1999 Ethanol Vehicle Challenge Results

Great Competitors

GM says Let's Do it Again in 2000!

As a team, we learned what works and what doesn't.

The energy, enthusiasm, and innovation targeted at these trucks amazes us!!!

A stunningly successful year!

GM Signs on for 2000

After a second successful year of the student Ethanol Vehicle Challenge, General Motors Corporation has already committed to sponsor next year's competition. GM Canada will provide public relations support and GM will again provide technical support for next year's Challenge, scheduled to take place in Canada. Says Mark Maher, GM Truck Group lead technical contact and recipient of this year's Ethanol Vehicle Challenge Hero Award, "The level of refinement of the vehicles was extremely high this year. The students demonstrated a nice mix of approaches for air induction, emissions control, and catalytic conversion. We got more than we expected."

The competition was a success in other, less-tangible ways. Jerry Barnes, another of GM's key technical contacts for this year's Challenge, was impressed by the spirit of cooperation displayed during the competition. "Of course, it's a competition. The teams are out to win, but the students are always willing to lend a hand, a tool, or an extra part to help each other out."

The competition offers a variety of benefits to GM and to the other sponsors. Says Maher, "The Challenge provides an opportunity to get involved with the schools, see the approaches the students have taken to this engineering challenge, and get some exposure in the community. The students themselves are the greatest benefit...we're looking forward to next year."

U.S. DEPARTMENT OF ENERGY BACKS A WINNER

The U.S. Department of Energy (DOE) was a headline sponsor for the first Ethanol Vehicle Challenge in 1998 and again for this year's Challenge, in which students converted full-sized pickup trucks to run on E85, a fuel blend containing 85% corn-based ethanol. By all accounts, the competition was a big success.

"The results of this year's Ethanol Vehicle Challenge are dramatic testimony to the promise of alternative fuel vehicles. The results showed that E85 can perform as well as or better than gasoline in every way," said Shelley Launey, manager of DOE's vehicle competitions and director of the DOE Clean Cities Program. Launey, who has been an integral part of the competitions since their inception, believes the benefits of these competitions go beyond the technical innovations. "By sponsoring student vehicle competitions, DOE and U.S. industry are investing in the future of our students and our environment. By participating in competitions involving alternative fuel vehicles, students are gaining invaluable experience applying engineering theory to solve real-world problems."

DOE and Argonne National Laboratory work with U.S. industry to provide the funding, personnel, facilities, and technical guidance to make these competitions happen. The goals are to produce a new generation of engineers, educate the public about the benefits of clean vehicle technologies, and solve some of tomorrow's toughest advanced transportation problems.

Teams Using vehicle appearance to a new level!

University of Illinois at Chicago Captures First in Ethanol Vehicle Challenge

When the dust cleared after the 1999 Ethanol Vehicle Challenge this week, an exhausted but elated group of students from the University of Illinois at Chicago emerged on top. The team from the University of Texas at El Paso, which finished tenth in last year's competition, walked off with a whole collection of awards, including second place overall. Kettering University (Michigan) finished a strong third overall.

These announcements followed a grueling week in which 14 teams from across the United States and Canada put their ethanol-fueled Chevrolet Silverados to the test in more than 10 technical events, including engineering design, emissions testing, cold start and driveability, acceleration, off-road, and noise testing. Team members also showcased their communication skills with written design reports and oral presentations.

Michael Svestka, team leader for the University of Illinois at Chicago, savored his team's victory, "After 3 or 4 days of competition, we were in 10th place, but at the end, we knew we would place — we just didn't know where... After 4 years of participating in the student competitions, this is a great way for me to go out."

THE HIGHLIGHTS

The winning vehicle (converted by students from the University of Illinois at Chicago) captured the triple crown — demonstrating lower emissions, better fuel efficiency, and better performance than the stock gasoline vehicle and proving that E85 can deliver superior performance in ethanol-dedicated vehicles.

