

MotorWeek Transcripts “HYDROGEN 101”

JOHN DAVIS: For years we've been talking about the prospect of using hydrogen to fuel our vehicles. But while it seems that the promise of hydrogen is always just five years away, hydrogen powered vehicles are actually on the road right now and other sectors are ramping up to use this clean fuel as well. So, we thought it was time to take a snapshot of the hydrogen landscape to see what's here now and what's just over the horizon.

Hydrogen is the simplest element and most plentiful gas in the universe, but it's usually found in combination with other elements, like in water. Separating it can be costly, but it's clean-burning and can be produced from a number of readily-available domestic resources, including natural gas, ethanol, biomass and water, all of which makes Hydrogen a very attractive alternative to gasoline.

Hydrogen Fuel Cells are the most promising technology for making power from Hydrogen. Several carmakers have demonstrated viable Fuel Cell Electric Vehicles, and both GM and Honda are putting consumers behind the wheel in trial fleets right now.

General Motors is confident enough in their fuel cell-electric Equinox that they have placed 100 of them in service in New York, LA and Washington, DC to see how they perform as daily drivers. This 2 ½ year long program, called Project Driveway, places prototype vehicles in the hands of regular drivers.

Honda has begun leasing its FCX Clarity fuel cell vehicle to consumers in California. As customer demand and the Hydrogen refueling infrastructure expands, Honda is prepared to expand that availability to other markets.

Another great platform for the use of Hydrogen fuel is with buses. Their size makes packaging of bulky components relatively easy.

BUS DRIVER: “This bus was built in Golden, Colorado. It's going to be here in Columbia, South Carolina for a year...for some testing, and then it's going to be open for passengers to ride on sometime between August and September. This is all-electric. It's got batteries underneath you, right underneath the floor. It's got two fuel cells in the back, which recharges the batteries. On the roof, much like a compressed natural gas bus, you have Hydrogen tanks that feed the fuel cells.”

JOHN DAVIS: Hydrogen fuel cells make sense in a number of off-road and stationary applications as well, and not surprisingly, the U.S. military is leading the way in their development. Near Harrisburg, Pennsylvania, a test fleet of hydrogen fuel cell powered forklifts runs alongside their standard battery-electric counterparts at the Defense Logistics Agency's massive Eastern Distribution Center.

GREGG JACKSON: In this facility we have approximately 220 pieces of equipment, material handling equipment – forklifts. Of that 40 of them are hydrogen powered.

JOHN DAVIS: At the University of Maryland’s Ballard Fuel Cell Lab, researchers are developing a fuel cell electric portable field generator that will derive its hydrogen from standard military diesel fuel.

GREGG JACKSON: “We’re working here on an industrial-government-academic collaboration to develop proton-exchange membrane fuel cells for various applications. Our principal research area here is to develop the technology and systems that are needed to enable these types of fuel cells to operate not only on Hydrogen, but on liquid fuels as well. The fuel cell system also offers advantages beyond just the efficiency. It’s cleaner, the emissions are lower in terms of knocks, in terms of carbon monoxide and also it’s quieter. And from a military perspective or from even an application such as an RV, that’s a big benefit.

JOHN DAVIS: To those who say Hydrogen-fueled vehicles are “not ready for prime-time”, we say, “look again”.

While work continues in the areas of catalyst materials, cost-effective hydrogen production, and infrastructure development, the technology of fuel cells is rapidly advancing and the reality of a hydrogen highway is getting closer to our own driveways every day.

