Mississippi State University Marketing Program Final Report

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I. Executive Summary

During this fourth and last year of Challenge X, the Mississippi State team has made a valuable contribution to the overall goal of the competition – *Sustainable Mobility.* Now with the price of oil well in excess of $100 per barrel, the growing concerns regarding global warming, and the impact on our national economy and security, the American public is now, more than ever, receptive to new concepts that can provide that sustainability. They look to our universities, and the students who will be tomorrow's engineers, to provide the leadership in developing these technologies. Our objective, so as to address this goal, is to provide the public with factual information that is particularly relevant to our region. This is oftentimes best communicated by actual demonstrations that illustrate the capabilities and features of the vehicle.

In order to address a challenge of this magnitude we determined it was best to first understand the consumer in the target region in terms of their concerns regarding transportation and its impact on the social, economic, and ecological issues. We have found through our market research that the concerns of the public in our region of the U.S. are oftentimes quite different than other regions of the country where pollutants such as smog, for example, are much more visible. Getting to know the consumer as a first step was highlighted when we expanded our Challenge X team to include marketing students from the College of Business and Industry at Mississippi State.

We learned it is not enough to just develop a great concept; we must then be able to convince the public that we have a product that will meet their needs. In our region, pickup trucks and SUVs are particularly popular in part due to the emphasis on agriculture. It is necessary to disprove common myths regarding hybrids, for example – they are small, have poor performance, the vehicle operation is complex, and the styling is unattractive. Many of the outreach activities promoted by our team attempted to address these concerns, oftentimes in a most unusual format. For example, the team sponsored a fashion show this spring at a local arts festival where the green concept was promoted along with our Challenge X vehicle. One of our team members modeled a dress made of soy that received considerable publicity. For outreach events such as this, our team has driven our vehicle over 17,000 miles during the 4 years of the Challenge X competition.

In this report we describe the numerous activities in which we engaged so as to understand our consumer, to educate the public regarding energy utilization beginning with our youth, and to deliver the message in a format that is the nucleus of a marketing campaign to promote the hybrid concept. It can truthfully be said that in that state of Mississippi, Challenge X has made a difference!

II. Marketing Plan

Our marketing strategy for Year 4 of the Challenge X competition was to increase awareness of hybrid vehicle technology and promote Challenge X to the public as a visible symbol of our exploration into solutions to the energy crisis. As outlined in this report, we feel we have far surpassed these goals. We have increased awareness of hybrid vehicle technology through the many media hits, our outreach activities, and through our website. In addition to promoting the Challenge X competition in each of these areas, we have marketed our vehicle by aligning the vehicle's qualities with the values and needs of the consumers in our region.

The Mississippi State University Challenge X team has built an extensive outreach/marketing program to execute the solid marketing plan we submitted in October 2007. We have worked to organize quality events in community and youth outreach, as well as media coverage and social marketing that accurately presented the key messages we intended to communicate this year.

Our plan emphasized the need for more market research on the perceptions of hybrid vehicles and on the vehicle purchasing habits of individuals in our region. After investigating both secondary and primary data sources, we discovered that instead of targeting only the forty to sixty year old age range, as we had planned, it would be beneficial to expand the range. Our initial findings indicated that thirty to forty-five year olds with children are the most likely to buy a vehicle in the near future, and that we could effectively target college age students. Another factor that suggests benefits from focusing on a younger age range is that this group is more receptive to "eco" messages. This proved to be an effective modification, as we were open to participating in more events. Throughout the year we worked to target the eighteen to twenty-three and forty to sixty year old age groups by tailoring our activities around their interests and attitudes.

Our research findings sometimes led us to other outreach events not outlined in our marketing plan. However, we made sure that all of the additional events supported our marketing strategy, and that each of them were valuable in helping us to accomplish our outreach objectives. This year's objectives were:

a) To educate the public about the benefits of hybrid vehicles – This was accomplished through our outreach events, which showcased hybrids and their many benefits. Our outreach program has been an invaluable tool in accomplishing this goal. Speaking directly with people, while displaying our vehicle, is one of the best ways to convey the added value of hybrid vehicles. We are also constantly pursuing media hits to reach more people in our region, and we have been very successful since the last outreach report in gaining media attention. This has also been accomplished by posting articles to our website that highlight the benefits of hybrid vehicles.

b) To change public attitudes in the Southeastern U.S. region about hybrid vehicles, positioning them as a vehicle "for anyone." - Our strategy this year was to align the features of our vehicle, as well as the features of all hybrid vehicles, with the values of our target region. By displaying the vehicle at various community events, we worked to dispel misconceptions that many people in our area have about hybrids, such as lack of power, unattractive appearance, and complicated driving procedures. For instance, taking people for rides in our vehicle shows them that hybrid vehicles can be easy to drive, have just as much power as a stock vehicle, and require no sacrifice in interior space. We focused on community events this year to reach consumers on a more personal level. To align our vehicle's features with the values of people in our region, we worked to redefine the perception of hybrid vehicles. We updated our brochures and website to communicate this message. Similar to last year, we also distributed cards with information about Challenge X on one side and tips for saving gasoline on the other side, and updated the information side to reflect our current message. We also sent pitch letters to local media and niche media, such as farmers' magazines.

c) To promote current availability of hybrid vehicles – We used the website as the main outlet for this information. We updated content on our website to provide more information on different hybrid models. We also held an event at a car dealership to educate people buying vehicles that hybrids are available. Our website has served as one of the most valuable tools for promoting availability of current hybrids. We link to articles on hybrid SUVs and trucks that we have identified as some of the highest selling

vehicles in our area. We have pictures of hybrid SUVs and trucks in all of our presentations, including our high school presentation. One of our events was held at a General Motors dealership, to increase awareness of GM hybrid vehicles. We also changed the presentations we make at community events to include pictures of hybrid SUVs and trucks available on the market now.