EMISSIONS

Three teams — the University of Illinois at Chicago, the University of Texas at El Paso, and Wayne State University — met the California Air Resources Board (CARB) Low Emissions Vehicle (LEV) standard. All three teams were within 0.020 grams of THCE per mile of meeting CARB's Ultralow Emissions Vehicle (ULEV) standard — this for a 1/2-ton, 4 by 4 truck!

FUEL ECONOMY

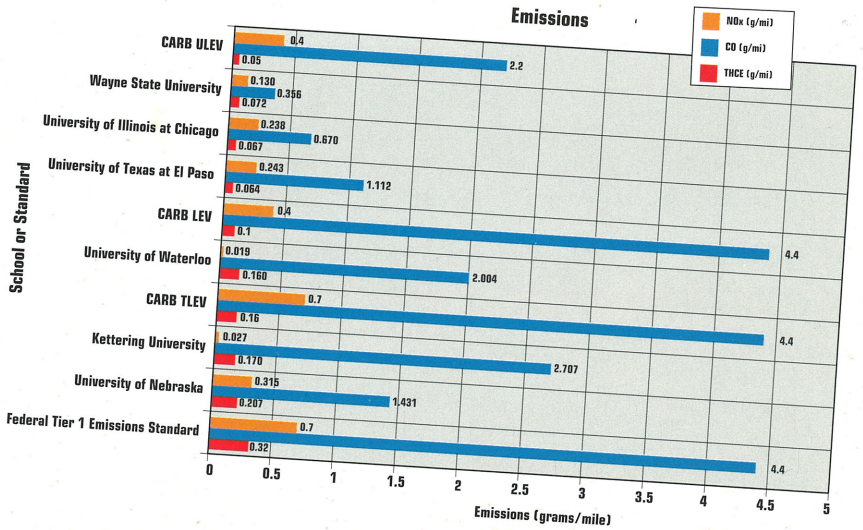
The winning team in the Fuel Economy event demonstrated a greater-than-10% increase in fuel efficiency* over the stock gasoline vehicle. On a miles per gallon equivalent (mpge) basis, this team (from the University of Illinois at Chicago) had an on-road fuel economy of 22.02 mpge (15.64 mpg). The fuel economy of the stock vehicle (in mpge and mpg) was 19.88. Of the 13 vehicles driven in the On-Road Fuel Economy event, 11 outperformed the stock Chevy on a mpge basis.

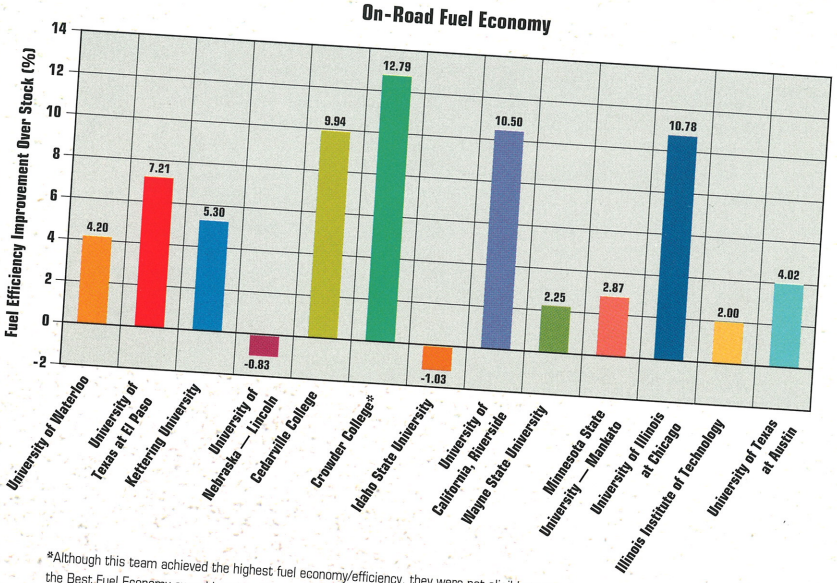
PERFORMANCE

The winning team in the Acceleration event (Cedarville College) reached 60 mph in 15.29 seconds on the 1/4-mile track, beating the stock truck by 1.5 seconds. Of the 13 Challenge vehicles that competed in this event, 12 beat the time recorded by the stock truck.

