



JO-ANN RICHARDS / WORKS PHOTOGRAPHY

Members of the EcoCAR team

The green challenge

UVic ingenuity drives award-winning entry in North American green car competition

By Peigi McGillivray

What cars will we drive in the clean, green future? How can we minimize fuel consumption and reduce emissions while keeping the performance, safety and design that we all want?

These are just a few of the questions students, faculty and staff at the University of Victoria are trying to answer as they compete in an elite North American-wide green vehicle technology competition—EcoCAR: The NeXt Challenge.

Pitting engineering students from 17 North American universities against one another, the three-year competition fosters innovative approaches to designing and building vehicles using leading-edge automotive and electronic technologies.

At the end of the first year of competition, UVic's EcoCAR team won top honours for technical reports, computer modelling, electrical systems and media relations, and placed second overall.

"Student response has been tremendous," says Dr. Zuomin Dong, EcoCAR advisor and chair of mechanical engineering at UVic. "Last year's team included more than 40 students in engineering and computer science. They're all getting real-world, hands-on experience that will enable them to make valuable contributions in tomorrow's automotive industry."

During EcoCAR's first phase, the UVic team used an advanced computer modelling system to develop a new, highly efficient, hybrid power train. "We've designed it, modelled it and tested the model, now all we have to do is make it real," says team leader and engineering graduate student Jeremy Wise.

To do that, the team will modify and manufacture all the required components and re-engineer the power train of a 2009 Saturn Vue donated by General Motors.

"We're transforming it into an energy-efficient, low-emission, four-wheel drive, extended-range hybrid vehicle that can travel up to 60 km on electric power alone," says Wise.

"We have to make sure each component in the drive train works perfectly," says Dong. "The competition also requires us to maintain the car's consumer appeal. It has to be a car that people would want to drive."

UVic's participation in the challenge builds on 10 years of successful fuel cell and hybrid vehicle research. This includes the development of advanced modelling tools to understand multiple-mode power trains, an electric and fuel cell testing platform, and a green vehicle research and training facility that will draw researchers from across the continent.

"With Canada's abundantly available clean hydro power, it makes sense for us to explore the possibilities of plug-in hybrid electric vehicles and extended range electric vehicles," says Dong. "UVic is building the facilities we need to provide global leadership in this growing field. Our EcoCAR team is showing the world just how far we can go—and how little carbon it will take to get us there."

EDGEwise

Judging of the second phase of the EcoCAR competition takes place this summer. In the third and final phase, the teams must refine their vehicle to near-showroom quality.

UVic is one of only three Canadian teams in the competition. The others are the University of Ontario Institute of Technology and the University of Waterloo, both in Ontario.

EcoCAR teams explore a variety of solutions, including electric, hybrid, plug-in hybrid and fuel cell technology. They are also incorporating lightweight materials, improving aerodynamics and using alternative fuels such as ethanol, hydrogen and biodiesel.

For more information on UVic's EcoCAR team visit <http://ecocar.uvic.ca>.

UVic researchers were awarded more than \$104 million in outside research grants and contracts in 2008/09—more than double the research support of five years ago.



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