

Hydrogen cars on road to viability

UPI

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WASHINGTON-- Japanese automakers believe 15 to 20 years into the future, hydrogen fuel cells will become a viable alternative to the traditional gasoline engine, but industry experts say significant obstacles remain before mass consumption is possible.

"It (hydrogen fuel cells) needs a major breakthrough in technology," Gunnar Lindstrom, senior manager of alternative fuel vehicles at American Honda Motor Co., told United Press International. Honda has developed the 80 horsepower FCX vehicle, which runs on hydrogen fuel cells and is now road-testing 15 models with lease customers across the United States.

Lindstrom cited three areas that need development before mass marketing of the technology is feasible: durability, or the number of years a consumer can use the vehicle; the automobile's range, which is 190 miles before it needs refueling; and cost, which Lindstrom says is "off by a magnitude or two." Honda officials would not divulge exactly how much a prototype FCX vehicle costs, but they do not object to those who estimate it to be in the \$1 million range per vehicle.

Despite these hurdles, Lindstrom remains optimistic about Honda's chances of breaking the technology barrier.

"We believe we are in the lead by the sheer number of vehicles deployed by customers each day," Lindstrom said, referring to the 15 fuel cell vehicles Honda has operating in the United States.

The fuel cell vehicles are divided into various governmental entities that have fleets such as the City of Los Angeles with five vehicles, City and County of San Francisco with two, the State of New York at Albany with two, City of Las Vegas with two, South Coast Air Quality Management District of California with two, the City of Chula Vista, Calif., with one vehicle and the John and Sandy Spallino family with one.

Lindstrom said each fleet owner and family is responsible for maintaining their vehicles, both cleaning and fueling. They also must pay a \$500 lease each month to ensure proper feedback, which is all inclusive of service maintenance and insurance, he added. The vehicles take between 3 and 6 minutes to refuel, which is in line with current gasoline models.

Lindstrom also believes the cleanness of hydrogen will be a sell to consumers.

"Hydrogen is the only fuel with the potential to have zero emissions and very low or zero carbon dioxide, while being a domestic fuel," he said.

Dan Hyde, fleet and transportation services manager for the City of Las Vegas, told UPI about the city's fleet of two FCX hydrogen fuel cell vehicles.

The city began its two-year lease of the vehicles in January 2005. Hyde said it pays \$500 per month for each vehicle plus an additional \$100 each month for maintenance.

One vehicle is used for parking enforcement in the downtown corridor with the other being tested with city officials at City Hall and council. The first use provides an opportunity for high publicity and rigorous test in stop-and-go traffic. The second use allows the vehicle to be observed over longer distances.

Hyde, who drove an FCX a total of 250 miles from the Ontario, Calif., airport to the City of Las Vegas Hydrogen Fuel Site in January 2005, said its best aspect was "no variation in the vehicle's performance."

The major drawback though is the FCX's range. With 5,000 psi of gaseous hydrogen in the tank, an FCX can only travel approximately 170 miles on one tank. Hyde joked that with his lead foot, it would probably be more along the lines of 130 miles per tank of fuel.

"The ideal thing is to make it as seamless as possible with a range on average of approximately 300 miles between fill-ups," he said.

Two common concerns among consumers with hydrogen fuel cell vehicles is whether or not they will explode and just how flammable their gas tanks are.

"We never hesitate to mention the word 'Hindenburg,'" Lindstrom said, referring to the disastrous flight of the LZ 129 Hindenburg blimp in May 1937, which killed more than 30 people in New Jersey.

Lindstrom noted the gas tank on the FCX is a half-inch thick, making it the thickest part of the car and better protected than traditional gas tanks. He acknowledged, however, that "fire is a real danger," as hydrogen tends to burn in a very controlled way, almost with a "torch-like flame."

Touting another alternative fuel source, hybrid technology, Japanese automaker Toyota has led its major competitors since releasing its Prius on U.S. shores with Internet orders beginning in June 2000 and on-sale orders being taken since July 2000.

Bill Reinert, national manager for the Advanced Technology Group at Toyota Motor Sales, USA, told UPI the goal for alternative fuel vehicles is to have the public consider the technologies on an everyday basis.

Reinert said the target market for the Prius had been the early-adopters of alternative sources of fuels, while the Camry hybrid which is set to roll out in 2006, is meant to penetrate the mainstream population.

"Hybrid buyers are remarkably able to educate themselves," Reinert said.

However, it is unclear if this enthusiasm will spill over into the hydrogen fuel cell market.

Reinert asserted there are typically two market-entry strategies for hybrid vehicles: through a fleet program or a retail strategy.

Fleet programs draw praise due to their centralized refueling process, which eliminates the need for massive infrastructure changes in the short run, while also subsidizing the cost of programs by way of fleet leases. However, Reinert cautions there has never been a successful transition from a fleet to retail program due to lack of funding for public implementation.

On the retail front, Reinert told UPI the target market is the upscale consumer class. Those who wish to buy an "aspirational" vehicle are solidly in this market segment.

Realizing the cost constraints of hydrogen technology at this stage of the game, Lindstrom reaffirmed the retail strategy put forth by Toyota.

"It makes sense to think it would be a luxury car of sorts," the Honda manager said in referring to the segment of the car buying population hydrogen fuel cells covets.