d) To educate the public on Challenge X's role as an explorer of solutions for sustainable mobility – All of our outreach and marketing activities this year highlighted Challenge X as a program that explores alternative fuel technology. We used the media as one of our primary means for getting information about Challenge X to the public. The Challenge X name, logo, and artwork are always first and foremost in all our publications, presentations, and signage. All of our students attended media training classes to educate them on what messages they should emphasize (including the Challenge X competition) during media interviews. Student tours of our facilities, presentations of our vehicle, our website, and various publications have served as effective methods for familiarizing people with Challenge X.

e) To educate youth on alternative vehicle technology – Our youth program, called "New Generation, New Energy" included classroom visits, youth group visits, and field trips to our facilities. These activities were very effective in familiarizing young people with hybrid vehicle technology. We have designed a brochure on hybrid vehicles specifically for this audience *(See Attachment 52)*, stickers with our youth program name *(See Attachment 53)*, and we have maintained a “Kids” section on our website.

To add a regional aspect to our youth program, we specifically targeted youth in agriculture programs. We made several presentations to agri-science classes and to agriculturally-centered schools. We have also visited a Future Farmers of America high school chapter, which strongly represented our desired target audience. During our visits with youth we provided hand outs from the “GMability” website and stickers that we designed. We also worked with teachers to ensure that our message is in congruence with what the students are learning in class at that time. Separate presentations were

prepared for elementary students, middle school students, and high school students to ensure that each group is being presented with the appropriate message.

f) To make the public aware of our hybrid architecture that runs on a soybean-based biofuel – It was very important for us to emphasize our use of biodiesel in the vehicle, since Mississippi is an agriculturally-oriented state. We targeted local and agriculturally-centered niche media, several of which provided coverage in their publications.

Our hybrid architecture is detailed in the brochure for our team, which was passed out during each outreach activity and made available in venues throughout our state. We also emphasized the use of soybean biodiesel on our website and in all of our presentations, vehicle exhibitions, brochures (*See Attachment 50*), and media interviews.

II. Marketing Activity Detail

A. Media Relations

This year the Mississippi State team received 54 media hits covering television, newspaper, magazine, web, radio, and podcasts. Our team targeted regional and niche media to get coverage more customized to our target audience. We prepared our team to talk to media by holding media training workshops where they learned how to effectively interview with media while stressing our key messages.

Media Type	Media Outlet and Reporter's Name	Date	Location	Coverage Origin
Radio	Southern Urban News Net, Kelsey Minor	June 7, 2007	Mississippi region	Year 3 competition event
Radio	Kim Wade	June 7, 2007	Mississippi region	Year 3 competition event
Web *See Attachment 1.*	Green Car Congress website	June 7, 2007	Online www.greencarcongress.com/2007/06/mississippi_sta.html	Year 3 competition event
Web video *See Attachment 2.*	Brightcove.com	June 7, 2007	Online http://link.brighcove.com/services/player/bcpid824493250	Year 3 competition event
Web *See Attachment 3.*	Autoweek online, Kevin A. Wilson	June 7, 2007	Online www.autoweek.com	Year 3 competition event
Web *See Attachment 4.*	Edmunds.com, Author Unknown	June 8, 2007	Online www.edmunds.com	Year 3 competition event

Newspaper	Detroit Free Press, Katie Merx	June 8, 2007	Michigan regional	Year 3 competition event
Web *See Attachment 5.*	Evworld.com, Author Unknown	June 8, 2007	Online www.evworld.com	General Motors Competition press release
Web *See Attachment 6.*	TheAutoChannel.com	June 9, 2007	Online www.theautochannel.com/news	Year 3 competition event
Newspaper *See Attachment 7.*	The Commercial Dispatch	June 10, 2007	North Mississippi Also online	General Motors Competition press release
Newspaper	Starkville Daily News	June 10, 2007	North Mississippi Also online	MSU Challenge X competition press release
Web *See Attachment 8.*	Worldchanging.com, Mike Millikin	June 10, 2007	Online www.worldchanging.com	Year 3 competition
Web *See Attachment 9.*	Wired Magazine Blog, Mary Jerome	June 11, 2007	Online Blog.wired.com	Year 3 competition
Web	Clarion Ledger, Andy Kanengiser	June 12, 2007	Mississippi regional. Also online at http://www.clarionledger.com/apps/pbcs.dll/article?AID=/20070612/NEWS/706120001	Year 3 competition
Web *See Attachment 10.*	Podtech.net	June 12, 2007	Online http://www.podtech.net/home/3307/challenge-x-year-3-awards	Year 3 competition

Web	Commercial Dispatch Online	June 12, 2007	Online http://nl.newsbank.com/nl-search/we/Archives?p_action=doc&p_docid=119BBF2C656011C8&p_docnum=1	Year 3 competition
Radio	WTNI-AM 1640, William Sackett and Ken Holland	June 13, 2007	Mississippi regional	Year 3 competition
Web *See Attachment 11.*	Podtech.net	June 13, 2007	Online http://www.podtech.net/home/3322/challenge-x-winner	Year 3 competition
Web	Clarion Ledger Online, Andy Kanengiser	June 13, 2007	Online http://www.clarionledger.com/apps/pbcs.dll/article?AID=/20070613/NEWS/706130390	Year 3 competition
Web *See Attachment 12.*	Industryweek.com, Brad Kenney	June 14, 2007	Online http://www.industryweek.com/ReadArticle.aspx?ArticleID=14384	Year 3 competition event
Newspaper *See Attachment 13.*	Starkville Daily News, Kelly Daniels	June 16, 2007	Mississippi regional	Reception for team members after competition
Web *See Attachment 14.*	Askpatty.com	June 16, 2007	Online http://askpatty.typepad.com/ask_patty_/2007/06/students_hybrid.html	Year 3 competition event
Podcast	www.msstate.edu www.itunes.com	June 21, 2007	Online www.itunes.com	Year 3 competition event
Web *See Attachment 15.*	www.fyiblogsgm.com, Amanda McAlpin	June 21, 2007	Online http://fyi.gmblogs.com/2007/06/the_thrill_of_competition.html#more	Year 3 competition event

