

Argonne helps American Le Mans Series go for the green

A new environmentally conscious international sports-car racing event has just been given the green flag.

As it celebrates its 10th season of world-class sports car racing, the American Le Mans Series' (ALMS) debuted its Green Challenge with assistance from the U.S. Department of Energy (DOE), DOE's Argonne National Laboratory, the U.S. Environmental Protection Agency (EPA) and the Society of Automotive Engineers (SAE) International.

The inaugural Green Challenge took place at this year's Petit Le Mans race, American Le Mans' signature event, on Oct. 4 in Atlanta. Fourteen different manufacturers were represented by the competing cars, which were grouped into four classes and used combinations of three different renewable fuels and electricity.

This historic competition used more than just speed to determine the winners, a Porsche RS Spyder in the Prototype class and a Chevrolet Corvette in the Grand Touring class. In the race itself, the Porsche finished third in its class and sixth overall while the Corvette finished first in its class and tenth overall. Even though the Corvette did not win the race, Tom Wallace, General Motors Global Vehicle Chief Engineer for Performance Vehicles, called the Green Challenge "Corvette Racing's greatest victory."

The Green Challenge recognized innovations in science, technology and engineering by measuring the energy efficiency, petroleum displacement and greenhouse-gas emissions of each car during the 1,000-mile race.

"The U.S. Department of Energy and Argonne National Laboratory are pleased to join the U.S. Environmental Protection Agency and SAE in awarding the first ever Green Racing Challenge Championship Award in partnership with the American Le Mans Series," said Bob Larsen of Argonne's Transportation Technology R&D Center. "Green Racing and our partnership represent a tremendous opportunity to demonstrate that efficient automotive technologies can meet the performance requirements of even the most demanding customers."

Larsen led the effort by SAE's Green Racing Working Group and ALMS to develop the technical basis of the Green Challenge and the formula to determine the



A General Motors Chevrolet Corvette (bottom) and a Porsche RS Spyder (top) were the two winners of the Green Challenge at Road Atlanta on October 4, 2008. Photo courtesy of ALMS.

Argonne's transportation research is sponsored by DOE's Office of Energy Efficiency and Renewable Energy's Vehicle Technologies Program, which supports the development of more energy efficient and environmentally friendly transportation technology that will enable America to use less petroleum.

winner. The result is a scoring system that ranks cars according to the amount of energy used, greenhouse gases emitted and petroleum consumed, setting a new standard for measuring environmental impacts and introducing a new dimension to motorsports racing.

Calculations for the formula include a distance- and speed-compensated energy-efficiency component and a well-to-wheel analysis that accounts for all the greenhouse-gas emissions and petroleum energy required to extract, refine and use the various fuels. Race organizers calculate a principal component of each car's score by using Argonne's Greenhouse gas, Regulated Emissions, and Energy use in Transportation (GREET) model to accurately compare the environmental performance of each car.

The group also relied on Argonne's extensive experience in organizing and executing vehicle competitions. For more than 20 years, Argonne has been running collegiate competitions focused on developing and demonstrating advanced propulsion technologies and renewable fuels. Many of the innovations in today's vehicles sprouted from similar competitions that test and refine advanced technologies developed in the laboratory.

"The challenging conditions in ALMS' endurance races, which can last up to 12 hours, put new technologies to the test in the real world to prove their effectiveness," said Larsen. "The Green Challenge provides an outstanding opportunity to demonstrate green technologies and fuels that will soon appear in the vehicles that people will drive everyday."

Spectators at the race also said the Green Challenge encouraged innovations that could help to alleviate America's energy crisis. "If they can transfer that technology to the general public, it's something we can all benefit from," said Mark Register of Jacksonville, Fla.

The Green Challenge will become a full-season feature in 2009, when all teams will compete for a season-long Green Challenge Championship sponsored by DOE, EPA, and SAE International. — *By Else Tennesen and Eleanor Taylor*



The GM racing team of Chevrolet Corvette C6Rs has switched to cellulosic E85 as their fuel for the 2008 American Le Mans Series' (ALMS) 11-race season. The fuel pump shows the three fuels used in the 2008 ALMS: E10 (corn ethanol), E85 (cellulosic ethanol), and Shell racing diesel, an ultra-clean diesel fuel that uses gas-to-liquids components to boost cetane and reduce petroleum use. From left to right are Reese Nanfito, Senior Director of Marketing, Ethanol Promotion and Information Council; Tom Slunecka, Business Development Manager, KL Process Design Group (supplier of the cellulosic ethanol); Doug Fehan, Program Manager, GM Racing; and Scott Atherton, President/CEO, ALMS. Photo courtesy of GM.

Links

Argonne's Transportation Technology R&D Center:
www.transportation.anl.gov
American Le Mans Series:
www.americanlemans.com
Environmental Protection Agency:
www.epa.gov
Society of Automotive Engineers International:
www.sae.org

For more information, please contact:

Angela Hardin
Phone: 630-252-5501

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