



MEDIA ADVISORY

For Release: May 17, 1999

For more information

Contact: Angela Graf

Bryan & Bryan Inc.

(719) 942-4353

ETHANOL VEHICLE CHALLENGE KICKS OFF THIS WEEK

Milford, Michigan - After nine months of preparation, over 200 engineering students from 14 top North American automotive engineering colleges and universities are headed for the General Motors Proving Ground in Milford, Michigan. Student teams are competing in the 1999 Ethanol Vehicle Challenge, a program to advance automotive technology using fuel ethanol. The challenge is to optimize stock Chevrolet Silverado 4x4 pickup trucks to run on E85, an 85% ethanol/15% gasoline blend.

This is the second year the schools have participated in the Ethanol Vehicle Challenge (EVC), sponsored by the U.S. Department of Energy, General Motors, and Natural Resources Canada. In 1998, Chevrolet Malibys were used for the EVC program. Students successfully reduced harmful tailpipe emissions, improved fuel economy and enhanced the performance of a conventional gasoline-powered automobile by modifying the engine to run specifically on E85.

Students have adapted, refined, and expanded upon technology developed from last year's competition and applied it to a new challenge, the Silverado pickup truck. Teams will be tested this week on their conversion strategy to the Silverado's engine, emissions control, engine performance, acceleration, fuel economy, engine cold-start, and driveability.

Following the judging events, teams will embark upon a 600-mile road rally through the Midwest to demonstrate the capabilities of the vehicles. Competition winners will be announced at the Awards Ceremony on May 26 in Springfield, Illinois, the final motorcade stop.

Participating Schools

Cedarville College
Crowder College
Idaho State University
Illinois Institute of Technology
Minnesota State University
Kettering University
University of California-Riverside
University of Illinois-Chicago
University of Kansas
University of Nebraska-Lincoln
University of Texas at Austin
University of Texas at El Paso
University of Waterloo
Wayne State University

Cedarville, Ohio
Neosho, Missouri
Pocatello, Idaho
Chicago, Illinois
Mankato, Minnesota
Flint, Michigan
Riverside, California
Chicago, Illinois
Lawrence, Kansas
Lincoln, Nebraska
Austin, Texas
El Paso, Texas
Waterloo, Ontario
Detroit, Michigan

Headline Sponsors:

United States Department of Energy
General Motors Corporation
Natural Resources Canada

Sponsors:

Illinois Department of Commerce
and Community Affairs
State of Nebraska
Council of Great Lakes Governors
Renewable Fuels Association
Illinois Corn Marketing Board

Supporters:

Governors' Ethanol Coalition
National Corn Growers Association
Canadian Renewable Fuels
Association
Williams Ethanol
Delphi Automotive and
Energy Systems

Competition Administrator:

Center for Transportation Research,
Argonne National Laboratory

Participating Schools:

Cedarville College, Ohio
Crowder College, Missouri
Kettering University, Michigan
Idaho State University
Illinois Institute of Technology
Minnesota State University
University of California, Riverside
University of Illinois at Chicago
University of Kansas
University of Nebraska-Lincoln
University of Texas at Austin
University of Texas at El Paso
University of Waterloo, Ontario
Wayne State University, Michigan

- Competition Events and Road Rally Schedule on Next Page -



**U.S. Department
of Energy**



General Motors



**Natural Resources
Canada**

SCHEDULE OF COMPETITION EVENTS AT THE GM PROVING GROUND, MILFORD, MI

Thur, May 20	7:30-1:00 pm	Vehicle Appearance Judging & Engineering Design Judging
	12:00-3:00 pm	Media Event (Interviews and Photo-Op's) & Opening Ceremony
	3:00-5:00 pm	Engineering Design Judging continued
	5:30-8:00 pm	Soak Cold Start & Emissions Testing Preparations
Fri, May 21	6:30-4:00 pm	Emissions Testing
	7:00-4:00 pm	Noise Testing & Cold-Start/Driveability Testing
	9:00-5:00 pm	Oral Presentation Judging
	9:00-4:00 pm	GM Career Fair
Sat, May 22	6:00-5:00 pm	Emissions Testing
	8:00-5:00 pm	Noise Testing & Cold-Start Testing
	7:00-4:00 pm	Driveability Testing
	6:00-8:00 pm	Acceleration Testing
Sun, May 23	6:30-11:00 am	On-Road Fuel Economy Testing
	12:00-3:00 pm	Off-Road Handling Testing
	3:30-7:00 pm	Hill Climb Testing

