



## SUV'S Running on Renewable Fuels can Reduce Emissions and Enhance Performance

Beginning in the 2002 model year, all Chevrolet Suburbans and Tahoes and GMC Yukons and Yukon XLs equipped with 5.3 litre V8 can run on varying blends of ethanol and gasoline - from 100% gasoline up to 85% ethanol (E85). The all-new Chevrolet Avalanche "ultimate utility vehicle" with the standard 5.3 litre V8 will also have E85 capability beginning in the 2003 model year.

GM engineers re-designed the trucks' fuel systems with more robust materials to accommodate high levels of ethanol. They also optimized engine systems such as air-fuel ratio control and spark advance for every blend of fuel up to 85% ethanol, added a fuel composition sensor that detects the percentage of ethanol present and relays the information to the vehicle's powertrain control module.

"The key to the success of GM's flexible fuel system was to make sure it is transparent to the user," said Thomas G. Stephens, GM vice president and group director of engineering, GM Truck Group. "Our customers have come to expect the best from GM's full-size trucks, so we have to assure them that driveability will not be compromised, even in cold weather."

GM made the announcement at the finals of FutureTruck 2000, an advanced vehicle competition which was held this week at its proving ground in Mesa, Arizona. Co-sponsored by GM, the U.S. Department of Energy and Yahoo! Inc., FutureTruck 2000 is a competition in which hundreds of engineering students from some of North America's top universities re-engineer Chevrolet Suburban sport utility vehicles with alternative fuel and propulsion systems to maximize fuel efficiency and minimize the impact of greenhouse gases without compromising performance or safety.

Congratulations to all the competing teams, who demonstrated excellent results.

Student teams involved in FutureTruck had the opportunity to choose a particular fuel as part of their strategy. This first year of the competition brought some excellent results for renewable fuels. Several of the 15 North American collegiate teams taking

part in the competition used blends of E85 (85% ethanol and 15% gasoline), or B20 (a blend of 20% biodiesel and 80% conventional diesel fuel). The second place overall winner, the University of Maryland team, used E85 as a fuel, and also took awards for the lowest regulated tailpipe emissions, the best off-road performance, and excellence in renewable fuels.

In addition to the University of Maryland, Cornell University also used E85. George Washington University, Idaho State University and the University of Tennessee used B20 as part of their strategies. The University of Tennessee took the award



**Cornell University working under their ethanol-electric powered hybrid SUV.**

for excellence in biodiesel fuel applications. Other fuels used included diesel, RFG (reformulated gasoline), and hydrogen. The overall winning team from West Virginia University, chose diesel fuel as part of their strategy. A complete report on the competition and results are available at <http://www.futuretruck.home.att.net/results.html>.

## Biodiesel is First Alternative Fuel to Complete Clean Air Tests



It was announced on June 22, that biodiesel has become the first and only alternative fuel to have successfully completed the health effects testing requirements of the U.S. Clean Air Act Amendments of 1990. The tests show that biodiesel poses no health threats and its use results in a 90% reduction in air toxins. Biodiesel is non-toxic, biodegradable, and is used in conventional diesel engines with little or no modifications. A copy of the report is available through the National Biodiesel Board at <http://www.biodiesel.org>.

The Congressional Budget Office determined in 1998 that using biodiesel is the least-cost option among alternative fuels to meet alternative fuel requirements for government fleets. The CBO predicted that the U.S. federal government would save \$10 million annually by using biodiesel in its fleet vehicles.

## President's Report



Jim Johnson

The June annual meeting and convention of the Canadian Renewable Fuels Association (CRFA) marked the beginning of a new approach to the development of the renewable fuels industry in Canada. This fall the association will embark on a new, higher profile delivery of public awareness and policy development with a revamped organizational structure and new managing director. In reality, the association is growing up and must take its place with the more established groups that promote a variety of energy sources.

