

# **Challenge X 2007**

## **Outreach Program Report # \_\_\_\_**

*Instructions: Use this template to provide your team's outreach program updates. The following are the dates that your outreach reports are due. Report #1: November 26, 2006; Report #2: March 29, 2007; Final Report: May 30, 2007 (please note, a revised template may be provided for the final report). Each of these reports must be posted as a PDF or Word document to your team website by the due date.*

**Team: Mississippi State University**

**Name of Outreach Coordinator: Amanda McAlpin**

**Phone number and email of Coordinator:**

**Phone: 662-312-8672**

**Email: amcalpin@cavs.msstate.edu**

**Dedicated Outreach Coordinator (Y/N): Y**

**If no, please list other role the O.C. has on your team:**

**Date posted: November 26, 2006**

### **I. Outreach Plan**

- *"No changes."*

## II. Outreach Activity Detail

### A. Media Relations (Requirement of 5 media hits)

*Please list each media hit or event since your last outreach report. Please number your events below. Please provide copies of any media clips in the Appendix.*

<b>Media Type</b> <i>(Television, Radio, Print)</i>	<b>Media Outlet and Reporter's Name</b>	<b>Date</b>	<b>Location</b>	<b>Coverage Origin</b> <i>(List name of News Release or Event)</i>
Print See attachment 1	East Valley Tribune, Arizona Newspaper Ed Taylor	May 31, 2006	Arizona area	Year 2 competition
Print See attachment 2	East Valley Tribune, Arizona Newspaper Slim Smith	June 11, 2006	Arizona area	Year 2 competition
Web See attachment 3.	Mississippi State University website Phil Hearn	June 13, 2006	State-wide	Year 2 competition
Print See attachment 4.	The Commercial Dispatch	June 18, 2006	State-wide	MSU Press release
Print See attachment 5.	The Clarion Ledger	June 15, 2006	State-wide	MSU Press release
Web	CATIA Operator's Exchange Website Neil Littell	Month of June 2006	Nationwide	Year 2 competition
Print See attachment 6.	Starkville Daily News Paul Sims	July 25, 2006	State-wide	Challenge X presentation to Greater Starkville Development Partnership
Print See attachment 7.	The Commercial Dispatch Earl Descant	July 25, 2006	State-wide	No origin event
Website See attachment 8.	Biodiesel Magazine	August 2006	Nationwide	Year 2 competition

**B. Youth Outreach (Requirement of 3 events)**

*Please use the chart to provide a list of all of your youth outreach activities since your last outreach report. Also provide a written description below with additional details for each youth outreach activity listed. Please number your events below.*

<b>Activity</b>	<b>Date</b>	<b>Location</b>	<b>Audience</b>	<b>Participants</b> <i>(Briefly describe which team members participated)</i>
Presentation to NSF funded High School Teacher Group	June 21, 2006	MSU Campus	62 high school math, science and computer teachers	Amanda McAlpin, Outreach Coordinator
Storytime at Starkville Public Library	June 21, 2006	Starkville Public Library, Starkville, MS	38 children and parents	Amanda McAlpin, Outreach Coordinator; Kyle Crawford, Ron Lewis, Heather Oliveri, Justin Crapps
Storytime at the Starkville Public Library, second session	June 21, 2006	Starkville Public Library, Starkville, MS	47 children and parents	Amanda McAlpin, Outreach Coordinator, Christopher Whitt, Justin Crapps
Presentation to NSF funded High School Teacher Group	June 28, 2006	MSU Campus	54 high school math, science, and computer students	Amanda McAlpin, Outreach Coordinator
Renewable Energy Day	October 6, 2006	Mississippi Agriculture Museum	Approx. 1,000 K-12 students	Amanda McAlpin, Outreach Coordinator, Christopher Whitt, Kennabec Walp
Presentation to Highland Elementary School	October 6, 2006	Highland Elementary School, Jackson, MS	28 students in grades 3, 4 and 5	Amanda McAlpin, Outreach Coordinator, Christopher Whitt, Kennabec Walp
Presentation to Ottawa Students	October 17, 2006	Ottawa, Canada	Approx. 25 students	Amanda McAlpin, Outreach Coordinator
Presentation to West Point High Students	October 20, 2006	MSU Campus	24 students, 3 teachers	Amanda McAlpin, Outreach Coordinator, David Oglesby
Presentation to Starkville Academy Students	November 3, 2006	Starkville Academy High School, Starkville, MS	34 high school seniors	Amanda McAlpin, Outreach Coordinator, Ashley Priebe, Stephen Phillips, Bill Bain, Ratessia Lett
Boy Scout Day	November 4, 2006	West Point, MS	Approx. 75 boy scouts and leaders	Ron Lewis, Kennabec Walp, Dustin Black

**1. Presentation to NSF funded High School Teacher Group**

**Key Participants** –Neil Littell, Team Member, Amanda McAlpin, Outreach Coordinator

**Date** – June 21, 2006

**Location** – Center for Advanced Vehicular Systems

**Audience** – 62 high school science, math, and computer teachers from the region

**Description** – This group of high school teachers participating in a workshop funded by the National Science Foundation. The purpose of the workshop was to expose the teachers to new technology and research around the state of Mississippi so that they would be able to relate this information to their students. We made a presentation on our team to the group and they were able to see the Equinox. We also made our contact info available to allow for future visits to their classroom.

**Key Messages:** Overview of the Challenge X competition and the technology the MSU team is using for their vehicle.

*See figure 6.*

**2. Storytime at the Starkville Public Library**

**Key Participants** – Amanda McAlpin, Outreach Coordinator; Kyle Crawford, Team Member; Ron Lewis, Team Member; Heather Oliveri, Team Member; Justin Crapps, Team Member

**Date** – June 21, 2006 10:00 a.m.

**Location** – Starkville Public Library, Starkville, MS

**Audience** – 38 children and parents, children aged 2 through 8.

**Description** – To reach out to an extremely young audience, we gave a presentation to the children on energy, and how we used B20 biodiesel as an alternative form of energy for our vehicle. Read books, *Energy Makes Things Happen*, and *If I Built a Car*. After the event we donated the two books to the public library. The plate inside the book will state that they were donated by the MSU Challenge X team.