ROAD RALLY SCHEDULE

Mon, May 24	Stop 1-	Lansing, Michigan, State Capitol Building
	8:45-9:15 am	Press Conference with Lt. Governor Dick Posthumus and Competition Vehicle Display
	Stop 2-	Fort Wayne, Indiana, GM Truck Assembly Plant
	3:00-4:30 pm	Press Conference with General Motors and U.S. Department of Energy Officials. Afterwards, students will tour the assembly plant and meet with GM employees. Photo opportunities and "ride-n-drives" available for media.
Tues, May 25	Stop 3-	Indianapolis, Indiana, State Capitol Building/Government Center
	9:50-10:30 am	Press Conference with Assistant Commissioner of Agriculture Joe Pearson and Competition Vehicle Display.
	Stop 4-	Pekin, Illinois, Williams Ethanol Plant
	4:00-8:00 pm	Teams will tour the ethanol plant and refuel with E85, followed by an evening celebration.
Wed, May 26	Media "Ride and Drive" from Peoria to Springfield, Illinois - Any media person wishing to ride with the team(s) from your state, please contact Angela Graf, EVC Publicity Coordinator, immediately at 313-220-1877 or 630-816-5465.	
	Stop 5-	Springfield, State Fairgrounds, Illinois Building
	11:15-11:30am	Press Conference with Governor George Ryan, General Motors and U.S. Department of Energy Officials
	11:45-3:00 pm	Awards Banquet with Orion Samuelson, WGN Chicago, as Master of Ceremonies

- more -

Ethanol is a domestic fuel made primarily from corn and other grains, but also waste materials from the food and beverage processing industries. Today, nearly 2 billion gallons of ethanol are produced annually in the United States and Canada.

The Ethanol Vehicle Challenge is sponsored by the U.S. Department of Energy, General Motors Corporation, Natural Resources Canada, State of Nebraska, Illinois Department of Commerce and Community Affairs, Council of Great Lakes Governors, Renewable Fuels Association, Illinois Corn Marketing Board, Governors' Ethanol Coalition, Williams Ethanol, and the Canadian Renewable Fuels Association and administered by Argonne National Laboratory.

- 30 -

Editors Note: To make arrangements for interviews during the competition, please contact Angela Graf, EVC Publicity Coordinator, at 313-220-1877 from May 19-23 or 630-816-5465 from May 24-26.



The Ethanol Vehicle Challenge Program

Q: What is the Ethanol Vehicle Challenge Program?

A: The Ethanol Vehicle Challenge (EVC) is a student vehicle competition involving more than 200 participants from 14 of the top U.S. and Canadian engineering schools that work together to design, build and optimize state-of-the-art vehicles that operate on E-85 (a blend of 85% denatured ethanol and 15% gasoline-like primer).

Q: When did the program begin?

A: The two-year program began in 1998 when students converted the award-winning Chevrolet Malibu sedan to E-85, with the goal of reducing emissions, improving fuel efficiency and improving cold start ability.

Q: Where did the '98 competition take place?

A: Each of the 14 teams received their Malibu in September, 1998. Eight months later teams traveled to General Motors Proving Grounds in Milford, MI for five days of intense vehicle testing and evaluation. Events included safety inspections, noise testing, handling and driveability events, emissions, cold-start and fuel efficiency. Teams are also received points for a written design report and an oral presentation.

The competition culminated in a 300+ mile road rally to Washington, D.C. Every vehicle, except one, made the two-day trip from Milford to Washington on E-85 fuel. In Washington, students participated in several high-profile events including a finish line ceremony at the U.S. Department of Energy headquarters, a parade through downtown Washington hosted by the Clean Cities Program and a vehicle display for the media with U.S. Representatives and Congressmen in front of the U.S. Capitol.

Q: What results came from the 1998 competition?