The timing of the change is important with new government policies and regulations on transportation fuels and the desire to attack the growing issue of greenhouse gases. It is important that the renewable fuels industry in Canada have more involvement in the design of government strategies which will set direction for years to come. And we must elevate our efforts in area of public awareness and understanding of our products and organization.

The new managing director will take a high profile role in getting the message out on renewable fuels and the important benefits they can provide to our customers, the public, the environment, our rural communities and energy security. A good part of the task will be to keep the media, and hence the public, informed of

the increased need to incorporate renewable energy into our public policy, and how our industry can meet the challenges of improving air quality and addressing global warming.

After meeting with many partners in our industry at the CRFA annual meeting, and seeing the significant advances we have made in the renewable fuels industry at the 2000 International Fuel Ethanol Workshop in Windsor, Ontario, it is clear we have a lot to offer. The message of acceptance of renewable fuels from Natural Resources Minister, the Honourable Ralph Goodale and Agriculture Minister, the Honourable Lyle Vanclief, means the task may get a little easier, but the workload will grow.

On one final note, Ellen Klupfel, CRFA's Public Information Coordinator, is leaving the association at the end of July. We appreciate the enormous contribution Ellen has made to increasing public awareness of ethanol and biodiesel in Canada. Ellen will be going back to school to work on her doctorate in rural studies at the University of Guelph. We wish her well in her studies.

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## Report on the CRFA 2000 Annual Meeting and Convention

The Canadian Renewable Fuels Association (CRFA) held its 2000 Annual Meeting and Convention in Windsor, Ontario, on June 20, just prior to the 2000 International Fuel Ethanol Workshop. With nearly 60 participants, representing the ethanol and biodiesel industries, government, academia, fleet managers, agriculture, the non-profit sector, the snowmobile industry, private consultancies, and the oil industry, CRFA's gathering focused on consumer and environmental issues.

"CRFA was able to convey through its annual meeting the momentum that the renewable fuels industry has picked up over the last year," said Jim Johnson, president of the CRFA. "With the anticipation of several announcements of ethanol plant constructions this year, and with the developing biodiesel industry, CRFA and the renewable fuels industries are heightening their profile and their activities in Canada."

Johnson opened the meeting with remarks emphasizing the significant growth that is taking place in the Canadian ethanol industry. Dr. Roydon Fraser, Faculty Advisor for the University of Waterloo Alternative Fuels Team and Team Eco-Snow, spoke of the teams' experiences using ethanol, with a view on successes and

challenges to be overcome in future ethanol vehicle and snowmobile competitions. Barbara Charnes, Executive Director for Coloradans for Clean Air, spoke of her experience in implementing a clean air mandate in Denver. She spoke of some of the benefits and drawbacks to this type of



mandate. Matt McLean, Secretary to the Board of Ontario Soybean Growers (OSG) and CRFA's Biodiesel Advisor, provided an update on Canada's biodiesel industry. OSG and the Saskatchewan Canola Development Commission have been

involved in research that demonstrates the potential for biodiesel as a lubricity additive to diesel fuel. The hope is that this will be available in the near future. Don McCabe, a Director with the Ontario Corn Producers' Association, presented an overview of Canada's climate change process and its Kyoto Protocol commitments, and how these impact on agriculture and renewable fuels. Jeff Passmore, CRFA's National Vice-President, wrapped up the meeting by asking the important question "what happens next?"

As a result of the discussions that took place at this meeting, to help meet the needs of the growing Canadian renewable fuels industry, the CRFA is undergoing re-structuring, with plans for a stronger, more politically active organization.

For information on the CRFA or on becoming a member of the organization, please call (519) 767-0431 or e-mail [publicinfo@greenfuels.org](mailto:publicinfo@greenfuels.org).

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## U.S. EPA Wins Court Challenge

Exxon Mobil Corp. and Chevron Corp. have lost a court challenge of a U.S. Environmental Protection Agency ruling that allows states to set tougher clean fuel standards than the federal government.