**Key Messages:** Overview of the Challenge X competition, overview of energy, and alternative energy.

*See figure 1 and 2.*

*Figure 1. The two books read at storytime.*



Figure 2. Christopher Whitt reads at storytime.



### **3. Storytime at the Starkville Public Library, Second Session**

**Key Participants** – Amanda McAlpin, Outreach Coordinator; Christopher Whitt, Team Member; Justin Crapps, Team Member

**Date** – June 21, 2006 1:30 p.m.

**Location** – Starkville Public Library, Starkville, MS

**Audience** – 47 children and parents, children aged 4 through 10.

**Description** – Our second storytime for the day was the same format as the first, however the attendants were slightly older. We gave a presentation to the children on energy, and how we used B20 biodiesel as an alternative form of energy for our vehicle. Read books, *Energy Makes Things Happen*, and *If I Built a Car*. After the event we donated the two books to the public library. The plate inside the book will state that they were donated by the MSU Challenge X team.

**Key Messages:** Overview of the Challenge X competition, overview of energy, and alternative energy.  
*See figure 3, 4, and 5.*

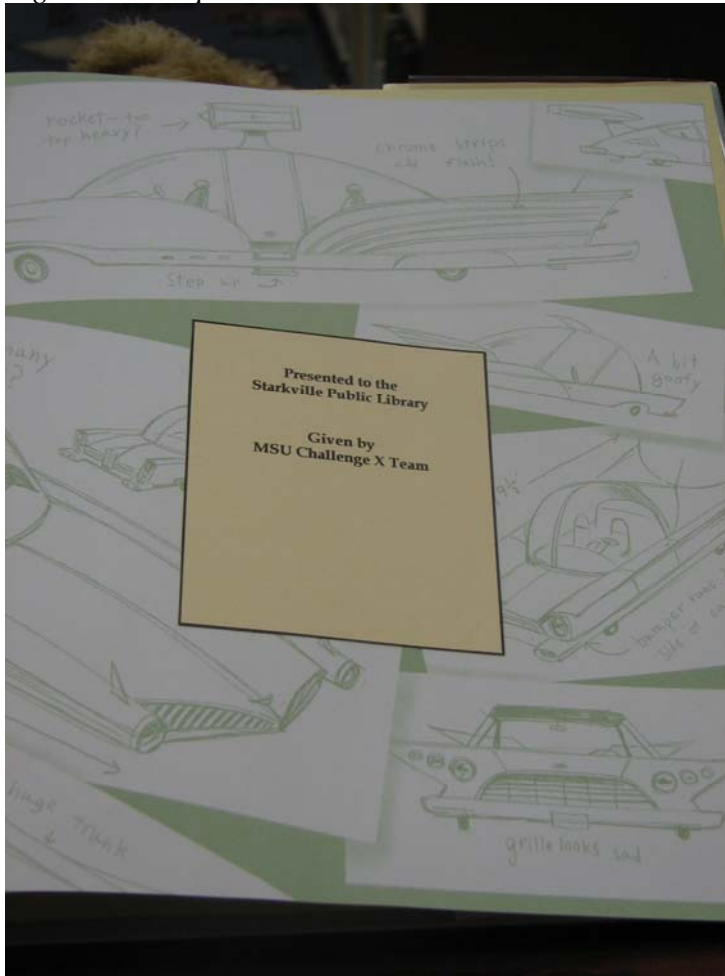
*Figure 3. Justin gets a question from a girl at storytime.*



*Figure 4. The display table at storytime had toy cars, soybeans, and a sample of biodiesel.*



*Figure 5. Bookplate inside the donated books.*



**4. Presentation to NSF funded High School Teacher Group**

**Key Participants** – Amanda McAlpin, Outreach Coordinator

**Date** – June 28, 2006

**Location** – Center for Advanced Vehicular Systems

**Audience** – 54 high school science, math, and computer teachers from the region

**Description** – This group of high school teachers participating in a workshop funded by the National Science Foundation. The purpose of the workshop was to expose the teachers to new technology and research around the state of Mississippi so that they would be able to relate this information to their students. We made a presentation on our team to the group and they were able to see the Equinox. We also made our contact info available to allow for future visits to their classroom.

**Key Messages:** Overview of the Challenge X competition and the technology the MSU team is using for their vehicle.

*See figure 6.*

*Figure 6. Amanda presents to teachers.*





## **5. Renewable Energy Day**

**Key Participants** – Amanda McAlpin, Outreach Coordinator; Christopher Whitt, Team Member; Kennabec Walp, Team Member

**Date** – October 6, 2006

**Location** – Mississippi Agriculture Museum, Jackson MS

**Audience** – Approximately 1,000 K-12 students, along with teachers

**Description** – Renewable Energy Day is held by the Mississippi Development Authority, one of our sponsors, to introduce alternative energy forms to K-12 students. The MSU team took the vehicle as an exhibit and told the students about the competition.

**Key Messages** – Overview of the Challenge X competition, and the fact that Mississippi is involved with something that is creating a solution for energy problems.

*See figure 7.*

*Figure 7. Christopher talks to a group of students at the vehicle.*





**6. Presentation to Highland Elementary School**

**Key Participants** – Amanda McAlpin, Outreach Coordinator; Christopher Whitt, Team Member; Kennabec Walp, Team Member

**Date** – October 6, 2006

**Location** – Highland Elementary School, Ridgeland, MS

**Audience** – 28 students grades 4 and 5, 3 teachers, 1 principal

**Description** – Presentation to the gifted group of students on energy, biodiesel, and Challenge X. Exhibited the vehicle.

**Key Messages-** Overview of the competition. Alternative energy is important. Studying science and math can lead you to a career in engineering and alternative fuels.