A: The results of the 1998 competition were impressive:

- Eight of the 12 competing vehicles had **fuel efficiencies** better than the stock Malibu: four vehicles achieved efficiencies as much as 40% higher. These results highlighted the mileage improvements that could be made through optimization.
- Vehicles achieved the same **range** on one tank of ethanol as the stock Malibu achieved on one tank of gasoline, even though the energy content of E-85 is considerably less.
- Of the twelve vehicles that competed in the **emissions** testing, eight met Federal Tier I emissions standards, while several schools, including the First Place

Emissions winner, the University of Waterloo, came close to meeting Low Emission Vehicle emission standards.

- The teams also demonstrated that **cold start** problems, due to the lower vaporization of E-85 fuel, could be overcome. The best E-85 vehicles in the challenge had the same starting time as the stock Malibu. Some of the innovative cold-start technologies included an on-board distillation system, glow-plug ignited fuel system, electric supercharger, quick-heat intake manifold, and a liquid-heated fuel injector rail.

Q: Who were the winners of the 1998 EVC?

A: Winners were announced at the awards ceremony held in the Cannon Caucus Room on Capitol Hill and featured Congressman John D. Dingell, Congressman Kenny Hulshof and Governor Ben Nelson as guest speakers. Each winner received a trophy and a cash award, and the best oral presentation was presented at the 1998 Clean Cities Conference in Washington, D.C.

First Place	Wayne State University (Detroit, MI)
Second Place	University of Waterloo (Canada)
Third Place	University of IL – Chicago
Fourth Place	University of CA – Riverside
Fifth Place	Cedarville College (Cedarville, OH)
Best Engine-Out Emissions	Kettering University (Detroit, MI)
Most Innovative Component	Idaho State University
Best Vehicle Appearance	University of NE – Lincoln
Best Handling	Mankato State University

Other participating teams included, Crowder College (Neosho, MO), Illinois Institute of Technology, University of Kansas, University of Texas at Austin and University of Texas at El Paso.

Q: What about the 1999 Ethanol Vehicle Challenge?

A: General Motors Corporation will sponsor the second year of the Ethanol Vehicle Challenge program and the competition will be hosted at the Milford Proving Grounds in Milford, MI. Each of the 14 teams will also return, although many new students will be participating.

The 1999 EVC, however, will be significantly different from last year's competition. General Motors has donated a 1999 4-wheel drive Chevrolet Silverado truck with a 5.3 liter, Generation III V-8 engine to each team. GM also provided a separate developmental engine, diagnostic reading equipment and a new controller that will allow the students to more completely reprogram the engine. This will provide an opportunity to see more significant improvements in the emissions over a stock vehicle.

Q: Who are the participating schools?

A:	Cedarville College	Cedarville, Ohio
	Crowder College	Neosho, Missouri
	Idaho State University	Pocatello, Idaho
	Illinois Institute of Technology	Chicago, Illinois
	Minnesota State University	Mankato, Minnesota
	Kettering University	Flint, Michigan
	University of California-Riverside	Riverside, California
	University of Illinois-Chicago	Chicago, Illinois
	University of Kansas	Lawrence, Kansas
	University of Nebraska-Lincoln	Lincoln, Nebraska
	University of Texas at Austin	Austin, Texas
	University of Texas at El Paso	El Paso, Texas
	University of Waterloo	Waterloo, Ontario
	Wayne State University	Detroit, Michigan

Q: Who are the sponsors of the Ethanol Vehicle Challenge Program?

A: In 1998, the EVC was sponsored and organized by U.S. Department of Energy, General Motors Company and Natural Resources Canada. Other sponsors included the Illinois Dept. of Commerce and Community Affairs, Council of Great Lakes Governors, Illinois Corn Growers Association, Governors' Ethanol Coalition, Renewable Fuels Association, Canadian Renewable Fuels Association and Williams Energy Company. This year, all of our '98 sponsors have returned, along with the State of Nebraska.

Q: What are some of the greatest achievements of the Ethanol Vehicle Challenge Program?

