March 9, 2012

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PURDUE UNIVERSITY ECOCAR 2 ANNOUNCES PLUG-IN HYBRID ARCHITECTURE

$16 million in Software, Hardware and Cash Donations from Sponsors to Build Highly-Efficient Vehicle

Participating Schools

California State, Los Angeles
Colorado State University
Embry-Riddle Aeronautical University
Mississippi State University
North Carolina State University
The Ohio State University
Purdue University
Pennsylvania State University
Rose-Hulman Institute of Technology
University of Tennessee, Knoxville
University of Victoria
University of Washington
University of Waterloo
Virginia Tech
Wayne State University

West Lafayette, IN. (February 20, 2012) – Purdue University, one of the 15 North American universities participating in *EcoCAR 2: Plugging In to the Future* has elected to implement a Parallel through the Road, Plug-in Hybrid architecture in its General Motors-donated 2013 Chevrolet Malibu. The three-year EcoCAR 2 competition, which is sponsored by the U.S. Department of Energy, Argonne National Laboratory and General Motors and 20 other government and industry leaders, gives students the opportunity to gain real world eco-friendly automotive engineering experience while striving to further improve the energy-efficiency of an already highly-efficient vehicle – the Malibu. But teams don't get to stop there. Much like the challenges facing automakers, EcoCAR engineering students must balance the challenge of increasing the vehicle's energy efficiency and reducing the vehicle's greenhouse gas emissions and petroleum consumption with maintaining the performance, safety and overall consumer acceptability of the original Malibu.

To meet these technical challenges, each EcoCAR team designed their own unique Plug-In Hybrid Electric Vehicle (PHEV) architecture and utilized a crowd-sourcing format to select the powertrain components that they will integrate into their advanced technology vehicles over the three-year program. This technique mimics industry's global vehicle development process which has its eyes set on advanced controls and software to develop future vehicles. Hybrid vehicles on the road today already reach peak efficiency, so Purdue University must aim to get every last drop of energy possible out of the vehicle. This hands-on experience is made possible by the sponsor contributions that exceed $16 million in software, hardware and cash donations to the team, and more than $745 million to the 15 teams combined.

Parallel through the Road (PTTR) Plug-in Hybrid vehicles utilize electrical energy to power an electric motor on one axle, while an engine drives another axle. Optimizing the use of the engine and electric motor and recovery of braking energy will reduce the overall fuel consumption by the vehicle and the greenhouse gas emissions.

Purdue's Parallel though the Road architecture is a PHEV which uses an on-board battery to reduce fuel use. The battery can be recharged using a standard wall outlet. Once the plug-in range of the battery is depleted the vehicle can still operate as a regular hybrid. Purdue will use B20 fuel to extend the range of the vehicles. B20 is a blend of 20% biodiesel and 80% petroleum diesel.

"For this competition, we wanted to donate a vehicle that reflected today's consumers' needs, and the new 2013 Malibu made the most sense in terms of its size and flexibility," said Kent Helfrich, executive director, electronic controls and software engineering, of General Motors. "EcoCAR2 students will take our Malibu and re-engineer their vehicle to reduce its environmental impact, yet still deliver real-life, practical results. This is not an easy job, but it's very rewarding. It's what we do at GM every day."

"The future in hybrid technology is happening now," said Patrick Davis, program manager of DOE's Vehicle Technologies Program. "It used to be that we were on the edge of this type of technology - now we are there and these students are attempting to take it even further."

The first year of EcoCAR 2 emphasizes the use of math-based design tools and simulation techniques for designing a successful vehicle foundation. Each team will receive a 2013 Malibu at the end of the first year of competition in May, 2012. In years two and three, students will rebuild the vehicle based on their new architecture and continue to refine, test and improve the vehicle's operation.

Additional information about EcoCAR 2 is available on the competition website and blog, Flickr stream, Facebook page and Twitter stream. The sponsors contributing to the $745 million in donations includes: U.S. Department of Energy; General Motors; Natural Resources Canada; MathWorks; California Air Resources Board; Clean Cities; dSPACE, Inc.; A123 Systems, Inc.; Freescale; AVL Powertrain Engineering, Inc.; National Science Foundation; ETAS; Snap-On Tools; Magna E-Car Systems; Magna Powertrain; Robert Bosch, LLC; FleetCarma; Siemens PLM Software; CD-adapco; Ventor CANtech, Inc.; Woodward; Caterpillar.

About EcoCAR 2: Plugging In to the Future

EcoCAR 2: Plugging In to the Future is a three-year collegiate engineering program that builds on the successful 24-year history of DOE advanced vehicle technology competitions by giving engineering students the chance to design and build advanced vehicles that demonstrate leading-edge, eco-friendly automotive technologies. General Motors provides each of the 15 competing teams with a 2013 Chevrolet Malibu, as well as vehicle components, seed money, technical mentoring and operational support. The U.S. Department of Energy and its research and development facility, Argonne National Laboratory, provide competition management, team evaluation and logistical support. Through this important public/private partnership, EcoCAR 2 provides invaluable experience and training to promising young minds entering the North American job market. EcoCAR 2 follows the widely acclaimed competition series EcoCAR: The NeXt Challenge.

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