The U.S. Ninth Circuit Court of Appeals in San Francisco upheld an EPA ruling that Clark County, Nevada, can require companies to sell gasoline with a minimum 3.5 percent oxygen content during the winter season. The requirement is intended to cut down carbon monoxide emissions in the Las Vegas area.

The federal Clean Air act of 1990 requires refiners to make and sell oxygenated, or reformulated, gasoline in the most polluted areas of the U.S. by using additives like ethanol or MTBE. The EPA is seeking a national ban on the use of MTBE, which it says is leaking from gas storage tanks into drinking water supplies.

# Report on the 2000 International Fuel Ethanol Workshop and Trade Show

The prestigious 2000 International Fuel Ethanol Workshop and Trade Show (FEW) was held in Windsor, Ontario from June 20-23. The FEW brought together ethanol producers, industry suppliers, researchers, and policy makers from around the globe to discuss the latest issues facing the fuel ethanol industry. This was the first time in its 16-year history that FEW was held in Canada, beginning just after the Canadian Renewable Fuels Association's (CRFA) Annual Meeting and Convention.

"The 2000 FEW had a very strong program, dealing with all major issues facing the fuel ethanol industry," said Mike Bryan, President of Bryan and Bryan Inc., workshop presenters. "We had over seventy speakers and approximately 500 participants - the 2000 FEW was a great success."

"The CRFA is proud to have been a sponsor of this important event," said Jim Johnson, President of the CRFA. "FEW brought together ethanol experts from around the world to discuss significant issues and innovations and move the industry forward. This is of particular benefit to the Canadian ethanol industry, which is poised for dramatic growth over the next few years."

The agenda for the FEW featured prominent speakers including Natural Resources Minister Ralph Goodale and Agriculture and Agri-Food Minister Lyle Vanclief. Minister Goodale emphasized the important role that ethanol can play in mitigating climate change, while Minister Vanclief spoke on the significance of ethanol to agriculture and rural areas. Both emphasized the support of their Ministries for fuel ethanol.

"Fostering new uses of agri-food materials can contribute to adding value to the agriculture industry, diversifying sources of farm revenue and increasing Canada's export targets beyond the year 2005," said Minister Vanclief. "We are committed to making Canada the place to be for new energy development and investment - working in partnership with our research institutes and the private sector."

The last day of the FEW involved a series of round table discussions on issues facing the ethanol industry. One of these groups focused on the Canadian ethanol industry, and where to go from here. The discussion offered ideas on how to continue the current momentum of the industry. Important points are to increase public, political, media, agriculture, petroleum and retailer support for ethanol; to establish government policies to develop markets, reduce cost and promote benefits; to increase ethanol production to meet the demand; and to improve infrastructure for retailing and E85. To make this happen, the group identified the need to establish a united front among industry, government, and public groups, holding a national ethanol conference, and organizing provincial workshops and meetings. The significance of scheduling conferences, meetings and events to promote all of the above was also included as part of the strategy.

"With major events such as the FEW and the Ethanol Vehicle Challenge, the last year has been significant for the Canadian ethanol industry," said Johnson. "It is important to carry the momentum forward to promote the growth and development of the industry."

Ethanol production in Canada is currently at a level of 238 million litres per year. This level is expected to grow to 675 million litres over the next few years. It is important that public, political and media as well as industry support are in place to encourage this and further expansion.



**Canada's Minister of Agriculture, the Honourable Lyle Vanclief chats with 2000 International FEW organizer Angela Graf.**



**Natural Resources Minister, the Honourable Ralph Goodale with Kathy Bryan.**



**Natural Resources Minister, the Honourable Ralph Goodale, talks to media about ethanol's potential.**

## WORLD ETHANOL 2000

F.O. Licht's World Ethanol conference is the third in this prestigious series of conference. This year's program will provide another stimulating and enjoyable forum for an analysis of the global ethanol market. World Ethanol 2000 will take place November 8-10 at the Langham Hotel, in London, England. F.O. Licht's World Ethanol conferences have attracted more than 250 industry executives, from over 30 countries.