Radio	Motor Trend Bob Long	June 23, 2007	Boston, MA Nationally syndicated 132 affiliates	Year 3 competition event
Radio	Auto News Bob Long	June 24, 2007	Boston, MA Nationally syndicated 132 affiliates	Year 3 competition event
Web *See Attachment 16.*	IEEE Spectrum, John Voelcker	July 2007	Online http://www.spectrum.ieee.org	Year 3 competition event
Newspaper *See Attachment 17.*	The Commercial Dispatch Skip Descant	July 11, 2007	Mississippi regional Also online http://www.cdispatch.com/articles/2007/07/11/local_news/area_news/area05.txt	Visit to Rotary Club by Dr. Marshall Molen and Amanda McAlpin
Radio	WMSV 91.1, Krista Vowell	July 12, 2007	Mississippi region	Personal pitch to reporter
Television *See Attachment 18.*	WTOK	July 13, 2007	Mississippi region Also online	Exhibit at MSU Riley Center in Meridian, MS
Newspaper *See Attachment 19.*	The Meridian Star	July 14, 2007	Mississippi region	Exhibit at MSU Riley Center in Meridian
Magazine *See Attachment 20.*	Auto Week	July 24, 2007	National	General coverage
Magazine *See Attachment 21.*	East Mississippi Business Journal, Kirk Thompson	July 2007	East Mississippi and West Alabama	Reception for team members after competition
Magazine *See Attachment 22.*	Biodiesel Magazine Brian Sims	August 2007	National Also online	General coverage

Television	WCBI The Coach Croom Show	September 2007	Mississippi region	General coverage
Magazine *See Attachment 23.*	DieselPower	October 2007	National	General coverage
Radio	Mississippi Public Broadcasting, Lewayne Childrey	November 6, 2007	Mississippi regional Also online http://www.mpbonline.org/news/local-news/0711-archives/071106-lawayne-ChallengeX.mp3	Visit to Yazoo City alumni gathering and general coverage after year 3 competition
Television	WCBI This Week at MSU, Amanda McAlpin	November 18, 2007	Mississippi regional	General coverage
Web *See Attachment 24.*	Motortrend.com, Allyson Harwood	December 2007	Online http:www.motortrend.com	Coverage of California Ride and Drive at Peterson Auto Museum
Web *See Attachment 25.*	Energy Rush TV Blog	December 1, 2007	Online http://energyrush.tv/blog/2007/12/01/competitors-and-amazement/	Coverage of California Ride and Drive at Peterson Auto Museum
Web *See Attachment 26.*	MSState.edu, Robbie Ward	December 14, 2007	Online http://www.msstate.edu/web/media/detail.php?id=4089	Coverage of Winter Workshop California events
Web *See Attachment 27*	Napsnet.com	February 12, 2008	Online http://www.napsnet.com/articles/57448.html	General coverage
Web *See Attachment 28.*	Carjunky.com	February 24, 2008	Online http://news.carjunky.com/alternative_fuel_vehicles/engineering-students-propel-green-vehicles-cdf476.shtml	General coverage

Radio	99.1 MHz	March 1, 2008	Mississippi regional	Coverage of exhibit at Chevrolet dealership
Web *See Attachment 29.*	Jay Leno's Garage website	March 2008	Online http://www.jaylenosgarage.com/video/video_player.shtml?vid=201465	Coverage of Winter Workshop California events
Newspaper *See Attachment 30.*	George County Times	March 12, 2008	Mississippi regional	Press release for exhibit at Chevrolet Dealership
Newspaper	Starkville Daily News	April 18, 2008	Mississippi regional	Press release for fashion show
Newspaper *See Attachment 31.*	The Commercial Dispatch, Skip Descant	April 21, 2008	Mississippi regional	Coverage of fashion show
Newspaper *See Attachment 32.*	The Reflector, Jennifer Nelson	April 22, 2008	Mississippi regional	Recycling bin joint effort with campus recycling club
Magazine *See Attachment 33.*	Corn and Soybean Digest, Amanda McAlpin	April 2008	National	Story sent to media by team focusing on use of biodiesel in the vehicle
Magazine *See Attachment 34.*	Delta Farm Press	April 2008	Regional Also online at http://deltafarmpress.com/news/energy-car-0425/	Story sent to media by team focusing on use of biodiesel in the vehicle
Web *See Attachment 35.*	Mississippi State University website	April 24, 2008	Online www.msstate.edu	Coverage of contest for logo design.
Newsletter *See Attachment 36.*	Mississippi State University Bagley College of Engineering Newsletter	April 2008	National	Bill Nye "The Science Guy" visit
Newspaper *See Attachment 37.*	Starkville Daily News	May 4, 2008	Mississippi regional	Coverage of fashion show
Web *See Attachment 38.*	MSState.edu Robbie Ward	May 7, 2008	Online www.msstate.edu	Year 4 competition event

B. Outreach

The Mississippi State team held 40 community outreach events this year. From displaying the vehicle at festivals, to helping produce a 'green' fashion show, we interfaced with the public in a way that highlighted the benefits of hybrid vehicles.