*See figure 8.*

*Figure 8. Amanda explains hybrid vehicle architecture to the students.*



## **7. Presentation to Ottawa Students**

**Key Participants** – Amanda McAlpin, Outreach Coordinator

**Date** – October 17, 2006

**Location** – Ottawa, Canada

**Audience** – Approximately 25 students.

**Description** – Presentation about Challenge X to students during the fall workshop.

**Key Messages** – Overview of the competition. The need for alternative fuels.

## **8. Presentation to West Point High Students**

**Key Participants** – Amanda McAlpin, Outreach Coordinator; Bob Kirkland, Staff Advisor; David Oglesby, Team Leader

**Date** – October 20, 2006

**Location** – Center for Advanced Vehicular Systems, MSU Campus

**Audience** – 24 students and 3 instructors

**Description** – Presentation to a special class called Learning Strategy Class. Students are placed in the class to develop better learning habits. The class visited the facility and learned about Challenge X, and saw the vehicle.

**Key Messages** – Overview of the competition. The need for alternative fuels. Studying math and science can lead to careers in engineering and alternative fuels.

*See figure 9.*

*Figure 9. Students look at the vehicle and ask questions.*



## **9. Presentation to Starkville Academy Physics Students**

**Key Participants** – Amanda McAlpin, Outreach Coordinator; Bill Bain, Team Member; Ashley Priebe, Team Member; Stephen Phillips, Team Member; Ratessiea Lett, Team Member

**Date** – November 3, 2006

**Location** – Starkville Academy High School

**Audience** – Approximately 34 seniors.

**Description** – Presentation to the seniors who were taking physics. Presentation about Challenge X. The students also look at the vehicle.

**Key Messages** – Overview of Challenge X. Studying math and science can lead to careers in engineering and alternative vehicles.

*See figure 10.*

*Figure 10. The students look at the vehicle after the presentation.*



#### **10. Boy Scout Day**

**Key Participants** – Ron Lewis, Team Member; Kennabec Walp, Team Member

**Date** – November 4, 2006

**Location** – West Point, MS

**Audience** – Approximately 75 boy scouts and leaders.

**Description** – The Challenge X vehicle was on display during Boy Scout Day. The team members talked to the Boy Scouts about the competition and the vehicle.

**Key Message** – Overview of Challenge X.

*See figure 11.*



*Figure 11. Kennabec talks to Boy Scouts.*



**C. Community Outreach (Requirement of 3 events)**

*Please use the chart to provide a list of all of your community outreach activities since your last outreach report. Also provide a written description below with additional details for each community outreach activity listed. Please number your events below.*

<b>Activity</b>	<b>Date</b>	<b>Location</b>	<b>Audience</b>	<b>Participants</b> <i>(Briefly describe which team members participated)</i>
Teleconference	July 18, 2006	MSU Campus	About 25 attendees from the university	David Oglesby, Christopher Whitt
Visit to Columbus Nissan Dealership	July 19, 2006	Columbus, MS	Approx. 10 Nissan employees	Marshall Molen, Faculty Advisor; Christopher Whitt, Kennabec Walp, David Oglesby
Presentation to Anthem Cab Company and Hybrid Design and Development, Inc.	July 26, 2006	MSU Campus	Executives of the Anthem Cab Company	Marshall Molen, Faculty Advisor, David Oglesby
New Student Convocation for Engineering Students	August 30, 2006	MSU Campus	New engineering students at MSU	Amanda McAlpin, Outreach Coordinator, Christopher Whitt, Jimmy Mathews, Brian Christian
Presentation to Greater Starkville Development Partnership	September 7, 2006	MSU Campus	About 70 members	Amanda McAlpin, Outreach Coordinator
Presentation to Faith Baptist Church Group	September 7, 2006	Starkville, MS	37 members	Amanda McAlpin, Outreach Coordinator, Brian Christian
MSU Engineering Day	September 16, 2006	MSU Campus	413 people	Amanda McAlpin, Outreach Coordinator, Bill Bain, Christopher Whitt, Kennabec Walp
Presentation to Mississippi Section of the Institute for Electrical and Electronic Engineers	September 21, 2006	Canton, MS	60 people	Marshall, Molen, Faculty Advisor, Jimmy Mathews
Discovery Day	October 14, 2006	MSU Campus	Visiting high school students and their parents, alumni	Brian Christian, Ashley Priebe, Stephen Philips, Jimmy Mathews
Downtown Tailgating	October 27, 2006	Starkville, MS	Community	Amanda McAlpin, Outreach Coordinator, Christopher Whitt, Ron Lewis, Kennabec Walp
Exhibiting Vehicle	November 8, 2006	MSU Campus	24 students and	



for Agriculture Engineering Class			3 professors	Amanda McAlpin, Outreach Coordinator, Christopher Whitt

# 11. Teleconference

**Key Participants** – David Oglesby, Team Leader; Christopher Whitt, Team Member

**Date** – July 18, 2006

**Location**- Center for Advanced Vehicular Systems, MSU

**Audience**- About 25 attendees

**Description** – The team sent invitations to campus to attend the SAE teleconference with them. Attendees were able to learn about the vehicle and the competition while at the teleconference.

*See figure 12 and 13.*

*Figure 12. SAE Teleconference.*



*Figure 13. SAE Teleconference.*



#### **12. Visit to Columbus Nissan Dealership**

**Key Participants** – Dr. Marshall Molen, Faculty Advisor; David Oglesby, Team Leader; Christopher Whitt, Team Member; Kennabec Walp, Team Member

**Date** – July 19, 2006

**Location**- Columbus, MS

**Audience**- Nissan dealership employees, approximately 10 people

**Description** – The team visited the Nissan dealership, who has been helpful to the team in lending materials, providing other test vehicles, etc., and took the Equinox for display. The team met with the employees of the dealership, answered questions, and showed the vehicle.

