading provider of natural gas fuel for transportation in North America, designed and constructed the fueling infrastructure.

"Our reasons for replacing our diesel engines with compressed natural gas are simple: to improve local air quality and to do our part to reduce our dependence on foreign oil," said James Pledger, general manager, Republic Services, Sun Valley Division.

Republic fleets across the country include natural gas vehicles, with the majority of them in the company's west region.

Republic operates and maintains one

of the largest private fleets in the country. The addition of four natural gas vehicles will bring the total number of Republic's alternative fuel vehicles to nearly 1,200 vehicles by the end of 2012.

Using compressed natural gas helps lower harmful emissions like nitrogen oxides and particulate matter in the air. The addition of the natural gas vehicles in California will assist in meeting the state's "Diesel Risk Reduction Plan," the Low Carbon Fuel Standard, and support the efforts to reduce greenhouse gas emissions growth as established under state legislation. The new trucks will also reduce noise pollution.

### About Republic Services

Republic Services, Inc. is an industry leader in the U.S. non-hazardous solid waste industry. Through its subsidiaries, Republic's collection companies, transfer stations, recycling centers, and landfills focus on providing reliable environmental services and solutions for commercial, industrial, municipal, and residential customers. Republic and its employees believe in protecting the planet and applying common sense solutions to customers' waste and recycling challenges. For more information, visit the Republic Web site at [republicservices.com](http://republicservices.com).













## **Summary and Conclusions**

Republic and Clean Energy appreciate the support that has been provided by the Mobile Source Air Pollution Review Committee and South Coast Air Quality Management District for alternative fuel projects in the South Coast Air Basin. We recommend the continued support for funding projects that provide buy-downs for clean-fueled natural gas vehicles, fund technology advancement, and increase natural gas infrastructure.