A: The EVC was successful in developing and demonstrating new technology as well as promoting the viability of clean-burning, domestically-produced and renewable ethanol fuel. Additionally, the program provides a rare and unique opportunity for students to gain real-world experience as they use creative, innovative thinking to help solve real engineering problems and make complex decisions as a team. As a result, 64% of the graduating Seniors who participated in the Ethanol Vehicle Challenge, accepted jobs in the automotive industry. The unparalleled experience that these students gain working directly with automotive leaders from government, academia and industry will provide a wealth of knowledge that they will take with them throughout their careers.



Headline Sponsors:

United States Department of Energy
General Motors Corporation
Natural Resources Canada

Sponsors:

Illinois Department of Commerce
and Community Affairs
State of Nebraska
Council of Great Lakes Governors
Renewable Fuels Association
Illinois Corn Marketing Board

Supporters:

Governors' Ethanol Coalition
National Corn Growers Association
Canadian Renewable Fuels
Association
Williams Ethanol
Delphi Automotive and
Energy Systems

Competition Administrator:

Center for Transportation Research,
Argonne National Laboratory

Participating Schools:

Cedarville College, Ohio
Crowder College, Missouri
Kettering University, Michigan
Idaho State University
Illinois Institute of Technology
Minnesota State University
University of California, Riverside
University of Illinois at Chicago
University of Kansas
University of Nebraska-Lincoln
University of Texas at Austin
University of Texas at El Paso
University of Waterloo, Ontario
Wayne State University, Michigan

FUTURE AUTOMOTIVE ENGINEERS FROM 14 UNIVERSITIES CONVERGE ON DETROIT FOR ETHANOL VEHICLE CHALLENGE

While car fans everywhere will turn to the Indy 500 later this month, the eyes of many of America's top automotive engineers will be focused on an altogether different kind of competition.

That's when an elite group of college students converge this Thursday at General Motors' (GM) Proving Ground in Milford, Mich., with something big to prove: that the four-wheel-drive 1999 Chevy Silverado pickup trucks they re-engineered to run on ethanol fuel not only can perform as well as their gas-powered counterparts, but also can stand up to the rigors of a five-day test at one of the world's most sophisticated automotive testing centers.

The 200 students — representing 14 of the top U.S. and Canadian engineering colleges and universities — as large as the University of Nebraska and as small as Ohio's Cedarville College — will come together outside Detroit May 19 to compete in the 1999 Ethanol Vehicle Challenge, a college-level automotive engineering competition sponsored by U.S. Department of Energy (DOE), GM, Natural Resources Canada and others.

At stake for these students is more than \$21,000 in prizes, a chance to demonstrate both their engineering ingenuity and the technologies they've developed to future employers, and bragging rights across North America.

-more-



U.S. Department
of Energy



General Motors



Natural Resources
Canada

The Challenge tests the student designs for converting Chevy trucks with 5.3L, V-8, Gen. III gasoline-powered engines to vehicles that run on E85 (a blend of 85 percent denatured ethanol and 15 percent gasoline primer). Ethanol, a domestic renewable fuel generally made from sugars from corn starches, is one of several alternative fuels endorsed by both DOE and Detroit as a cleaner-burning, renewable alternative to gasoline and diesel fuel.

"These student efforts are paving the way for ethanol to fulfill its potential to reduce foreign-oil dependence, pollution and global warming. Beyond the technology these students may develop, however, sponsorship of these competitions goes a long way toward developing engineers of the future — and that benefit cannot be overemphasized," said Shelley Launey, DOE Director of Clean Cities.

Opportunity to 'Dream up' and Demonstrate

Now in its second year, the Ethanol Vehicle Challenge is one of several college automotive engineering competitions sponsored by the U.S. DOE and America's automakers. The competitions challenge student teams to design advanced automotive technologies, but also offer aspiring engineers a rare opportunity to 'dream up' and demonstrate solutions to real-world problems. Indeed many of the student competitors are eventually hired by the automakers; 65 percent of last year's 200 Ethanol Vehicle Challenge graduates were offered jobs in the auto industry.

-more-

The benefits of the competition go far beyond the classroom, however. Both the DOE and GM — along with 11 other sponsors and supporters — are able to use the information gathered during the vehicle competitions to bring cutting-edge results closer to the consumer's driveway. In 1998, for example, GM tested the ethanol-power vehicles to validate a new diagnostic instrument that could one day reduce emissions testing costs for alcohol-fueled vehicles.