**Key Message** – Overview of Challenge X. MSU's participation in a solution to the energy crisis.

#### **13. Presentation to Anthem Cab Company and Hybrid Design and Development, Inc.**

**Key Participants** – Dr Marshall Molen, Faculty Advisor; David Oglesby, Team Member

**Date** – July 26, 2006

**Location**- Center for Advanced Vehicular Systems, MSU Campus

**Audience**- Executives of the Anthem Cab Company and Hybrid Design and Development, Inc.

**Description** – Presentation. General overview of Challenge X and MSU's progress in the competition.

**Key Message** – The technology used in the hybrid vehicle the MSU team is building.

#### **14. New Student Convocation for Engineering Students**

**Key Participants** – Amanda McAlpin, Outreach Coordinator; Christopher Whitt, Team Member; Jimmy Mathews, Team Member; Brian Christian, Team Member

**Date** – August 30, 2006

**Location**- MSU Campus

**Audience-** New engineering students to MSU

**Description** – Set up a booth for Challenge X, talked with new students majoring in engineering about the competition and encouraged them to join the team.

**Key Message** – Being involved in Challenge X provides great opportunities to get experience in the field of engineering.

**15. Presentation to Greater Starkville Development Partnership**

**Key Participants** – Amanda McAlpin, Outreach Coordinator

**Date** – September 7, 2006

**Location-** Center for Advanced Vehicular Systems, MSU Campus

**Audience-** About 70 people

**Description** – Presentation to members of the Greater Starkville Development Partnership on Challenge X and MSU's progress in the competition. Members of the group are business leaders in Starkville. The group was also able to look at the vehicle. This event also garnered an article in the local paper.

**Key Message** – Overview of Challenge X. That MSU is involved in providing a solution to the energy crisis.

**Results** – Article in the paper mentioned the Challenge X team.

*See figure 14.*

*See Attachment 6 for media coverage.*

*Figure 14. Members of the Greater Starkville Development Partnership.*



**16. Presentation to Faith Baptist Church group**

**Key Participants** – Amanda McAlpin, Outreach Coordinator; Brian Christian, Team Member

**Date** – September 7, 2006

**Location-** Starkville, MS

**Audience-** 37 people

**Description** – Presentation on Challenge X and MSU's progress in the competition. The members of the church contacted the group after seeing an article in the paper, and requested we speak at their weekly meeting.

**Key Message** – Overview of Challenge X. MSU is participating in a solution to the energy crisis.

*See figure 15.*

*Figure 15. Amanda speaks to the church group.*



## **17. MSU Engineering Day**

**Key Participants** – Amanda McAlpin, Outreach Coordinator; Christopher Whitt, Team Member; Bill Bain, Team Member

**Date** – September 16, 2006

**Location-** MSU Campus

**Audience-** 413 people

**Description** – Engineering Day is an event sponsored by MSU's college of engineering. Held on a home game day, it is designed to draw alumni to see what is going on currently with engineering students and departments. The Challenge X team took the vehicle for exhibition, and talk to alumni.

**Key Message** – MSU is involved in creating a solution to the energy crisis. Being involved with Challenge X provides students with great experience.

*See figure 16.*

*Figure 16. Alumni read a poster about Challenge X.*





#### **18. Presentaton to Mississippi Section of the Institute for Electrical and Electronic Engineers**

**Key Participants** – Dr. Marshall Molen, Faculty Advisor; Jimmy Mathews, Team Member

**Date** – September 21, 2006

**Location-** Canton, MS

**Audience-** 60 people

**Description** – Overview of Challenge X competition and MSU's progress in the competition.

**Key Message** – Overview of Challenge X.

*See Attachment 9.*

#### **19. Discovery Day**

**Key Participants** – Brian Christian, Team Member; Ashley Preibe, Team Member; Stephen Phillips, Team Member; Jimmy Mathews, Team Member

**Date** – October 14, 2006

**Location-** MSU Campus

**Audience-** Visiting high school students, parents, and alumni.

**Description** – Discovery Day is held on campus each year before the homecoming football game. University departments and organizations set up displays to recruit incoming students to the university. The Challenge X team took the Equinox and displayed it and talked with students about the project.

**Key Message** – MSU is involved in creating a solution to the energy crisis. Being involved with Challenge X provides students with great experience.

*See figure 17.*

*Figure 17. The Equinox is displayed at Discovery Day.*



## **20. Downtown Tailgating**

**Key Participants** – Amanda McAlpin, Outreach Coordinator; Christopher Whitt, Team Member; Ratessea Lett, Team Member; Bill Bain, Team Member

**Date** – October 27, 2006

**Location**- Main Street, Starkville, MS

**Audience**- Community, approximately 200 people

**Description** – Tailgating downtown is a yearly event held before one of the home football games. Businesses, organizations, and local clubs set up tents on Main St. to exhibit. The community is invited to view the booths and refreshments are provided.

**Key Message** – MSU is involved in creating a solution to the energy crisis. Being involved with Challenge X provides students with great experience.

*See figure 18.*



*Figure 18. Christopher and Bill get ready for the tailgate.*



**21. Exhibiting Vehicle for Agriculture Engineering Class**

**Key Participants** – Christopher Whitt, Team Member; Amanda McAlpin, Outreach Coordinator

**Date** – November 8, 2006

**Location**- MSU Campus

**Audience**- 24 students and 3 professors

**Description** – An agriculture engineering professor contacted us and wanted to show his class our vehicle, since his class was learning about biodiesel at the time. Christopher took the vehicle to the class and spoke with the class about the competition and the vehicle.

**Key Message** – MSU is involved in creating a solution to the energy crisis. Being involved with Challenge X provides students with great experience.

**D. Sponsor Outreach (Requirement of 1 event)**

*Please use the chart to provide a list of your sponsor activities since your last outreach report. Also provide a written description below with additional details for each sponsor outreach activity listed. Please number your events below.*

Activity	Date	Location	Audience	Participants <i>(Briefly describe which team members participated)</i>
Basic Car Maintenance Class	November 7, 2006	MSU Campus	Community	Amanda McAlpin, Outreach Coordinator, Dustin Black, Patrick Mullins, Christopher Whitt, Kyle Crawford, Marshall Molen

**22. Basic Car Maintenance Class**

**Key Participants** – Amanda McAlpin, Outreach Coordinator; Marshall Molen, Faculty Advisor; Patrick Mullins, Team Member; Christopher Whitt, Team Member; Dustin Black, Team Member; Kyle Crawford, Team Member

**Date** – November 7, 2006

**Location**- CAVS, MSU Campus

**Audience**- Community, 38 people

**Description** – The Challenge X team planned this event as a way to provide a service to the community. The team taught a basic car maintenance class, including topics like how and where to check vital fluids, how to look for warning signs, gauging air tire pressure, and even did a demonstration of how to change a tire. We also invited a mechanic from one of our sponsors, Millsaps Chevrolet, to work with us on the event and asked them to provide someone to come and speak about how best to communicate with a mechanic. We made posters to advertise the event, and also ran an ad in the paper for 2 days. The event turned out a success, with all attendees expressing that it was very helpful.