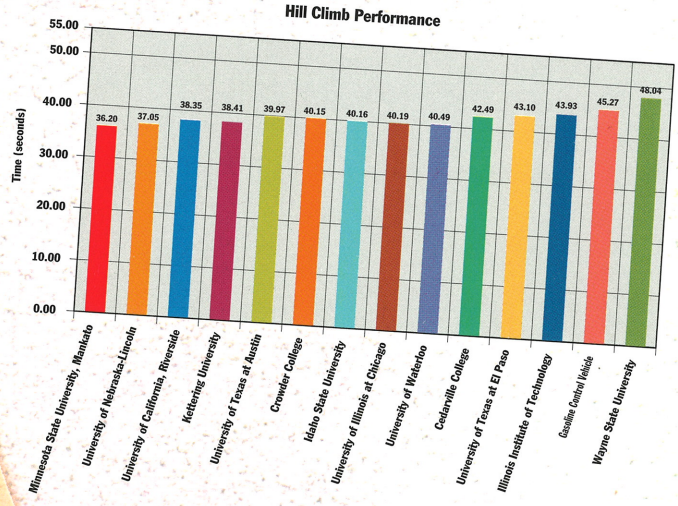
In the Hill Climb event, 12 of the 14 vehicles performed better than the stock Silverado. The winning team (Minnesota State University — Mankato) reached the top of the hill in 36.20 seconds — almost 10 seconds faster than the gasoline-powered truck.

**Note the difference between fuel economy and fuel efficiency. Economy is a measure of distance per volume, or miles per gallon. Efficiency is a measure of distance per energy unit, based on mpge, which is calculated using the ratio between the energy content of gasoline (~115,000 Btu) and that of ethanol (~80,000 Btu).*





*Although this team achieved the highest fuel economy/efficiency, they were not eligible to receive the Best Fuel Economy award because they did not meet minimum emissions standards.



Award Winners

1st Place	University of Illinois at Chicago
2nd Place	University of Texas at El Paso
3rd Place	Kettering University
4th Place	University of Waterloo
5th Place	Wayne State University
Best Vehicle Appearance—1st Place	Minnesota State University — Mankato
Best Vehicle Appearance—2nd Place	University of Nebraska — Lincoln
Best Vehicle Appearance—3rd Place	University of Texas at El Paso
Simon Vega Sportsmanship Award	Idaho State University
Best Acceleration	Cedarville College
Best Off-Road Handling	Kettering University
Best Engine-Out Emissions	University of Waterloo
Best Cold Start Performance	University of Texas at El Paso
Most Innovative Component	University of Nebraska — Lincoln
Lowest Emissions	Wayne State University
Best Fuel Economy	University of Illinois at Chicago
Best Ethanol Conversion	University of Nebraska — Lincoln
Best Oral Presentation	University of Waterloo
Best Flame Arrestor Design	University of Illinois at Chicago
Best Hill Climb	Minnesota State University — Mankato
Spirit of the Challenge	University of Kansas
GEC Outstanding Faculty Advisor Awards	Chuck Allport, Cedarville College Ryan Wicker, University of Texas at El Paso

'99 Ethanol Vehicle Challenge Better Than Ever

Cedarville College team captain Seth Valentine predicted earlier this year, "The teams will get better results — we will really be able to see what ethanol is capable of. The Challenge will be a better competition." He could not have been more right. As promised, GM provided a higher level of technical support than last year, even modifying the trucks' powertrain control modules according to the student's specifications.

With the first year of ethanol conversion under their belts, a new, more powerful vehicle to work on, and the optimism and energy that only the young can bring to a competition, the 14 teams surprised their sponsors, the press, and even themselves with their accomplishments in this year's Challenge.