Activity	Date	Location	Audience	Participants
1. Celebration and Media Reception	June 15, 2007	Center for Advanced Vehicular Systems, MSU Campus	Campus and media	All team members, CAVS employees, University officials
2. Presentation to Starkville Rotary Club	July 9, 2007	Starkville, MS	Approximately 110 members	Amanda McAlpin, Outreach Coordinator; Marshall Molen, Faculty Advisor
3. Presentation to Appalachian Leadership Honors Program	July 12, 2007	CAVS	45 university students	Amanda McAlpin, Outreach Coordinator; Stephen Phillips, Team Member; Dustin Barnes, Team Member
4. Exhibit at the Meridian MSU Riley Center	July 13, 2007	Meridian, MS	Approximately 100 passersby	Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member
5. Presentation to Mobile MSU Alumni Association Annual Banquet	July 13, 2007	Mobile, AL	56 MSU alumni	Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member
6. Exhibit at PACCAR Dinner	July 14, 2007	West Point, MS	Approximately 50 people	Amanda McAlpin, Outreach Coordinator; Ron Lewis, Team Member; Stephen Phillips, Team Member
7. Exhibit at MSU Extravaganza	July 19, 2007	Jackson, MS	Approximately 2500 attendees	Amanda McAlpin, Outreach Coordinator; Stephen Phillips, Team Member; Ryan Williams, Team Member

8. Exhibit and Presentation at Yazoo City Alumni Banquet	July 27, 2007	Yazoo City, MS	69 alumni and incoming MSU freshmen	Amanda McAlpin, Outreach Coordinator; Stephen Phillips, Team Member
9. Exhibit at Oktibbeha County MSU Alumni Banquet	August 2, 2007	MSU Campus	54 alumni and incoming MSU freshmen	Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member; Matthew Doude, Team Member
10. Presentation and Exhibit at Memphis Chapter of MSU Alumni	August 6, 2007	Memphis, TN	Approximately 175 alumni and incoming freshmen	Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member; Marshall Molen, Faculty Advisor
11. Visit to Fedex Headquarters	August 7, 2007	Memphis, TN	5 employees	Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member; Marshall Molen, Faculty Advisor
12. Presentation and Exhibit at George/Greene County MSU Alumni Chapter Annual Banquet	August 9, 2007	Lucedale, MS	Approximately 300 alumni and incoming freshmen	Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member
13. Presentation to Columbus Exchange Club	August 30, 2007	Columbus, MS	Approximately 75 members	Matthew Doude, Team Member
14. Presentation to Optimist Club	September 9, 2007	Starkville, MS	Approximately 40 members	Amanda McAlpin, Outreach Coordinator; Stephen Phillips, Team Member; Matthew Doude, Team Leader
15. Electrical and Computer Engineering Day	September 22, 2007	MSU Campus	Approximately 200 alumni	Amanda McAlpin, Outreach Coordinator; Stephen Philips, Team Member; Mike Trcalek, Team Member
16. Discovery Day	October 6, 2007	MSU Campus	Approximately 500 attendees	Amanda McAlpin, Outreach Coordinator; Matthew Doude, Team Leader; Stephen Phillips, Team Member

17. Presentation to Dean's Council for Bagley College of Engineering	October 11, 2007	MSU Campus	21 members	Amanda McAlpin, Outreach Coordinator; David Oglesby, Co-Team Leader; Marshall Molen, Faculty Advisor; Stephen Phillips, Team Member
18. Visit from Fedex Senior Employees	October 19, 2008	MSU Campus	3 employees	Amanda McAlpin, Outreach Coordinator; Marshall Molen, Faculty Advisor; Stephen Phillips, Team Member; Matthew Doude, Team Member
19. Presentation to Alternative Energy Sources Class	November 16, 2007	MSU Campus	36 students and one professor	Matthew Doude, Team Leader
20. Presentation to the Graduate Student Seminar	January 24, 2008	MSU Campus	41 students	Matthew Doude, Team Leader
21. Presentation to American Welding Society	January 24, 2008	MSU Campus	24 members	Matthew Doude, Team Leader
22. Presentation to Marketing Management class	January 24, 2008	MSU Campus	28 students	Amanda McAlpin, Outreach Coordinator
23. Presentation to Marketing Management class	January 24, 2008	MSU Campus	19 students	Amanda McAlpin, Outreach Coordinator
24. Visit from Marketing classes	February 9, 2008	MSU Campus	22 students	David Oglesby, Co-Team Leader; Marshall Molen, Faculty Advisor; Amanda McAlpin, Outreach Coordinator; Matthew Doude, Team Leader

25. Presentation to Jones County Junior College students	February 20, 2008	MSU Campus	30 students	Amanda McAlpin, Outreach Coordinator; Bob Kirkland, Staff Advisor; Matthew Doude, Team Leader
26. Visit from Beijing Institute of Technology students	February 22, 2008	MSU Campus	37 students and 1 project coordinator	Amanda McAlpin, Outreach Coordinator: Robert Kirkland, Staff Advisor
27. Celebration of MSU's 130th Birthday by the George/Greene County Alumni Chapter	February 29, 2008	Lucedale, MS	Approximately 150 attendees	Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member; Liza Sisson, Team Member; Stephen Phillips, Team Member; Jenna Grantham, Team Member
28. Exhibit at Walt Massey Chevrolet Dealership	March 1, 2008	Lucedale, MS	Approximately 125 attendees	Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member, Liza Sisson, Team Member; Stephen Phillips, Team Member; Jenna Grantham, Team Member
29. MSU Spirit of State Award	March 28, 2008	MSU Campus	Approximately 125 attendees	Matt Young, Team Member
30. Super Bulldog Weekend at the Junction	Marsh 29, 2008	MSU Campus	Approximately 1,200 attendees	Amanda McAlpin, Outreach Coordinator; Ryan Williams, Team Member; Mike Trcalek, Team Member
31. X Day	April 9, 2008	MSU Campus	Approximately 200 attendees	Josh Frazier, Team Member; Amanda McAlpin, Outreach Coordinator; Marketing class students

