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## U.S. DOE AND GM ECOCAR CHALLENGE INSPIRES STUDENTS TO DEVELOP ALTERNATIVE ENERGY SOLUTIONS THROUGH REAL-WORLD COLLEGIATE ENGINEERING COMPETITION

### *Project Explores Vehicle Technologies from California Air Resources Board (CARB) Zero Emissions Vehicle (ZEV) Requirements*

**Los Angeles** – *EcoCAR: The NeXt Challenge* is a new national collegiate competition series kicking off in the Fall of 2008. Sponsored by the U.S. Department of Energy and General Motors (GM) as well as Natural Resources Canada and others, EcoCAR will challenge university engineering students across North America to re-engineer a GM vehicle to achieve improved fuel economy and reduced emissions, while retaining the vehicle's performance and consumer appeal.

Students will design and build advanced propulsion solutions that are based on the vehicle categories from the California Air Resources Board (CARB) zero emissions vehicle (ZEV) regulations. Students will be encouraged to explore a variety of solutions including electric, hybrid, plug-in hybrid and fuel cells. In addition, they will incorporate lightweight materials, improve aerodynamics and utilize alternative fuels such as ethanol, biodiesel and hydrogen.

*EcoCAR: The NeXt Challenge* follows the successful student engineering competition, "Challenge X: Crossover to Sustainable Mobility," also sponsored by GM and the U.S. Department of Energy, along with other government, automotive and technology industry partners. The Challenge X student engineering competition, which began in 2004 and concludes in May 2008, includes 17 North American universities, which have re-engineered a Chevrolet Equinox with alternative propulsion systems to improve fuel economy and reduce petroleum use and greenhouse gas emissions.

EcoCAR will launch in the 2008-2009 academic year as a three-year program with General Motors providing production vehicles and parts, seed money, technical mentoring and operational support. The U.S. Department of Energy and its research and development facility, Argonne National Laboratory, will provide competition management, team evaluation and technical and logistical support. Through sponsoring such advanced vehicle engineering competitions, GM and the U.S. Department of Energy are developing the next generation of scientists and engineers.

"EcoCAR is a reflection of GM's philosophy that there is no single silver bullet that will solve the world's energy challenges," said Tom Stephens, group vice president of GM Global GM Powertrain and Quality. "Our approach is based on energy diversity and customer choice, using advanced propulsion technologies that play a significant role in displacing large amounts of petroleum and reducing greenhouse gas emissions."



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“This competition focuses on advanced technology that promotes energy security and economic growth,” said Ed Wall, manager of the Vehicle Technologies Program, Office of Energy Efficiency and Renewable Energy at the U.S. Department of Energy. “*EcoCAR* demonstrates how government, industry and academia are working together to develop creative approaches and solutions to decreasing energy consumption and greenhouse gas emissions in some of America’s most popular vehicles.”

In the first year teams develop their vehicle designs through the use of GM’s Global Vehicle Development Process – the modeling simulation process currently used to develop all of GM’s vehicles. Sophisticated hardware in the loop (HIL) and software in the loop (SIL) systems will be designed, and teams challenged to model and engineer the subsystems into their design.

During Years Two and Three, students will build the vehicle and continue to refine, test, and improve vehicle operation. At the end of Years Two and Three, the re-engineered student vehicle prototypes will compete in a week-long competition of engineering tests. These tests will be similar to the tests GM conducts to determine a prototype’s readiness for production. The Greenhouse gas, Regulated Emissions, and Energy in Transportation (GREET) model, developed at Argonne National Laboratory, will be used to assess a well-to-wheel analysis of the greenhouse gas impacts of each technology approach the teams select.

“Our Government is proud to support the *EcoCAR* competition, and I look forward to the exciting innovations that will come out of the hard work of the students,” said the Honourable Gary Lunn, Minister of Natural Resources. “Reducing greenhouse gas emissions through clean energy technology is a priority in Canada.”

A selection process open to all accredited engineering schools in the U.S., Canada and Mexico will begin December 3, 2007, and approximately 16 teams will be selected in April 2008 for the competition.

GM, the U.S. Department of Energy and Natural Resources Canada are major sponsors for *EcoCAR: The NeXt Challenge*. Additional information about EcoCar and the Challenge X program is available on the Web at <http://www.challengex.org> and photography is available at <http://www.digitalrailroad.net/challengex>

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