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DANIEL HO / SPECIAL TO THE BEAVER

CLEAN EXHAUST: Steam, in place of carbon dioxide, is emitted from the exhaust the Ford Edge with HySeries Drive, a hydrogen-powered fuel cell hybrid electric vehicle..

Hydrogen power has an Edge

■ By Tina Depko

OAKVILLE BEAVER STAFF

As more consumers start demanding green products, Ford is looking to catch the environmental wave.

The company gave the media a sneak peek into its sustainability initiatives with a demonstration of the Ford Edge with HvSeries Drive on Thursday at the local Ford plant. The automaker claims it is the world's first drivable fuel cell hybrid electric vehicle.

The Edge with HySeries Drive is a battery-powered, plug-in hybrid with a fuel cell that operates as an on-board charger.

The vehicle runs in battery-only mode for the first 40 km at speeds up to 136 km/h. When the battery is depleted to approximately 40 per cent, the hydrogenpowered fuel cell auxiliary power unit starts and recharges the battery, giving it an additional 320 km of range.

The hydrogen for the fuel cell is stored under the vehicle in a tank that can hold 4.5 kilograms of the fuel. The vehicle is equipped with both electrical charging ports for the lithium ion battery and a hydrogen fueling port for the tank.

The Edge with HySeries Drive is a zero-emissions vehicle and when the fuel cell is operating, only water vapour is emitted from the exhaust system.

"The water isn't clean enough to drink since it is coming in contact with materials like lithium, but it is a huge step forward compared to today's vehicles," said James Gebbie, a development engineer in fuel cell and hybrid development at Ford in Dearborn, Mich.

The vehicle was built in 100 days in 2006 by a team of scientists in the U.S. It has been highlighted at car shows for the past year, with its Canadian debut in Vancouver in 2007. Thursday's unveiling was only its second appearance in Canada. according to Ford staff. However, officials were tight-lipped about the price of the research vehicle, only revealing that it is worth six figures.

But regardless of budget, those who are itching to get behind the wheel will have to wait

"We're looking at putting a vehicle something like this on the market in about 20 years," said Gebbie.

While the Ford Edge with HySeries Drive won't hit car showrooms any time soon, the company did unveil its environmental plans for the years leading up to 2020. The most recent move towards going green comes in the form of creating cleaner, more fuel-efficient vehicles.

Some of Ford's most popular vehicles, such as light trucks like the F-150 and the Expedition, and cars like the Mustang and Taurus, are listed on the Union of Concerned Scientists' website of the top 10 most expensive vehicles to fuel among popular cars on the road.

"We are applying specific technologies to improve the fuel economy and the emissions of our vehicles, and to do it in an affordable way to ultimately benefit society," said Greg Frenette, chief engineer of fuel cell and advanced hybrid vehicles programs at Ford's international headquarters in Dearborn, Mich. "We are looking at environmental preservation and making a do-no-harm environmental footprint or possibly a beneficial footprint in all aspects of the vehicles and their production.'

EcoBoost technology is one of the first steps Ford is taking to achieve this, with smaller-displacement. turbocharged engines. It is expected that EcoBoost will result in 20 per cent fuel savings and emit up to 15 per cent less carbon dioxide.

The first vehicle with this technology will be the Lincoln MKS, which will be available for purchase in Canada next

The company anticipates implementing its EcoBoost technology in a wide range of vehicles by 2012. The Ford Edge with HySeries Drive is

a vision for what the company hopes to do

by 2020, with hydrogen-fueled vehicles in the market.

Frenette said many aspects of the vehicle need to be tweaked before it is market

"Some elements of the technology on the Edge will show up on showroom floors soon, in particular the lithium ion battery technology," he said. "The hydrogen technology is longer term because it is a technology challenge to make it as durable and reliable as today's internal combustion engine. You've got more than 100 years of development and technology on internal combustion engines, and fuel cells less so, so there's work that needs to be done."

The properties of hydrogen are much different than gasoline, which has been another obstacle for Ford engineers.

"Another challenge is on-board hydrogen storage," said Frenette. "Hydrogen doesn't like to be stored in a compact volume like gasoline, so we end up with this big tank that we have to package a vehicle around and that's a chal-

But technology isn't cheap. Ford engineers say they won't put out a hydrogen fuel cell vehicle until manufacturing costs are significantly reduced.

"At the end of the day, these vehicles have to be fully competitive with the other vehicles on the showroom floor and our direction of our engineers is that they have to be designed and priced so that they are competitive," Frenette said. "We cannot put vehicles in the showroom that are thousands of dollars more than other vehicles, so that is why we're working so hard on hydrogen technology, so we can get the cost down."

As for the availability of hydrogen for these vehicles. Frenette said the company envisions that there will be hydrogen stations similar to today's gas stations.

For information about Ford visit www.ford.ca. For information on the Union of Concerned Scientists, visit www.ucsusa.org.