32. Visit from Bill Nye "The Science Guy"	April 9, 2008	MSU Campus	Bill Nye	Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member; Matthew Doude, Team Member; Stephen Phillips, Team Member; Liza Sisson, Team Member
33. Challenge X Cups at Cotton District Arts Festival	April 19, 2008	Starkville, MS	Approximately 250 cups handed out	Amanda McAlpin, Outreach Coordinator
34. "Green is the New Black" Fashion Show	April 19, 2008	Starkville, MS	Approximately 15,000 attendees	Amanda McAlpin, Outreach Coordinator; Julian McMillan, Team Member; Brady Cunningham, Team Member; Michael Barr, Team Member; Phillip Cranford, Team Member; Ryan Williams, Team Member; Matt Young, Team Member; Jenna Grantham, Team Member, Marketing Class
35. Recycling Bins at Spring Fling	April 22, 2008	MSU Campus	Approximately 500 attendees	Amanda McAlpin, Outreach Coordinator; Jenna Grantham, Team Member; Michael Barr, Team Member
36. Basic Car Care Class	April 24, 2008	MSU Campus	12 attendees	Josh Frazier, Team Member; Liza Sisson, Team Member; Amanda McAlpin, Outreach Coordinator, Mike Trcalek, Team Member

37. Cups at "Veranda" local restaurant	April 30-May 5, 2008	Starkville, MS	500 cups handed out	Amanda McAlpin, Outreach Coordinator; Josh Frazier, Team Member
38. Reserved hybrid parking spot at local airport	Spring 2008	Columbus, MS	Public	Amanda McAlpin, Outreach Coordinator; Matthew Doude, Team Leader; Liza Sisson, Team Member
39. Gas savings tips cards	Spring 2008	Starkville, MS	Approximately 500 cards handed out	Amanda McAlpin, Outreach Coordinator; Josh Frazier, Team Member; Liza Sisson, Team Member
40. MSU Challenge X Newsletter	2007/2008	MSU Challenge X website	Visitors to the website	Amanda McAlpin, Outreach Coordinator; Liza Sisson, Team Member

1. **Celebration and Media Reception**

Date/Time: June 14, 2007
Location: Center for Advanced Vehicular Systems, Mississippi State University
Team participants: All team members
Audience: Campus and media, University administrators
Activity description/details: This reception was in celebration of the team's win at competition. The event was held in the afternoon, and a media advisory was sent out to all local media. The reception was held in the lobby of CAVS, and videos of the team were played in two adjacent rooms. Media kits were available, as well as other team brochures.
Key messages covered: Challenge X overview and MSU winning the competition.
Any measurable results: 3 media hits. (*See Attachments 13 and 21)*
Photos: *See Figures 1 and 2.*

Figure 1. A cake with the Challenge X logo printed in frosting for the Celebration and Media Reception!

Figure 2. Bob Kirkland, our staff advisor, talks at the Celebration and Media Reception about the awards we received.

2. **Presentation to Starkville Rotary Club**
   Date/Time: July 9, 2007
   Location: Starkville Country Club, Starkville, MS
   Team participants: Marshall Molen, Faculty Advisor; Amanda McAlpin, Outreach Coordinator
   Audience: Approximately 110 members of the Rotary Club
   Activity description/details: Dr. Molen and Amanda gave a presentation at the Rotary Club weekly meeting about Challenge X and the Year 3 competition, also exhibited the vehicle.
   Key messages covered: Challenge X overview and MSU winning the competition.
   Any measurable results: 1 media hit. (*See Attachment 17*.)
   Photos: *See Figure 3.*

Figure 3. Dr. Molen readies the computer for our presentation at The Starkville Rotary Club.

3. **Presentation to Appalachian Leadership Honors Program**
   Date/Time: July 12, 2007
   Location: Mississippi State University Campus
   Team participants: Amanda McAlpin, Outreach Coordinator; Stephen Phillips, Team Member; Dustin Black, Team Member
   Audience: 45 university students
   Activity description/details: These junior college students were in a program designed to encourage leadership. The students wanted to learn about current topics and how programs like Challenge X were run.
   Key messages covered: General overview of Challenge X.
   Photos: *See Figure 4.*

Figure 4. Dustin talks to the Appalachian Leadership students about Challenge X.

4. **Exhibit at the MSU Meridian Riley Center**
   Date/Time: July 13, 2007
   Location: Meridian, MS
   Team participants: Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member; Dustin Black, Team Member
   Audience: About 100 passersby
   Activity description/details: We exhibited the vehicle outside of the Riley Center, which is used for conferences and meetings. People going to the

conference and pedestrians downtown Meridian were able to see the vehicle and speak with Challenge X students who passed out brochures. We sent a media advisory prior to the event, and it was attended by two media outlets. See Attachment 1.
Key messages covered: General overview of Challenge X.
Any measurable results: 2 media hits. One television hit, one newspaper hit (*See Attachment 18 and 19*)
Photos: *See Figures 5, 6 and 7.*

Figure 5. Matt Young speaks to a newspaper reporter outside the Riley Center.

Figure 6. Matt Young speaks to a television reporter at the Riley Center.

Figure 7. Matt Young explains the design of the vehicle to the television reporter.

5. **Presentation to Mobile MSU Alumni Association Annual Banquet**
   Date/Time: July 13, 2007
   Location: Meridian, MS
   Team participants: Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member
   Audience: 56 alumni
   Activity description/details: Matt and Amanda traveled to the alumni gathering to give a presentation on the Year 3 competition. The vehicle was exhibited outside the venue.
   Key messages covered: General overview of Challenge X, Year 3 competition.

