

## Texas Department of Transportation Alternative Fuel Fact Sheet

Type of Fuel	Number of Vehicles	Type of Vehicles	Cost per vehicle
Dedicated propane	183		\$10,000 up-fit
Bi-fuel propane	658		
Propane waivers ( <i>propane not currently functional</i> )	1,213		
CNG (dedicated)	1	10 yard dump truck	\$200,000
CNG (dedicated)	44	F-250 pick-up trucks	\$35,500
CNG bi-fuel	2		
E85 flex fuel	1,982		
Hybrid (gas/electric)	131		
Electric	59		

Type of Fuel	Number of TxDOT Stations	Cost
Propane	49	
CNG	0	TxDOT has not invested in CNG fueling yet. Private sector fast-fill stations are currently \$1,200,000

### Alternative Fuel Experience

#### ***Level of satisfaction with alternative fuels***

Very little negative feedback has been received on current alternative fuel vehicles in the fleet.

Dedicated CNG vehicles are performing well but do have a limited range, which TxDOT is addressing by purchasing extended range tanks.

When propane vehicles were located throughout the state, rural areas provided feedback that refueling infrastructure was not adequate and fuel pricing was not cost-effective for these vehicles to be feasible. In response, TxDOT relocated propane vehicles to areas with better access to fuel and where emissions reduction programs are focused. The propane technology now in use is performing well. (Previous propane systems with the Compuvalve technology performed poorly and were costly to maintain, resulting in a large number of non-maintainable or obsolete systems). Statewide propane infrastructure is currently under review for future deployment.

#### ***Why did the DOT adopt alternative fuel vehicles?***

- Compliance with state legislative requirements for use of alternative fuels in state fleets

- Emissions reduction
- Fuel diversity
- Research to test viability and sustainability of alternative fuels
- Use of Texas-produced fuels to support economic growth

***Emission Reduction Data Collection and Tracking***

The Texas Commission on Environmental Quality (TCEQ) monitors air quality and emissions reduction data for the State of Texas. Programs and performance are outlined in the Texas State Implementation Plan (SIP). Non-attainment areas are identified by county. The SIP outlines a number of Texas air quality rules and tracks compliance in terms of stationary performance, mobile performance, and conformity.

The state and TxDOT do not have specific greenhouse gas reduction goals. However, state law required TCEQ to develop a voluntary inventory of actions taken by businesses and/or state agencies to reduce carbon emissions since 2001. The state has goals in the SIP for other pollutants, which varies by pollutant and geographic area.

For more information regarding the Texas SIP, please see <http://www.tceq.state.tx.us/airquality/sip/>.

***Procurement Process***

TxDOT is required to use a competitive bidding process that can take upwards of four to six months to complete. To accelerate this process, the Texas Comptroller has negotiated contracts with firm fixed pricing that are readily available for TxDOT. The agency’s long-term fleet goal is to provide vehicles at the lowest total cost of ownership. TxDOT is always looking at options to provide the best value or extend the life of its assets. In some situations, the agency has invested in additional up-front costs to provide a long vehicle life, such as purchase of larger chassis. Additional strategies used have included robust preventive maintenance programs, performance tracking through the agency’s fleet management system, consolidated spend (common configurations) and customer design feedback.

**Table 3 – Barriers to Adoption and Strategies to Address Barriers**

<b>Barrier</b>	<b>Strategy for Overcoming Barrier</b>
<b>Barrier 1: Historic Propane Fuel Issues</b> including price fluctuations, fueling infrastructure problems, lack of manufacturer support and repair costs led to reduced propane AFV implementation in 1990s and 2000s. These previous experiences have also caused some staff to be wary of renewed efforts to increase alternative fuel use.	Relocated propane pickup trucks to areas with better access and pricing for fuel supply; newer vehicles address repair and manufacturer support issues. Addressing staff reluctance through educational efforts.
<b>Barrier 2: Lack of CNG infrastructure</b>	Current pilots of CNG vehicles strategically locate equipment in areas with existing and growing fuel infrastructure.
<b>Barrier 3: CNG range</b> with dedicated CNG trucks limited range (~200 mi) between refueling. Gasoline powered pickups have ~300-350 mi range.	TxDOT is in the process of purchasing tanks that will extend the range of these pickup trucks. The agency has also converted two pickup trucks to bi-fuel for extended range (~650 mi). Performance thus far has been successful.

**Barrier 4: Funding** as converting existing vehicles for alternative fuel use or purchasing new alternative fuel vehicles can cost significantly more than vehicles that operate with traditional fuel types.

TxDOT is piloting the use of CNG and is working to more strategically plan for expanded use of propane in its fleet. The agency is also working to build a long-range plan for expanded alternative fuel use. These efforts are expected to help TxDOT leverage additional resources through grant funding, partnerships and other resources to expand the use of alternative fuels in the state's fleet.

**Photos**



TxDOT 10 Yard CNG Dump Truck



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