

DENVER 'TRASHES' EMISSIONS WITH 'GREEN MACHINE'

With a new hybrid-hydraulic trash truck, the City of Denver fleet gets 25-percent better fuel economy and anticipates an annual reduction of 1,600 gallons of fuel.

By Grace Lauron

AT A GLANCE

The City of Denver's new hybrid-hydraulic trash truck helps fleet:

- Lower emissions.
- Achieve 25-percent better fuel economy.
- Save 1,600 gallons of fuel.
- Reduce foreign oil dependency.
- Extend brake life.

Ranked #9 Government Green Fleet in North America by the 100 Best Fleets organization, the Denver Public Works Fleet Maintenance Division is always on the lookout for green technologies. The latest addition to its ever-expanding green fleet now includes a hybrid-hydraulic trash truck.

GREENING THE COLLECTION

Including the safety division, the City and County of Denver operates 2,820 vehicles, including 143 hybrids. "Currently 5 percent of the fleet is hybrid," said Nancy Kuhn, fleet administrator for the Public Works Fleet Maintenance Division.

In 2001, the agency bought a fleet of 39 Toyota Prius hybrid-electric vehicles, making it one of the world's largest municipal hybrid fleets at the time. In 2005, the agency secured three Ford Escape Hybrids, among the first to roll off the assembly lines, and one of which is driven by Denver Mayor John Hickenlooper.

Promoters of alternative fuels, the City and County of Denver started using biodiesel in 2004. All diesel units now run on cleaner-burning biodiesel fuel.

Denver also utilizes propane and E-85, helping further reduce its dependency on foreign oil. In addition, the fleet took advantage of grant money to retrofit more than 80 vehicles and off-road equipment with emissions-control technology and install pre-heaters on 17 refuse trucks, reducing cold weather idling time and associated emissions.

DUMPING OUT EXCESS

The new Peterbilt Model 320 HLA hybrid-hydraulic unit is one of 115 trash trucks employed in daily trash collection. "The truck is getting 25-percent better fuel economy than its non-hybrid counterparts," said Kuhn. "We anticipate an annual reduction in excess of 1,600 gallons of fuel compared to our non-hybrid fleet of similar vehicles."

In 2006, Public Works fleet managers saw the hybrid-hydraulic trash truck at the Hybrid Truck Users Forum/CALSTART Conference in San Diego. "Our local Pe-

WHERE IN THE WORLD

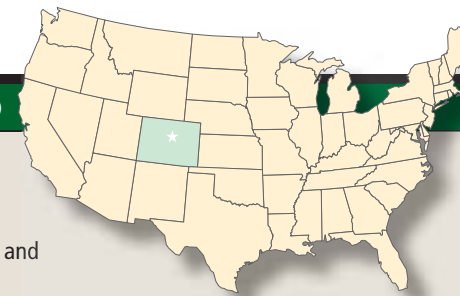
DENVER, COLORADO

Population: 588,349 (2006 census).

Size: 154.63 sq. miles.

Established: 1858, consolidated as City and County of Denver in 1902.

Fact: Named after Kansas Territorial Governor James W. Denver.



POWERING THE 'GREEN MACHINE'

The City of Denver's "viper green effect"-colored Peterbilt Model 320 HLA trash truck utilizes both hydraulics and diesel fuel. Peterbilt Motors Company manufactured the refuse truck utilizing Eaton Corporation's Hydraulic Launch Assist (HLA) technology.

In contrast to hybrid-electric technology, Denver's "green machine" utilizes hybrid-hydraulic technology ideal for stop-and-go trash collection operations. The system recovers energy normally lost as heat by the vehicle's brakes and stores it in the form of pressurized hydraulic fluid utilized when the driver accelerates.

Hydraulics help slow the vehicle as well. Since the operator engages the hydraulic system during stop-and-go driving, less diesel fuel is consumed and emissions are reduced.

FLEET DIRECTOR

Ernie Ivy stands next to the new hybrid-hydraulic trash truck.



terbilt representative informed us the manufacturer was looking for an additional site to test the vehicle (outside of Texas), to evaluate the unit in cold weather and high altitude conditions," said Kuhn. "It was at that gathering that an agreement to test the truck in Denver was negotiated."

The decision was mutually beneficial, as the City was due to replace a trash truck in 2008. Rather than replacing the old unit with a traditional truck, the City purchased the Peterbilt Model 320 HLA. The unit, which went into service mid-August 2008, is one of about a dozen being tested by the manufacturer. Denver's unit is the only one operating outside of Texas.

Kuhn said Peterbilt is monitoring the hybrids' performance in colder weather. In recent below-zero temperatures, the fleet's new trash truck worked fine.

The city's collective fleet of refuse trucks travel an average of 8,400 miles annually and achieve about 2.3 miles per gallon. With unpredictable fuel prices, Denver welcomed the opportunity for cost savings within its heavy-duty truck fleet.

In addition to saving money, Denver's emissions reductions with the new heavy-duty hybrid trash truck falls in line with a goal strongly supported by Mayor John Hickenlooper's Greenprint Denver initia-

tive. "If the unit is burning less diesel fuel, it will be emitting fewer harmful emissions," said Kuhn. "The manufacturers say the unit reduces emissions of NOx, particulates, and CO₂."

Kuhn added, "We anticipate longer brake life, as the hybrid technology is used to help brake the unit."

TAKING OUT THE TRASH TRUCK

The unit operates differently from a conventional truck, said Kuhn. "The driver can use the hybrid technology to control starting and braking during stop-and-go trash operations. Not only are we getting better fuel economy, we expect the brakes to last longer."

The operator for the hybrid-hydraulic trash truck, "hand-picked to operate the hybrid has a history of being a good, dependable driver who keeps his vehicles clean and well-maintained," she said.

Thomas Valdez takes pride and ownership in his hybrid. "[He's] happy with the truck and likes driving it," Kuhn said.

Though Valdez received training on the unit's operation, not a significant amount was required. Fleet mechanics also received training in maintaining/repairing the hybrid. Valdez is currently helping train another driver on how to operate the unit. ♻️

THOMAS VALDEZ,

chosen to operate the new trash truck, takes great pride in maintaining the new vehicle. Valdez is currently training another driver to operate the unit.