6. **Exhibit at PACCAR Dinner**
   Date/Time: July 14, 2007
   Location: West Point, MS
   Team participants: Amanda McAlpin, Outreach Coordinator; Ron Lewis, Team Member; Stephen Phillips, Team Member
   Audience: Approximately 50 attendees
   Activity description/details: PACCAR is a local engine plant that recently built a production facility near our university. We exhibited the vehicle during a dinner they held for local businesses.
   Key messages covered: General overview of Challenge X.
   Photos: *See Figure 8.*

Figure 8. Ron and a PACCAR executive pose with the vehicle.

7. **Exhibit at MSU Extravaganza**
   Date/Time: July 19, 2007
   Location: Jackson, MS
   Team participants: Amanda McAlpin, Outreach Coordinator; Ryan Williams, Team Member; Stephen Phillips, Team Member
   Audience: Approximately 2500 attendees
   Activity description/details: The MSU extravaganza is held each summer for alumni to gather, and as a celebration for incoming MSU freshmen. The event includes music, food, and displays. The vehicle was displayed at the event, and team members were on hand to talk and answer questions.
   Key messages covered: General overview of Challenge X.
   Photos: *See Figures 9, 10 and 11.*

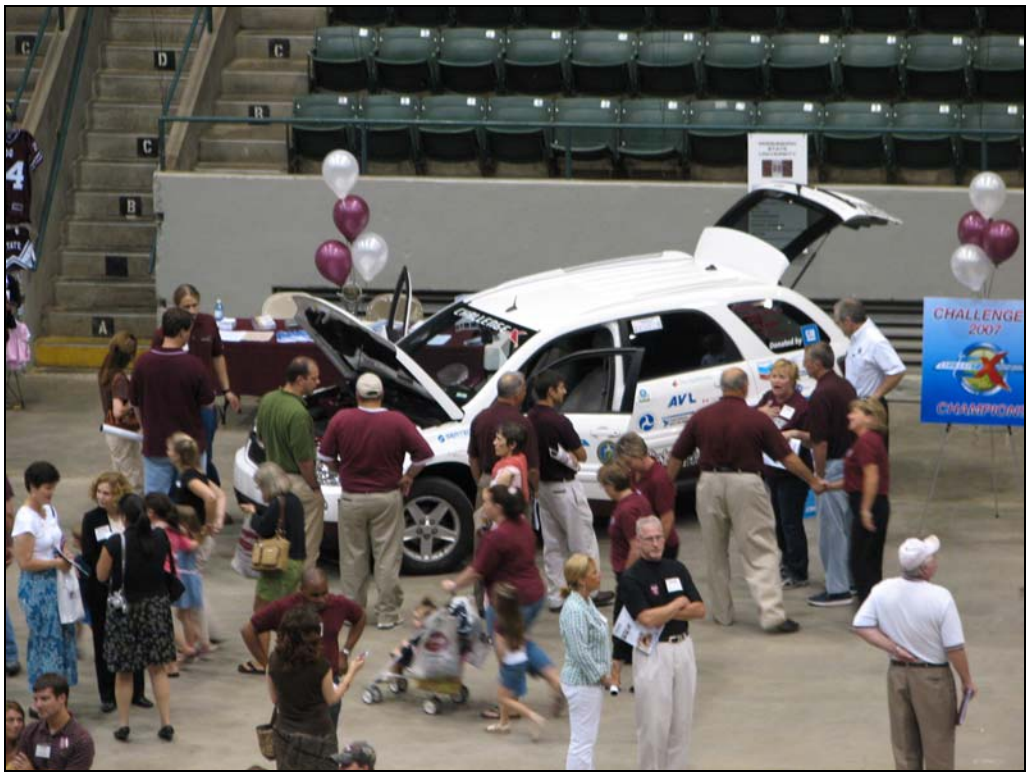


Figure 9. Extravaganza attendees looking at the vehicle.

Figure 10. Two visitors showing we are the number one team!

Figure 11. View of the all the events at the Extravaganza.

8. **<u>Presentation and Exhibition at Yazoo City Alumni Banquet</u>**
   Date/Time: July 27, 2007
   Location: Meridian, MS
   Team participants: Amanda McAlpin, Outreach Coordinator; Stephen Phillips, Team Member
   Audience: 69 alumni and incoming MSU freshmen
   Activity description/details: The team attended the Yazoo City MSU Alumni Banquet and gave a presentation on Challenge X, as well as exhibiting the vehicle.
   Key messages covered: General overview of Challenge X.
   Any measurable results: 1 media hit.
   Photos: *See Figure 12.*

Figure 12. Stephen Phillips talks to a reporter at the Yazoo alumni celebration.

9. **Exhibit at Oktibbeha County MSU Alumni Banquet**
   Date/Time: August 2, 2007
   Location: Mississippi State University Campus
   Team participants: Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member; Matthew Doude, Team Member
   Audience: 54 alumni and incoming freshmen
   Activity description/details: Amanda gave a presentation at this banquet, and the team displayed the vehicle outside the venue.
   Key messages covered: General overview of Challenge X.

10. **Presentation and Exhibit at Memphis Chapter of MSU Alumni**
    Date/Time: August 6, 2007
    Location: Memphis, TN
    Team participants: Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member; Marshall Molen, Faculty Advisor
    Audience: Approximately 175 alumni and incoming freshmen
    Activity description/details: The team traveled to Memphis to exhibit the vehicle at the Memphis chapter of MSU alumni. Amanda gave a presentation, and the vehicle was displayed at the entrance.
    Key messages covered: General overview of Challenge X.
    Photos: *See Figures 13 and 14.*

Figure 13. Amanda McAlpin speaks to the Memphis alumni group about the competition.

Figure 14. The vehicle is displayed outside the Memphis alumni banquet.

11. **Visit and Presentation at FedEx Headquarters**
    Date/Time: August 7, 2007
    Location: Memphis, TN
    Team participants: Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member; Marshall Molen, Faculty Advisor
    Audience: 5 employees
    Activity description/details: The team visited FedEx headquarters to speak to employees about their Challenge X vehicle. FedEx has delivery trucks that are also hybrid electric.
    Key messages covered: General overview of Challenge X.

