Transport Canada Transports Canada

ecoTECHNOLOGY for Vehicles
an ecoACTION initiative

Canada

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Test drive the future with eTV

WELCOME TO eTV's *green* WHEELS

Welcome to the Spring edition of *eTV's Green Wheels*, Transport Canada's ecoTECHNOLOGY for Vehicles program quarterly newsletter.

Over the winter months, eTV program staff have been busy showcasing new technologies across the country, testing and evaluating new electric and clean-diesel vehicles, and continuing to develop new partnerships with the automotive industry.

These activities have allowed the eTV program to achieve its objective — to help encourage the introduction of the cleanest vehicle technologies on Canadian roads as soon as possible.

We hope you find the eTV program updates in this newsletter as exciting as we do, and invite you to visit our website at www.tc.gc.ca/eTV to read more about how eTV is kicking the tires on some promising new green technologies!

eTV releases its test results on the Vectrix Personal Electric Vehicle

Vectrix - Fleet Vehicle

In the Fall of 2008, eTV acquired one of North America's first fully-electric open motorcycles from the Vectrix Corporation. eTV engineers wanted to find out how personal electric vehicles, like the Vectrix, perform on Canadian roads.

eTV tested the Vectrix's overall performance (acceleration, braking, handling), and how the batteries operated at different levels of charge. In total, the Vectrix was tested for over 600 kilometres at Transport Canada's test facilities. Preliminary test results are available on eTV's website.

We found that the Vectrix can be a viable option for Canadians who want to drive a two-wheeled electric vehicle and who have a daily commute of 40-60 km on roads with lower speed limits (60 km/h or less).

With an operating cost of less than 2 cents per kilometre, the Vectrix can be an affordable way to reduce your environmental footprint.

Keep an eye on the eTV website for a feature video on personal electric vehicles to be released soon!

eTV partners with Subaru Canada

On January 15, 2009, eTV hosted visitors from Subaru Canada and participated in a technical briefing as well as a ride-and-drive event to learn more about Subaru's Partial Zero Emission Vehicle (PZEV) technology.

Currently available on Subaru's Legacy and Outback models in Canada, a PZEV model will join Subaru's Forester line-up in the spring of 2009. eTV will be among the first to acquire the PZEV Forester for testing and evaluation purposes.

Of particular interest to eTV engineers is how Subaru's PZEV technologies can help reduce vehicle emissions and contribute to a cleaner transportation system. Stay tuned to *Green Wheels* or visit the eTV website to learn more about eTV's test, evaluation and showcasing plans for the Subaru Forester PZEV.

In the auto show limelight – eTV showcases some exciting new technologies

The auto show season is always a busy time for eTV's showcasing team. Within a span of three months, eTV staff attended four major auto shows, showcased several new technologies and informed over 25,000 Canadians about emerging vehicle technologies. Here are some of this season's highlights.

Montreal International Auto Show
(January 16-25)

Over seven days, eTV staff welcomed over 5,000 Canadians to the eTV booth. Visitors were drawn to eTV's new European Volkswagen Polo.

eTV acquired the Polo from Volkswagen in the fall of 2008. This clean-diesel vehicle contains several advanced technologies, including a variable geometry turbocharger, a transmission optimized to reduce fuel consumption and an advanced aerodynamic design that helps reduce fuel consumption.

The European fuel consumption rating for this vehicle is an impressive 3.2 L/100 km (city) and 4.9 L/100 km (highway). Over the coming months, eTV's engineering team will put the Polo through its paces – testing it on the road, the track and on the dynamometer.

eTV's engineers want to evaluate the new generation of clean diesel technologies from Europe – and see how well they measure-up against strict Canadian emissions standards.

Canadian International Auto Show
(February 13-22)

The Canadian International Auto Show in Toronto was particularly exciting this year, because eTV showcased new technologies from two different manufacturers.

Mitsubishi's i MiEV in eTV's booth at CIAS 2009

Mitsubishi Canada

eTV staff showcased the i MiEV, Mitsubishi's all-electric 4-passenger

vehicle. Electric vehicles can help reduce the environmental impacts of transportation. Mitsubishi Motors has built the fully electric i MiEV based on its "i minicar". It will be sold as a full production vehicle in Japan beginning in the fall of 2009. Mitsubishi is currently studying the possibility of producing the vehicle for the North American market.

Ford

Ford Focus Fuel Cell Electric Vehicles (FCEV) were also in eTV's booth, on loan from the Ford Motor Company. This hydrogen-powered vehicle is one of ten Fuel Cell Focus vehicles that are undergoing on-road evaluations in several countries. This vehicle produces only heat and water as byproducts, and has great potential to help reduce the environmental impacts of passenger cars. Be sure to check out eTV's advanced technology article about fuel-cell vehicles.

Ford Focus (FCEV) - Fleet Vehicle

Calgary International Auto and Truck Show
(March 11-15)

eTV's booth featured a GMC Sierra 1500 powered by a hydrogen internal combustion engine. This vehicle is part of the Integrated Waste Hydrogen Utilization Project (IWHUP). Sacré-Davey Innovations is leading this exciting project in the Vancouver area, which captures waste hydrogen from commercial applications and uses it as a fuel-source.

GMC Sierra 1500 Hydrogen Truck

eTV will receive one of the eight converted hydrogen trucks from Sacré-Davey Innovations in April 2009, and will conduct road tests and evaluations in the National Capital Region over the next year. A preliminary tech sheet on this vehicle can be found on the eTV website, along with an article describing the environmental benefits of hydrogen internal combustion engines.

Prius conversion complete

In February 2009, eTV engineers oversaw the conversion of a Plug-in Hybrid Electric Vehicle (PHEV). A123 Systems installed a 5-kWh lithium-ion battery pack into eTV's 2008 Toyota Prius. This battery pack was in addition to the standard Nickel Metal Hydride battery installed in all Toyota Prius models.

The A123 battery pack provides additional electric power and will allow the vehicle to operate on full-electric mode at higher speeds — up to 55 km/h (34 mph) with a range of 50 kilometers on a single charge. While the A123 battery module does not recapture energy from regenerative braking, it can be fully charged from a standard electrical outlet in about 5.5 hours.

eTV engineers are conducting laboratory emissions and fuel consumption testing at various states of battery charge. Early results indicate that the vehicle can reach a fuel consumption of less than 2 L/100 km, or approximately 100 mpg. Of particular interest to eTV is how well a PHEV behaves in Canada's cold winter climate.

Stay tuned for more updates.

Installation of a lithion-ion battery

Parting Thoughts

If you enjoyed this edition of *eTV's Green Wheels*, visit our website regularly for the latest program updates. Watch for upcoming outreach events, an update of eTV's Advanced Technologies pages and a series of videos about the eTV program and the technologies we are evaluating and showcasing.

If you have any questions, comments, or know of an event eTV should attend to showcase advanced technologies, please send an e-mail to eTV@tc.gc.ca.

Until next time,

The ecoTECHNOLOGY for Vehicles Team

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Make sure you never miss an issue of *eTV's Green Wheels* – register to receive the quarterly e-zine version of the newsletter via e-mail. Sign-up today!