**Key Message** – While we gave a presentation on Challenge X, the intent for this class was to provide something for the community. We taught them how to take care of their car, and told them how this tied in with our project. By taking care of their vehicles, they were making them more fuel efficient and better for the environment, and we were doing the same with our project.

*See figures 19, 20, and 21.*

Figure 19. Kyle speaking.

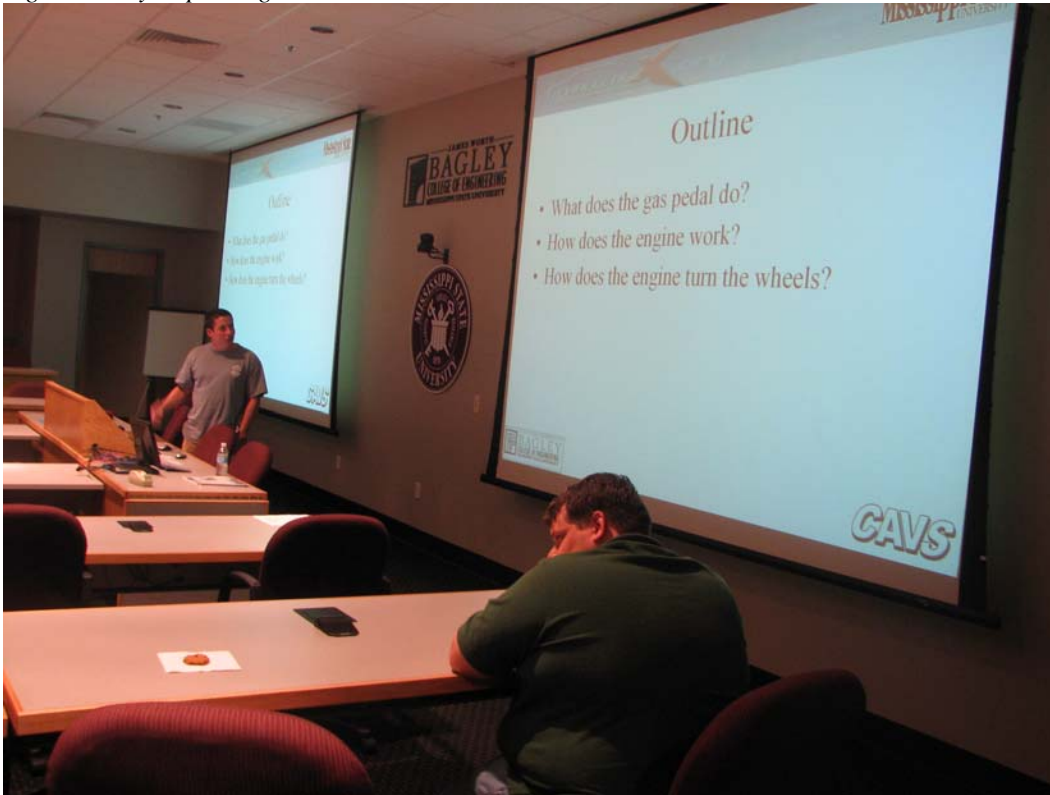


Figure 20. Dr. Molen tells which lights you should worry about on your dashboard.



*Figure 21. Christopher shows the class where everything can be found, such as the oil stick.*



#### **E. Website**

- *Our website is currently being worked on by two new members of the team. They plan to add many features to the website this year. Currently, we have added a blog to the website, and we are encouraging team members to write often.*
- *We would like to add several features to the website, including more content.*

**F. Other**

*Please provide any other information on your team's outreach program developments not covered above.*

Reported by:

Date:

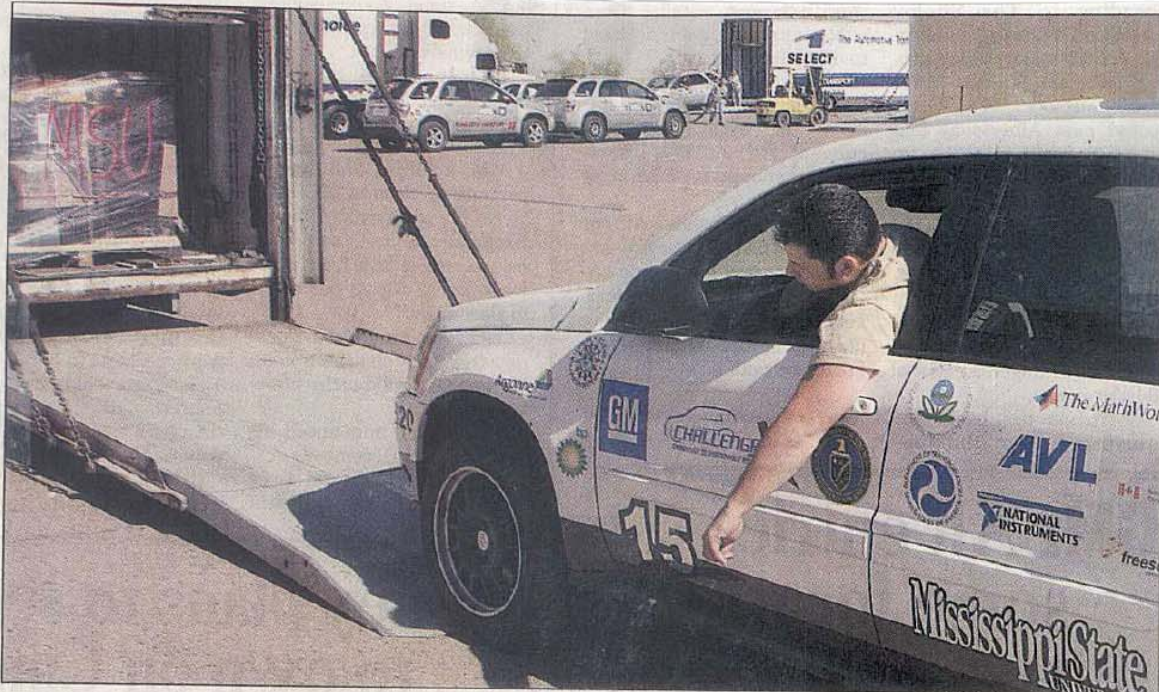
## **Appendix: Copies of Media Clips**

*Please scan in or otherwise paste any clips of media coverage here.*

*Attachment 1.*







TIM HACKER, TRIBUNE

**SPECIAL DELIVERY:** Kris Krug with Select 1 Transport drives one of 16 Chevy Equinoxes off a semitrailer being delivered to the GM Desert Proving Ground in Mesa for the Challenge X.

# GM looks for alt-fuel ideas

## School teams

Schools with entries in Challenge X:

- Michigan Tech
- Mississippi State
- Ohio State
- Penn State
- Rose-Hulman Institute of Technology
- San Diego State
- Texas Tech
- University of Akron
- University of California, Davis
- University of Michigan
- University of Tennessee
- University of Texas, Austin
- University of Tulsa
- University of Waterloo, Canada
- University of Wisconsin, Madison
- Virginia Tech
- West Virginia University

## University teams to test experimental vehicles at desert proving ground

By ED TAYLOR  
TRIBUNE

In its quest to develop alternative-fuel vehicles, General Motors is turning to college students for help.

The GM Desert Proving Ground in east Mesa will be the testing site for alternative-fuel vehicles developed by 17 university teams from across North America as part of a three-year competition sponsored by GM and the U.S. Department of Energy.

Called Challenge X: Crossover to Sustainable Mobility, the contest is designed to help train future GM engineers and perfect new technologies that could help relieve the nation's dependence on foreign oil.

The experimental vehicles were

delivered to the proving ground Monday, and testing will begin on Friday and continue through the middle of next week. The winners will be announced on June 8.

"These teams have done a phenomenal job," said Micky Bly, GM's director of engineering for hybrid vehicles and co-executive lead for the Challenge X competition. "We are learning from these students, they are learning from us and we hope eventually we can get some of them to work for us."

The competition, which is nearing the end of its second year, is designed to mimic GM's vehicle development process.

During the first year, the teams designed the technology systems they wanted to use in their vehicles using the same design tools and software used by GM engineers.

In the second year, each team was issued a Chevrolet Equinox, a small SUV that they modified to run on the

SEE GM • PAGE B2



dermanaged from the top,"

CONTACT WRITER: (480) 970-2338  
or dhogan@aztrib.com

# GM: All entries use some form of hybrid technology

FROM PAGE B1

alternative fuels they selected. Those are the vehicles that will be put through their paces at the desert proving ground.

In the final year, the teams will make modifications and perfect their systems to have the vehicles ready for theoretical mass production.

Second-year awards will be given in a variety of categories from sportsmanship to top adviser to overall best performer judged on emission, performance and fuel economy. Winners will receive trophies and cash prizes.

Twelve teams have decided to run their vehicles on diesel fuel; two on hydrogen; two on E85, a blend of 85 percent ethanol and 15 percent gasoline; and one on a combination of E85 and hydrogen.

All of the entries also use some form of hybrid technology that incorporates an electric system to enhance mileage and performance, Bly said.

Each of the technologies

has its advantages and disadvantages, requiring the teams to determine which offered the optimum combination of performance and emissions, he said.

"Hydrogen is hard to do, but it does offer the lowest emissions," Bly said. "Diesel has the best mileage, but there is an emission penalty. So these teams had to make some great decisions."

Because of GM's increased development work with hydrogen, a mobile system will be installed in the next few weeks at the desert proving ground to store and pump hydrogen fuel, said GM spokesman Jerry Wilson.

The company had hoped to have the permanent system ready for the Challenge X testing, but that schedule can't be met, he said. Instead, a smaller portable unit will be used to fuel the Challenge X hydrogen vehicles, Wilson said.

CONTACT WRITER: (480) 898-6537  
or etaylor@aztrib.com

GIVE SOME L.

Devine had a retirement in De

The automal challenging tim

## Disne to

By GARY  
THE ASSOCIA

LOS ANGELES • such as "Glory F animated "Chi will soon be ava via computer de the Internet-bas CinemaNow, bu can't be played lone DVD player.

The compa expected to an that CinemaNow films for \$19.95. will allow consum fer films to a po running Micros Windows Media s

In a deal simil announced in Apr Disney Co. will s online the same become available thus closing the g DVD sales and demand by severa

The deal inc



June 11, 2006

## Miss. State shows how to save fuel

By Slim Smith  
Tribune Columnist

I can't say I was surprised Thursday when I arrived at the GM Desert Proving Grounds in Mesa to find that my alma mater, Mississippi State, had finished near the top in an automotive engineering contest. I mean, it's increasingly hard to find something MSU isn't good at, you know?

School pride aside, Thursday's program, which marked the end of year two of the ChallengeX competition, is encouraging for any motorist who gets sticker shock each time they fill up.

The official name of the competition is ChallengeX: Crossover to Sustainable Mobility. As you might suspect, that's the sort of title you get when engineers are in charge.

In layman's terms, ChallengeX is a competition that allows college engineering students to apply their skills in pursuit of making future autos more efficient, more environmentally friendly and less dependent on oil.

Seventeen universities in the U.S. and Canada are competing in the project, which began in 2005 and will end next summer. Virginia Tech finished first, followed by Wisconsin and Mississippi State.

Each school was given a 2005 Chevrolet Equinox, which the students have been tinkering with for the past 24 months.