In 7 grueling days of competition, the students proved that 6 months of eating, breathing, and sleeping this engineering challenge could pay off in a cleaner, more powerful, and more fuel-efficient vehicle. The biggest payoff — for the auto industry and the nation — is a new generation of talented, resourceful engineers who will graduate from college ready to design and build cleaner, safer, more economical cars and trucks.

A colorful fleet of trucks!

If it wasn't fun, I wouldn't be staying up until 4 or 5 o'clock in the morning.

THE ROAD TO 2000

After laying the foundation during this year's competition, students from the same 14 schools will work to further refine their Silverados in preparation for the 2000 Ethanol Vehicle Challenge in Canada. According to Jeff Passmore of logen, one of next year's competition sponsors, the 2000 Challenge will have a more nomadic twist: rather than being held at one location (like the past 2 years at Milford Proving Ground), the testing events and road trip will take place concurrently during a week-long event. Highlights will include emissions testing at Environment Canada, a visit to Toronto, and a stop at GM's Oshawa Truck Plant, where the Silverados were assembled — already dubbed the "Coming Home Trip."

Tom Smyth of Natural Resources Canada is eagerly anticipating next year's competition. "We were surprised at what the students accomplished this year — it never ceases to amaze us what fresh, unencumbered minds can come up with. The students are willing to dive right in — to try something and see if it works. We are looking forward to hosting next year's events here in Canada. We expect even greater improvements, and we'll have you all saying 'eh?' by the time it's over."

It's amazing what fresh, unencumbered minds come up with...

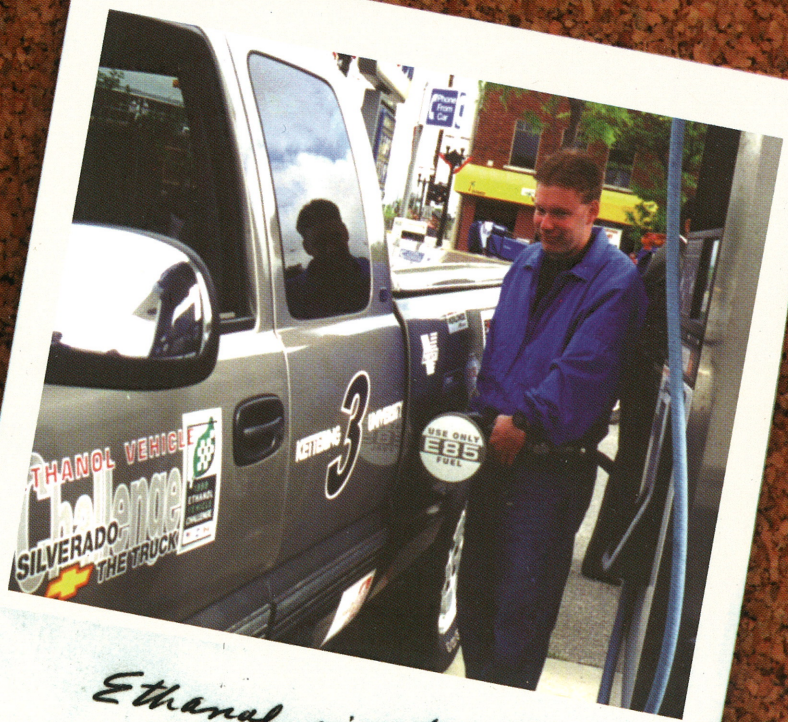
One Step Closer...

Thanks in part to the efforts of students like those who participated in this year's Ethanol Vehicle Challenge, ethanol-powered vehicles are one step closer to matching the performance of gasoline-powered vehicles. Most of the trucks competing in the 1999 Ethanol Vehicle Challenge achieved better fuel efficiencies than comparable gasoline-powered models, and the students have just about conquered the traditional cold-start problems associated with ethanol. In addition, the University of Nebraska team — winners of this year's Most Innovative Component Award — developed a phase-change catalyst for this competition that uses a metal alloy to insulate and keep the catalyst warm when the engine is turned off, reducing cold-start emissions. These are important accomplishments, according to Jack Huggins, President of Williams Ethanol, because "In addition to being a clean-burning fuel, ethanol creates an industry important to the economy, increases corn prices, is a renewable resource, and weans the nation from its dependence on foreign oil."