"GM intends to learn from the experiences of the participating schools about ethanol vehicle technology," said Ed Koerner, Executive Director of powertrain, chassis, HVAC and cooling systems. "Our plan is to transfer that knowledge to our alternate fuels programs as quickly as possible."

The students' work began last November when each team took possession of a 1999 Chevy Silverado 4x4 pickup donated by the GM Truck Group. Next week, the teams travel to Detroit for the final evaluation of their vehicles. The Challenge includes five days of intense vehicle and student testing at GM's Milford, Mich., Proving Ground, followed by a two-day, 600-mile "victory tour."

The competition, conducted May 19-23, includes technical reports and oral presentations by the students, as well as a series of performance tests for the trucks.

Once the contest is complete, the teams and their ethanol-powered trucks will form a motorcade and, from May 24-26, travel more than 600 miles to test the reliability of the converted trucks. Scheduled stops include the State Capitol Building in Lansing, Mich., the GM assembly plant in Ft. Wayne, Ind., the State Capitol Building in Indianapolis, Ind. and the Williams Ethanol plant in Peoria, Ill. The motorcade ends at the Illinois State Fairgrounds in Springfield, where the winners will be named May 26.

-more-

Developing Engineers of the Future

Awards will be made for first through fifth place in overall performance, plus categories such as most appealing vehicle, lowest emissions and best fuel economy.

While the competition begins on Wednesday, May 19, opening ceremonies for the Challenge are scheduled for 1 p.m. (EDT) Thursday, May 20, at the Milford Proving Ground. Speakers include Richard Moorer, associate deputy assistant secretary for transportation technologies, DOE; Ian McEwan, director of engineering, quality and product assurance, GM Proving Ground, and Tom Stephens, GM Vice President and Group Director, Truck Group.

Other sponsors include: Illinois Department of Commerce and Community Affairs, State of Nebraska, Council of Great Lakes Governors, Renewable Fuels Association, the Illinois Corn Marketing Board, Governors' Ethanol Coalition, National Corn Growers Association, Canadian Renewable Fuels Association, Williams Ethanol, GROWMARK, Delphi Automotive and Energy Systems.

#

Editor's note: For more information, please call Mack Reynolds (ex. 105) or Kip Beasley (ex. 106) at The Reynolds Communications Group, 847/581-9363.

Ethanol Vehicle Challenge:

Events

Overall Engineering Design	Overall design and execution of the vehicle conversion, including fuel delivery and induction, emissions control and performance.
Emissions	EPA's Standard Federal Test Procedure and Highway Fuel Economy Test are conducted (measures, oxides of Nitrogen, Hydrocarbons and Carbon Monoxide)
Cold start	How quickly the truck starts after spending eight hours in sub-freezing temperatures.
Driveability	How well the engine responds after warming up.
Acceleration	How quickly the truck accelerates from a standing start over a quarter mile.
Noise	The amount of noise the vehicle makes while traveling at approximately 37 mph.
On-road fuel economy	Under controlled conditions, how far the truck, loaded with 1,000 lbs. of sand, can travel before it runs out of fuel.
Hill climb	How quickly the truck can pull a 7,000 lb. ballast trailer up a constant 7 percent grade.
Off-road event	How well the truck maneuvers, accelerates and brakes on a gravel road.

Ethanol Vehicle Challenge:

Participating Schools

Schools competing in the 1999 Ethanol Vehicle Challenge include:

- Cedarville College (Cedarville, Ohio),
- Crowder College (Neosho, Mo.),
- Idaho State University (Pocatello, Idaho),
- Illinois Institute of Technology (Chicago),
- Kettering University (Flint, Mich.),
- Minnesota State University (Mankato, Minn.),
- University of California at Riverside
- University of Illinois at Chicago
- University of Kansas at Lawrence
- University of Nebraska at Lincoln
- University of Texas at Austin
- University of Texas at El Paso
- University of Waterloo (Waterloo, Ontario, Canada)
- Wayne State University (Detroit)

###