Virginia Tech students replaced the standard engine with an ethanol/hydrogen engine while Wisconsin and Mississippi State went with bio-diesel engines.

Personal bias aside, I'm not clear why Mississippi State isn't sitting in first place. The MSU students said their entry was the fastest and could pull the heaviest payload.

There's no disputing the latter claim. Through a mixup, the MSU entry pulled 10,000 pounds, four times the competition's required weight.

"We had a miscommunication on the weight," drawled MSU team leader David Oglesby, a graduate student from Columbus, Miss. "So we're very proud of the way we performed."

Pulling a big payload is of particular importance down South, where at any moment you might discover a perfectly good refrigerator left at the dump. Speed means something in that part of the world, too, where it is not uncommon to find Dale Earnhardt "3" stickers on hearses.

There is another year of competition - and, not unlike any coach, team leader Oglesby assessed MSU's chances to move up from third place.

"There are a lot of things we want to do to the car," he said. "And we only lose a couple of people off our team, so we feel really good about next year."

It gives me comfort knowing that good old Mississippi ingenuity is playing a role in this important field.

I figure the car of tomorrow will be a pickup truck.

*Attachment 3.*



## MSU student engineers finish third in national Challenge X event

University Relations  
News Bureau (662) 325-3442  
Contact: **Phil Hearn**  
June 14, 2006

STARKVILLE, Miss.--A team of Mississippi State engineering students that developed a diesel-electric hybrid automobile capable of getting 35 miles-per-gallon finished third in the 2006 national Challenge X competition.

The nine-member university group is among 17 teams from institutions across the country re-engineering 2005 Chevrolet Equinox sport utility vehicles to minimize energy consumption, emissions and greenhouse gases while maintaining utility and performance.

Virginia Polytechnic Institute and State University in Blacksburg finished first in the recently concluded second round of the three-year "Challenge X: Crossover to Sustainable Mobility" engineering competition. The University of Wisconsin-Madison was second.

"I'm very proud of our entire team," said MSU team leader David Oglesby of Columbus, a graduate student in mechanical engineering. "We stayed focused through the entire competition so that we completed every event successfully."

Marshall Molen, a power electronics research professor at the university's Center for Advanced Vehicular Systems, serves as the team's faculty adviser. Bob Kirkland is CAVS staff adviser for the project.

Sponsored by General Motors Corp. and U.S. Department of Energy, the national event is designed to see which collegiate team best can explore and develop advanced vehicle technologies that address important energy and environmental issues.

GM donated the so-called "crossover" Equinox sports utility vehicles for re-engineering by each competing school.

The MSU team designed a diesel-electric, parallel hybrid vehicle that has an internal combustion engine running the front wheels and an electric motor running the rear wheels. The diesel engine runs on B20 bio-diesel fuel, causing fewer emissions.

The first half of the competition at the GM Desert Proving Grounds in Mesa, Ariz., consisted of driving events such as timed acceleration, vehicle handling and trailer towing. The second half of the competition consisted of presentations on technical and design aspects of the respective vehicles.

"We did well in all of the driving events," said team member Amanda McAlpin, an undeclared graduate student from Mathiston.

After their selection in 2004, the Challenge X teams spent their first year focusing on vehicle simulation and modeling, and subsystem development and testing. For this year and in next year's concluding competition, the teams are integrating their advanced power trains and subsystems into their redesigned vehicles.

Each participating team received \$10,000 in seed money and is eligible to collect up to \$25,000 in additional production parts from GM. Award money up for grabs at the second-year competition totaled more than \$90,000.

The MSU team also won awards in several individual categories of competition, earning \$14,250 in prize money.

Members of the MSU team, in addition to Oglesby and McAlpin, included: Kyle Crawford, a chemical engineering graduate student from Columbus; Josh VanLandingham, a senior mechanical engineering major from Hattiesburg; Ron Lewis, an electrical engineering graduate student from Heidelberg; Christopher Whitt, a mechanical engineering graduate student from Lauderdale; Brian Christian, a senior mechanical engineering major from Slidell, La.; Jimmy Matthews, an electrical engineering graduate student from Starkville; and Kennabec Walp, a computer engineering graduate student from Wellsville, N.Y.

The other 13 participating Challenge X teams included Michigan Technological, Ohio State, Pennsylvania State, Rose-Hulman Institute of Technology, San Diego State, Texas Tech, Akron, California-Davis, Michigan, Tennessee, Texas-Austin, Tulsa, Waterloo (Canada), and West Virginia.

Additional information about Challenge X 2006 is available at [www.challengex.org](http://www.challengex.org).

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For more information about the MSU team, contact Amanda McAlpin at 662-325-5562 or [amcalpin@cavs.msstate.edu](mailto:amcalpin@cavs.msstate.edu).

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*Attachment 4.*



Vicky Newman  
lifestyles editor 328-2471

# Sunday LIFE

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*Attachment 5.*

Clarion-Ledger

June 15, 2006

## **Mississippi briefs**

### **STARKVILLE**

Team finishes 3rd in engineering competition

A team of Mississippi State University engineering students finished third in a national engineering competition.

The nine-member team was one of 17 competing in the Challenge X competition to re-engineer a 2005 Chevrolet Equinox sport utility vehicle to make it more environmentally friendly without affecting performance.

The MSU team developed a diesel-electric hybrid capable of getting 35 miles per gallon.

MSU finished behind Virginia Polytechnic Institute and State University and the University of Wisconsin-Madison.

*Attachment 6.*



# The Starkville Daily News

Tuesday, July 25, 2006

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## Director: CAVS seeing success in staying competitive

By PAUL SIMS/Starkville Daily News

Center for Advanced Vehicular Systems officials are working to stay competitive in the growing Southern automotive manufacturing industry and meeting with success, the center's director said Monday.

Rand German spoke to members of the Starkville Rotary Club on Monday, outlining the center's programs, challenges and goals.

The Mississippi State University center is just under three years old and was developed to meet the needs of the Nissan plant in Canton.

One success CAVS officials can point to is the third-place finish of an MSU team in the 17-team 2006 Challenge X competition.