For further information, please contact Tina Jenkins at +44 (0) 1892 511807 or send an e-mail to [conferences@agra-europe.com](mailto:conferences@agra-europe.com)



# In the News

## IOWANS TO BE REIMBURSED FOR ETHANOL TAX EXEMPTION

Iowa Governor Tom Vilsack has suggested reimbursing Iowa drivers \$10 each for their purchases of ethanol-blended gasoline. Vilsack proposed reimbursing drivers for the 19 cents per gallon tax on 53 gallons of ethanol-blended fuel. It would cost the state an estimated \$14 million.

"This is a way of tailoring and targeting the relief to Iowans and at the same time promoting Iowa's product - ethanol - and renewable fuels, which we think, in the long-run, is the way we avoid being held hostage by high gas prices in the future," Vilsack said.

If approved by state lawmakers, \$10 reimbursement coupons could be sent to consumers this summer.

## Report Cites that Ethanol is not the Cause for High Midwest Gasoline Prices

The U.S. Congressional Research Service has issued an update on an earlier report, citing that gasoline problems, not ethanol, are the main factor in high gasoline prices in the Midwest.

"The new CRS report is a step in the right direction following their original misleading report," said Eric Vaughn, president of the U.S. Renewable Fuels Association. "The first sophomore book report looked at one day's gasoline prices - the highest priced day in over a year - and attempted to pass around the blame. The new report, by reviewing a longer period of time, gives a better picture of the true forces driving Midwest gasoline prices - primarily supply mismanagement."

According to the Oil Price Information Service, the average Chicago wholesale price for reformulated gasoline (RFG) blended with ethanol remains below the price for conventional gasoline (with no clean air modifications or ethanol blending). Ethanol RFG has been equal or lower priced than conventional gasoline for a week.

"Increased gasoline supplies are driving prices lower, just like tight supplies drove gasoline prices higher," said Vaughn. "Ethanol played no role in either the price spike or decline. In fact, the ethanol used in the Chicago/Milwaukee market is sole under contract for a set price for the entire summer season. The ethanol being used costs the refiners on average only 71 cents per gallon."



## A New Sweetener is a Potential Co-Product of Ethanol



Corn fiber that's left over from ethanol production could be turned into a high-value, low-calorie sweetener for niche markets, based on a process being developed by scientists from the Agricultural Research Service.

The sweetener is a white crystalline powder called xylitol. Makers of some specialty brand sugarless chewing gums now pay about \$3 per pound for xylitol, which gives their product a minty-cool taste. By comparison, industry now sells the co-product as cattle feed for only a few pennies per pound.

The scientists found that certain strains of the yeast *Pichia guilliermondii* can excel at making xylitol, but that process can be hindered by glucose, another of the sugars from fermented corn fiber. The problem: When *P. guilliermondii* comes in contact with both glucose and xylose in fermenting corn fiber, it 'prefers' the glucose and - like a child who would rather gorge on ice cream than spinach - it spends its energy on gobbling the glucose, which leaves the yeast relatively ineffective for carrying out the xylose-to-xylitol transformation. The solution devised by ARS scientists: Send in the "B" team. The scientists add an initial batch of *P. guilliermondii* to the fermenting fibers to devour the glucose. Then they mix in more *P. guilliermondii* to tackle the task of transforming the xylose into xylitol.

Xylitol has one-third fewer calories than sugar and about the same sweetening power. It's currently made in Finland in a chemical process by treating acid-treated fibers of birch wood. It's now a \$28 million market in foods for special dietary uses,

mouthwashes, toothpastes, and chewing gums.

Biological conversion of xylose should help make xylitol more economic to produce, according to the researchers, because it requires less energy than chemical conversion. This could drive production costs down and the market volume up.

An article about the research appears is available online at <http://www.ars.usda.gov/is/AR/archive/jul00/xylit0700.htm>.

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