



NATURAL GAS VEHICLES

A CASE STUDY FROM SOUTHERN CALIFORNIA GAS COMPANY



MANY BUSINESSES AND
 GOVERNMENTAL AGENCIES
 ARE DISCOVERING THE
 ADVANTAGES OF ADDING
 NATURAL GAS VEHICLES
 (NGVS) TO THEIR FLEETS.
 SUCH VEHICLES HAVE A
 POSITIVE IMPACT ON AIR
 QUALITY, PUBLIC HEALTH AND
 TRANSPORTATION ECONOMICS
 SINCE NATURAL GAS BURNS
 MORE CLEANLY THAN OTHER
 FOSSIL FUELS AND TYPICALLY
 COSTS LESS AT THE PUMP
 THAN GASOLINE AND DIESEL.



CNG technology: driving force behind city operations

Located in the heart of Los Angeles, Culver City has played host to some of the most famous film sets in history, including "The Wizard of Oz" and "Gone with the Wind." Lesser known, but equally important, is Culver City's long-held tradition of using Compressed Natural Gas (CNG) technology to run its city vehicles. The city's fleet of 46 transit buses was ranked the second best green fleet in North America for 2008. It was the second mass transit fleet in California and the first within the South Coast Air Quality Management District (SCQMD) to operate 100 percent on CNG. Overall, the city's fleet of 650 vehicles and equipment also includes 41 CNG powered refuse trucks, heavy-duty public works trucks, parks vehicles, and various staff cars. Currently, six additional CNG buses are on order, with aggressive plans to replace all diesel-fueled and other vehicles with CNG when available.

Still the best technology available

Culver City adopted CNG technology in 1996, in accordance with early SCAQMD air quality mandates. Seeing it as the most viable and cost effective way to lower gas emissions, they now consider themselves fortunate to have been ahead of the curve.

"No other readily available fuel provides lower emissions and reduces our dependence on foreign oil better than CNG," said Jane Leonard, Management Analyst for Culver City's Equipment Maintenance and Fleet Services Division and Air Quality Programs. "In 1996 when the station was being developed, the primary alternative fuel for municipal transit fleets was CNG. After a comprehensive analysis of other available fuels, CNG was, and

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continues to be, the best and most viable choice for availability, reliability, safety and most importantly, advanced clean technology to meet our requirements."

Paul Condran, Equipment Maintenance Manager for the city of Culver City, expands on the technological components of CNG as opposed to petroleum-fueled engines. "Engines designed to run on CNG are still internal combustion engines, similar to those running on gasoline and diesel fuel," said Condran. "However, natural gas engines operate at a higher temperature, and have different combustion characteristics, posing challenges to ancillary equipment to that engine, such as turbo chargers and fuel pressure regulators." "Technical training for mechanics is extremely important so that they can be comfortable in their understanding of safety, preventative maintenance and repair," said Condran. Condran states that the city's mechanics have embraced this new technology and continue to stay on the cutting edge of new developments in this field. "They prefer to work on natural gas engines because they are cleaner, both internally and externally, than their diesel engine counterparts."

On-site fueling station acquisition costs recouped over time

While Leonard acknowledges that the initial acquisition and ongoing maintenance costs for an on-site CNG fueling station of Culver City's size are costly, she says the choice to use CNG has ultimately saved the city money on fuel costs.

"The maintenance of CNG vehicles is approximately 10 percent greater due to the advanced technology of the CNG engines and their associated components," Leonard said. "Over time, this has plateaued with the standardization of the fleet and the familiarity of our mechanics with CNG technology. In 1996 we saw the need to control our own fueling. The fuel savings are significant. We have reduced our fuel costs by 78 percent, or an estimated \$1,000,000 annually, by using CNG instead of diesel or unleaded for our transit and refuse fleets."

Funding provides exceptional cost savings

Culver City has understood and utilized auxiliary funding since its early availability in the 1990s. Leonard states that the city has received over \$1.5 million in grant funds towards their CNG operations over the past five years.

"The transit fleet was procured with the combination of grant funds from the Mobile Source Reduction Committee (MSRC) Clean Transportation Funding Program and the SCAQMD," Leonard said. "Nearly eighty percent of the original CNG station construction was paid for with federal funds, and our most recent CNG station expansion is primarily federally funded, with an additional \$100,000 being obtained through an MSRC grant."

Tax break offers additional incentive for on-site fueling station

A federal tax rebate program created additional savings for Culver City's fleet. Since October 2006, owners of CNG fueling stations have been able to receive \$0.50 per gasoline gallon equivalent (GGE) in tax credits, offering additional incentives for fleets to control their own fueling. According to Leonard, making that decision so many years ago has paid off considerably.

"With the Federal Alternative Fuel Tax Credit of \$0.50 per GGE, we have received more than \$833,000 to date."

Culver City's use of CNG has not only lowered emissions and saved on operational costs, it is also a source of pride and recognition for the city.

"The city's commitment to CNG vehicles has contributed to respect, recognition and further rewards," Leonard said. "We are acknowledged by leading clean air organizations, and have recently received a number of clean air awards within the region and state."

The City Council has also recognized the Division for their accomplishments as a Top 100 Fleet in North America.

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