The teams were asked to rework 2005 Chevrolet Equinox sport utility vehicle to reduce energy consumption, greenhouse gases and emissions while keeping utility and performance in place.

The MSU team created a diesel-electric, parallel hybrid vehicle with an internal combustion engine moving the front wheels and an electric motor rotating the rear wheels.

The vehicle runs on bio-diesel fuel and has the potential to get 35 miles per gallon.

Through CAVS, officials are trying to keep talented Mississippians in the state and draw in "some great people," German said.

Among the challenges CAVS faces include addressing external perceptions and low aspirations, German said.

He also noted the need to improve travel, to include air transportation, and officials will need to take a "serious look" at how to get travelers in and out of the region, he said.

Officials at Golden Triangle Regional Airport have held ongoing discussions with commercial airlines in efforts to improve and add service. German has goals to see CAVS grow, including the creation of at least two spin-off companies, the graduation of a greater number of students and an increase its research budget by 2010,

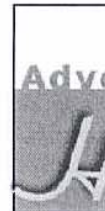
CAVS operates out of four buildings and involves 200 people

Starkville



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employed in projects ranging from research to commercialization.

"There's a lot going on because we're credible," German said.

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*Attachment 7.*





# Rising gas prices may fuel research at MSU's CAVS

By Earl Descant  
Dispatch Starkville Bureau  
edescant@cdispatch.com

STARKVILLE — Rising gas prices may be just the outside ingredient to drive research and technology development at the Centers for Advanced Vehicular Systems at Mississippi State University to make CAVS a forerunner in hybrid car development.

"We got into something early and developed some expertise," said Dr. Rand German, director of CAVS, describing the growth the program has seen in the last 32 months since it was formed.

And developing what he calls "niches" in the automotive technology world will be what sets apart CAVS from the 47 other automotive engineering programs around the country.

"What we're doing right now is trying to move into an area where we're competitive," German told the Starkville Rotary Club Monday, calling up projects like the Challenge X hybrid vehicle, where MSU students took a standard issue gas-powered Chevrolet Equinox, and reconfigured it into a hybrid vehicle powered by electricity and a bio-diesel engine. MSU's Challenge X recently took top awards in drive quality and energy use at the 2006 national Challenge X competition at the General Motors Desert Proving

Grounds in Mesa, Ariz.

CAVS would like to continue research in the hybrid area possibly looking into taxicab development or delivery trucks.

"Taxi cabs, with their starts and stops, are perfect uses for the hybrid vehicle," said German. "And UPS is coming up with a hybrid delivery truck."

"And none of the other schools have started doing this yet," he added, noting when thinking about niche design

*"The students have proved that we can be credible at all levels."*

**Dr. Rand German**  
*Centers for Advanced Vehicular Systems at MSU*

happening in Mississippi, the region may also be poised for niche production.

"Taxi-cabs are a better match for the local area," said German, since many major auto companies, with their high turn-out, have sometimes wondered if Northeast Mississippi has the employee base to supply a large auto-manufacturing operation. And hybrid taxicabs may be a more ideal match.

But what can not be ignored are barriers such as convincing industry and academic leaders to locate in the area, as well as a lack of access to a major airport, he added.

"They come and visit and they get a little bit nervous,"

said German. "Especially the wife."

"And the airport (Golden Triangle Regional Airport) is small and there's relatively few flights," he continued.

However, the Golden Triangle, despite its sleepy demeanor has managed to make a few key industry inroads, such the construction of SeverCorr, a steel company which will produce flat-rolled sheet metal for the automotive industry, and the growth of aerospace development through companies like Aurora and American Eurocopter.

And at CAVS, research and technology development is steadily increasing, say its leaders.

"The students have proved that we can be credible at all levels," said German, adding that by 2010, CAVS's goal is to grow its research budget to \$30 million, largely through the help of the private sector, and drastically increase the amount of academic publishing.


Other technology like electric automobiles or hydrogen fuel cells may be a long way off, said German, largely because of their stiff costs.

"A hydrogen gas station could cost about \$1 million," said German, and adding that in terms of actual savings in energy and fossil fuels, electric cars are on par with gas vehicles.

"From an overall energy-gain, there's not much there," he said.



Attachment 8.



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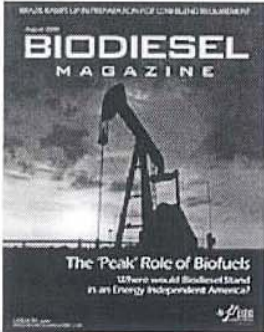
# BIODIESEL

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**Current Issue**

[From the August 2006 Issue](#)

## Biodiesel hybrid named runner-up in Challenge X

Biodiesel made another strong showing in this year's Challenge X: Crossover to Sustainable Mobility, a three-year college engineering challenge sponsored by General Motors Corp. and the U.S. DOE. A team from the University of Wisconsin for its development of a 1.9-liter turbo-charged biodiesel electric hybrid. Third place went to Virginia Tech for its development of a 1.9-liter turbo-charged biodiesel electric hybrid. Third place went to Virginia Tech for its development of a 1.9-liter turbo-charged biodiesel electric hybrid. Third place went to Virginia Tech for its development of a 1.9-liter turbo-charged biodiesel electric hybrid.

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**IEEE**

**MEETING – IEEE MISSISSIPPI SECTION**

**Date:** Thursday, 21 September 2006

**Time:** 6:00 PM Dinner, 7:00 PM Presentation

**Location:** Western Sizzlin' Steak House  
149 Soldier Colony Road, Canton, MS (601) 859-5828

**Presentation:** **Hybrid Vehicle Challenge X Competition at MSU**  
A team of Mississippi State engineering students that developed a diesel-electric hybrid automobile capable of getting 35 miles-per-gallon finished third in the 2006 national Challenge X competition. <http://www.msuchallengex.org/>

**Speaker/Guide:** **Dr. Marshall Molen**  
Mississippi State University

**Contact:** David C. Schoggen, Chair [[DSCHOGG@entergy.com](mailto:DSCHOGG@entergy.com)]  
or 601-940-6418 PEs: 1.0 PDH Credits

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