Ed Koerner of the GM Truck Group agrees. "When it comes to alternative fuel sources, ethanol is at the top of our list. GM will produce a flexible- fuel Chevy S-10 and GMC Sonoma next year... full-size trucks will follow soon. We intend to learn from the experiences of the participating schools and transfer that knowledge to our alternative fuels program as quickly as possible."

Ethanol Vehicle Challenge Teams

Cedarville College
Crowder College
Idaho State University
Illinois Institute of Technology
Kettering University
Minnesota State University — Mankato
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
Wayne State University



Ethanol is at the top of the list!

A Big Thanks to Our 1999 Ethanol Vehicle Challenge Sponsors:

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State of Nebraska
Council of Great Lakes Governors

Associate Competition Sponsors
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Illinois Corn Marketing Board
National Corn Growers Association
Delphi Automotive Systems

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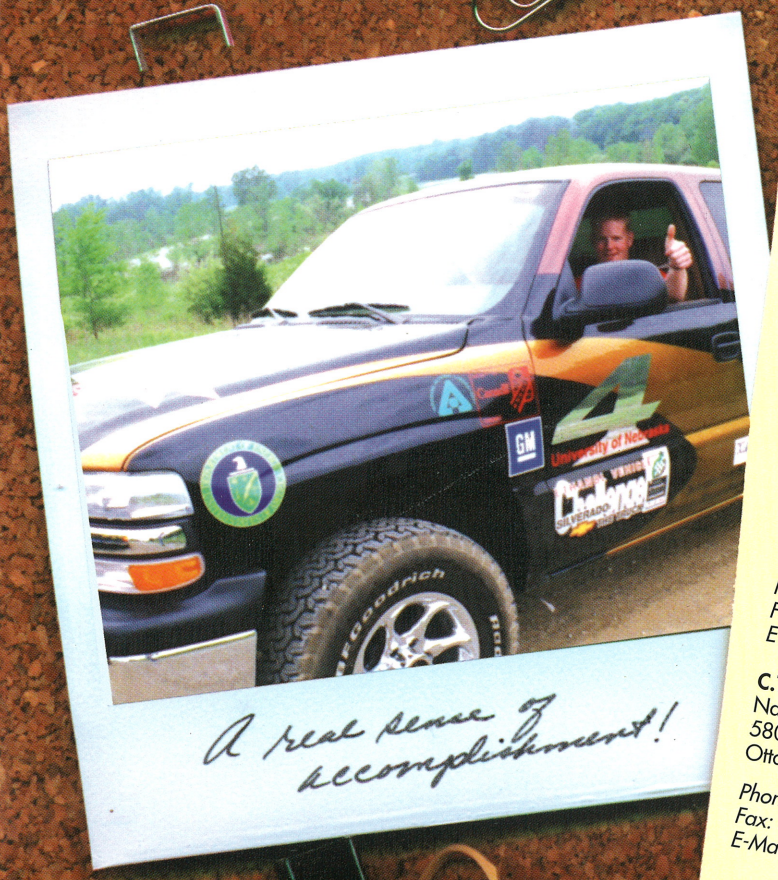

Interested in Becoming a Partner?

Your company or organization can support the 2000 Ethanol Vehicle Challenge by becoming a Competition or Team Sponsor. Competition Sponsors provide financial support, supplies, and technical guidance equally to all competition teams. Team Sponsors offer resources to one or more individual teams. The goals of sponsorship are to enhance the safety and quality of the competition and give all the schools access to the resources they need to build high-quality vehicles, resulting in a better competition.

To Sponsor the 2000 Ethanol Vehicle Challenge or to Find Out More, Please Contact:

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Competition Administrators
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