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Hydrogen Fueling Station Operations and Hydrogen ICE Vehicle Testing

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The U.S. Department of Energy's Advanced Vehicle Testing Activity (AVTA) and its industry testing partners (Arizona Public Service and Electric Transportation Applications) have constructed and operate the Arizona Public Service Hydrogen Alternative Fuel Pilot Plant with the following objectives:

- Evaluate the safety and reliability of operating internal combustion engine (ICE) vehicles on hydrogen and blended hydrogen fuels
- Evaluate the vehicle/infrastructure hydrogen interface
- Quantify hydrogen ICE vehicle emissions, costs, and performance
- Enhance the experience gained siting, permitting, constructing, and operating the Hydrogen Alternative Fuel Pilot Plant in downtown Phoenix by conducting system optimization analysis, component testing, codes analysis, fleet education, and introducing enhanced fueling practices.

The Pilot Plant has been producing and compressing hydrogen (99.9997% pure) via a PEM fuel cell since June 2002. The Pilot Plant also compressing natural gas (CNG). The Pilot Plant provides 100% hydrogen fuel and various hydrogen/CNG blends to the 15 vehicles that are currently utilizing the fuel from the Pilot Plant. These ICE hydrogen vehicles are undergoing baseline performance, accelerated reliability, and fleet testing. Emissions testing and oil analysis is also being performed. The Pilot Plant includes metering and electronic billing Interfaces for the APS meter readers who operate and fuel the hydrogen and blended-fuel vehicles. Ten Phoenix Fire Department vehicles are also being added to the fleet of vehicles operating on hydrogen/CNG-blended fuel.

The above activities support the goal of the Advanced Vehicle Testing Activity to provide potential advanced technology vehicle users and developers with accurate and unbiased information on vehicle performance and infrastructure needs so they can make informed decisions about acquiring advanced technology vehicles. The Idaho National Engineering and Environmental Laboratory manages these activities.

Go to http://avt.inel.gov/hydrogen.html for additional information about the hydrogen testing conducted by the Advanced Vehicle Testing Activity.