12. **Presentation and Exhibit at George/Greene County MSU Alumni Chapter Annual Banquet**
    Date/Time: August 9, 2007
    Location: Lucedale, MS
    Team participants: Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member;
    Audience: Approximately 300 alumni and incoming MSU freshmen
    Activity description/details: The team displayed the vehicle at this MSU alumni gathering, and Amanda and Matt gave a presentation on Challenge X and the outcome of the Year 3 competition.
    Key messages covered: General overview of Challenge X.
    Photos: *See Figure 15.*

Figure 15. The vehicle displayed outside the George/Green County alumni banquet.

13. **Presentation to Columbus Exchange Club**
    Date/Time: August 30, 2007
    Location: Columbus, MS
    Team participants: Matthew Doude, Team Leader
    Audience: Approximately 75 members
    Activity description/details: Matthew gave a presentation to the Columbus Exchange Club during one of their meetings. He discussed Challenge X and the Year 3 competition.
    Key messages covered: General overview of Challenge X.

14. **Presentation to Optimist Club**
    Date/Time: September 9, 2007
    Location: Starkville, MS
    Team participants: Amanda McAlpin, Outreach Coordinator; Matthew Doude, Team Leader; Stephen Phillips, Team Member
    Audience: Approximately 40 members
    Activity description/details: Amanda, Stephen, and Matthew talked to the local Optimist Club about the Year 3 competition during one of their regular meetings.
    Key messages covered: General overview of Challenge X.

15. **Electrical and Computer Engineering Day**
Date/Time: September 22, 2007
Location: Mississippi State University Campus
Team participants: Amanda McAlpin, Outreach Coordinator; Stephen Phillips, Team Member; Mike Trcalek, Team Member
Audience: Approximately 200 alumni
Activity description/details: Electrical and Computer Engineering Day is held each year on a home football game day. The department invited electrical and engineering alumni to visit the department to see new developments and the progress that current students have made. The vehicle was displayed along with the team there to answer questions and talk with alumni.
Key messages covered: General overview of Challenge X.

16. **Discovery Day**
Date/Time: October 6, 2007
Location: Mississippi State University
Team participants: Amanda McAlpin, Outreach Coordinator; Stephen Phillips, Team Member; Matthew Doude, Team Member
Audience: Approximately 500 attendees
Activity description/details: Discovery Day is held every fall to encourage high school students to discover what MSU has to offer. The team displayed the vehicle and talked with high school students about engineering and the benefits they have gained from being on the Challenge X team.
Key messages covered: Challenge X overview
Photos: *See Figures 16 and 17.*

Figure 16. The vehicle is displayed at Discovery Day.

Figure 17. The vehicle is displayed at Discovery Day.

17. **Presentation to Dean's Council for the Bagley College of Engineering**
    Date/Time: October 11, 2007
    Location: Mississippi State University Campus
    Team participants: Amanda McAlpin, Outreach Coordinator; Stephen Phillips, Team Member; David Oglesby, Co-Team Leader; Marshall Molen, Faculty Advisor
    Audience: 21 members
    Activity description/details: The team was the guest at this council meeting and gave a presentation on the Year 3 competition and the status of progress in Year 4.
    Key messages covered: General overview of Challenge X and the Year 3 competition.

18. **Visit from FedEx Senior Employees**
    Date/Time: October 19, 2007
    Location: Mississippi State University Campus
    Team participants: Amanda McAlpin, Outreach Coordinator; Marshall Molen, Faculty Advisor; Stephen Phillips, Team Member; Matthew Doude, Team Leader
    Audience: 3 employees of FedEx
    Activity description/details: After the visit with FedEx during the summer, several executive members of FedEx visited MSU and the Challenge X team, and

brought their own hybrid electric vehicle, a special FedEx delivery truck for the team to look at and take a ride in.
Key messages covered: General overview of Challenge X.
Photos: *See Figures 18, 19 and 20.*

Figure 18. Team members pose with FedEx employees around the vehicle.

Figure 19. The team took the FedEx employees for a ride in the Challenge X Vehicle and, in turn, the team got to ride in a hybrid electric FedEx delivery truck.

Figure 20. David Oglesby enjoyed the chance to ride in another hybrid electric vehicle.

19. **Presentation to Alternative Energy Sources Class**
Date/Time: November 16, 2007
Location: Center for Advanced Vehicular Systems, Mississippi State University
Team participants: Matthew Doude, Team Leader
Audience: 36 students and 1 professor
Activity description/details: Matthew gave a presentation on Challenge X to this class, who was studying alternative energy sources. The Challenge X vehicle was a great way to see alternative energy in action.
Key messages covered: General overview of Challenge X and the use of biodiesel in the vehicle.
Photos: *See Figure 21.*

Figure 21. Students from the class look at the Equinox and listen to Matthew Doude speak.

20. **Presentation to the Graduate Student Seminar**
Date/Time: January 24, 2008, 1:00 p.m.
Location: Mississippi State University Campus
Team participants: Matthew Doude, Team Leader
Audience: 41 students
Activity description/details: Presentation to students attending the Graduate Student Seminar.
Key messages covered: Overview of the Challenge X competition and MSU's progress in the competition.

