



PHOTOS: CITY OF SACRAMENTO

The City of Sacramento's fleet department (inset) has reduced gasoline consumption by 10 percent since 2011 and increased the use of compressed natural gas (CNG), due to the Sacramento BioDigester (above), an anaerobic digestion system that converts 25 tons of food waste into different forms of renewable energy.

Taking the *Green Leap*

The City of Sacramento has taken its "going green" goals to a new level, and it's been able to prove the benefits along the way. **By Stephane Babcock**

In the capital of alt-fuel friendly California, the City of Sacramento's Fleet Manager, Keith Leech, has not only invested in going green, he's converted more than 20 percent of the City's fleet to alternative-fuel vehicles, including liquefied natural gas (LNG) and compressed natural gas (CNG) refuse trucks, flex-fuel light-duty sedans and pickup trucks, propane autogas vans and trucks, and plug-in battery electric and hybrid motor pool vehicles.

"Fleet management decided to make the change to reduce the fleet's reliance on petroleum and also reduce emissions," said Leech, a 2013 *Green Fleet* Sustainability All-Star. He has measured the effectiveness of different alternative fuels based on the reduction of emissions, as well as their cost effectiveness and total cost of alt-fuel vehicle ownership (TCO).

Leech is able to justify the cost difference of alt-fuel vehicles by recovering the added initial cost through the lifecycle of the vehicle due to their lower fuel and maintenance costs. "Additionally, we are reducing the carbon footprint, which is in alignment with the City of Sacramento Sustainability Master Plan," Leech added.

Paving the Way

Over the past few years, the City of Sacramento has pioneered a number of alternative-fuel programs, including the

use of renewable natural gas produced by food waste. The Sacramento BioDigester, manufactured by CleanWorld, is the largest closed-loop anaerobic digestion system in North America, according to the City. It converts 25 tons of food waste per day — and will soon be upgraded to 100 tons per day — into a number of different forms of renewable energy, including heat, electricity, and CNG, which is dispensed at an adjacent fueling station that is owned by Atlas Disposal and operated by Clean Energy Fuels.

"The City of Sacramento is the first government fleet in the country to use renewable CNG produced locally from food waste from an anaerobic digester to power their trucks," Leech said. "The City also uses more than 1 million gallons of LNG per year to power its refuse trucks, which saves Sacramento more than \$1 million versus diesel trucks."

According to Leech, the City has a sourcing agreement in place for up to 2,500 gallons of CNG per week. This includes at least 30-percent renewable CNG at the fueling station, which will fuel 20 new heavy-duty CNG-powered trucks, 11 Autocar rear loaders, three Freightliner Elgin Broom Bear sweepers, two Vaccon sewer truck, a pavement patch truck, and three Freightliner M2 Utility Service trucks.

Reporting on Sustainability

Sacramento's fleet management department

was provided a report containing the results of two separate analyses based on data provided by Utilimarc, a fleet consulting and technology solutions firm. These analyses included fuel consumption by type as a percentage of fleet and greenhouse gas emissions (GHG) analysis.

According to Leech, "the report quantifies the City's reduction in petroleum consumption and increases in alternative-fuel usage with the associated emissions benefits. This information has been extremely effective in further educating and influencing the city council and our fleet customer departments resulting in the adoption of our enhanced Fleet Sustainability Policy."

Among the fleet's sustainability achievements due to its alternative-fuel fleet between 2011 and 2013:

- Gasoline consumption was reduced by 10 percent.
- LNG fuel consumption was increased by 87 percent.
- Diesel consumption was reduced by 34 percent.
- The City fleet consumed 703,419 fewer gallons of gasoline and diesel fuel in 2013, compared to 2009.
- Fleet had a decrease of 33.5 percent in total fuel consumption, compared to 2009.
- GHG gas emissions decreased by 3,040 metric tons from 2009 to 2013, an 11-percent decrease from 2009 to 2013.