21. **Presentation to American Welding Society**
Date/Time: January 24, 2008, 7:00 p.m.
Location: Center for Advanced Vehicular Systems, Mississippi State University Campus
Team participants: Matthew Doude, Team Leader
Audience: 24 members of the American Welding Society
Activity description/details: Presentation and viewing of the Challenge X vehicle.
Key messages covered: Overview of the Challenge X competition and MSU's progress in the competition

22. **Presentation to Marketing Management class**
Date/Time: January 24, 2008, 12:30 p.m.
Location: Mississippi State University Campus
Team participants: Amanda McAlpin, Outreach Coordinator
Audience: 28 students
Activity description/details: Presentation on Challenge X and the outreach/marketing program.
Key messages covered: Overview of the Challenge X competition and MSU's progress in the competition, details of our outreach/marketing program

23. **Presentation to Marketing Management class**
Date/Time: January 24, 2008, 2:00 p.m.
Location: Mississippi State University Campus
Team participants: Amanda McAlpin, Outreach Coordinator
Audience: 19 students
Activity description/details: Presentation on Challenge X and the outreach/marketing program.
Key messages covered: Overview of the Challenge X competition and MSU's progress in the competition, details of our outreach/marketing program

24. **Visit from Marketing classes**
Date/Time: February 9, 2008, 5:00 p.m.
Location: Center for Advanced Vehicular Systems, Mississippi State University
Team participants: Amanda McAlpin, Outreach Coordinator; Marshall Molen, Faculty Advisor; David Oglesby, Co-Team Leader
Audience: 19 students
Activity description/details: Presentation on Challenge X, viewing of the vehicle.
Key messages covered: Overview of the Challenge X competition and MSU's progress in the competition

25. **Presentation to Jones County Junior College**
Date/Time: February 20, 2008, 2:00 p.m.
Location: Center for Advanced Vehicular Systems, Mississippi State University

Team participants: Amanda McAlpin, Outreach Coordinator; Bob Kirkland, Staff Advisor
Audience: 30 students
Activity description/details: Presentation and viewing of the Challenge X vehicle.
Key messages covered: Overview of the Challenge X competition and MSU's progress in the competition
Photos: *See Figure 22.*

Figure 22. Jones County Junior College students look at the vehicle.

26. **Visit from Beijing Institute of Technology students**
Date/Time: February 22, 2008, 11:00 a.m.
Location: Center for Advanced Vehicular Systems, Mississippi State University
Team participants: Amanda McAlpin, Outreach Coordinator; Bob Kirkland, Staff Advisor
Audience: 37 students and one program coordinator
Activity description/details: Presentation and viewing of the Challenge X vehicle.
Key messages covered: Overview of the Challenge X competition and MSU's progress in the competition
Photos: *See Figures 23 and 24.*

Figure 23. Beijing Exchange students look at the MSU Challenge X vehicle as it is being tested on the dynamometer.

Figure 24. The group of students from Beijing was visiting to learn about American universities.

27. <u>Celebration of MSU's 130th Birthday by the George/Greene County Alumni Chapter</u>

Date/Time: February 29, 2008, 5:00 p.m.
Location: Lucedale, MS
Team participants: Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member; Liza Sisson, Team Member; Stephen Phillips, Team Member; Jenna Grantham, Team Member
Audience: Approximately 150 attendees
Activity description/details: Presentation and viewing of the Challenge X vehicle. This celebration was for the 130th birthday of Mississippi State University. The alumni chapter held a celebration with key members of the university, including our team and vehicle, the university's athletic director, and the university's president. The team gave a presentation and displayed the vehicle outside along with a table inside for brochures and display materials. A press release was sent out before the event highlighting the team's visit. The Alumni Association also sent out a press release to local media. *(See Attachment 49)*
Key messages covered: Overview of Challenge X and MSU's progress in the competition
Photos: *See Figures 25, 26 and 27.*

Figure 25. Amanda discusses Challenge X at the MSU birthday celebration to an audience of over 150 attendees.

Figure 26. The birthday celebration lasted until late in the evening, with participants still interested in seeing the MSU Equinox.

Figure 27. Jenna Grantham plays with children at this family event.

28. <u>Exhibit at Walt Massey Chevrolet Dealership</u>
Date/Time: March 1, 2008, 9:00 a.m. until 1:00 p.m.
Location: Walt Massey Chevrolet Dealership, Lucedale, MS
Team participants: Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member; Stephen Phillips, Team Member; Jenna Grantham, Team Member
Audience: Approximately 125 people
Activity description/details: Exhibition of the Challenge X vehicle. The team displayed the vehicle at the dealership. The team talked with people who came to the dealership to look at vehicles. There was also a radio station that came to broadcast next to the Challenge X display, and Matt Young gave an interview live on the radio.
Key Messages Covered: Hybrid vehicle being built here in Mississippi that uses renewable fuel
Any measurable results: 1 radio hit, ran multiple times. 1 newspaper hit. *(See Attachment 30)*
Photos: *See Figures 28, 29 and 30.*

Figure 28. Matt Young discusses alternative energy sources on a live radio interview during the MSU Challenge X vehicle exhibit at the Walt Massey dealership.

Figure 29. The MSU Challenge X vehicle displayed with other Chevrolet vehicles.

Figure 30. The Challenge X team members and the dealership employees.

29. <u>Spirit of State Awards, Matt Young Recipient</u>

Date/Time: March 28, 2008, 2:00 p.m.
Location: Mississippi State University Campus
Team participants: Matt Young, Team Member
Audience: Approximately 100 attendees
Activity description/details: Mississippi State University gives "Spirit" awards each year to students who have shown exemplary spirit for the university, their schoolwork, and extra-curricular activities. This year one of our team members, Matt Young was given one of the awards after several team members submitted nominations, citing his work on Challenge X. Matt received the award at a reception. In the program, Matt discusses his years with Challenge X and says it has been his best experience while at Mississippi State. *(See Attachment 44)*
Key messages covered: Increased visibility of Challenge X and the value of the program to students.

30. <u>Super Bulldog Weekend at the Junction</u>

Date/Time: March 29, 2008, 9:00 a.m. to 12:00 p.m.
Location: Mississippi State University Campus
Team participants: Amanda McAlpin, Outreach Coordinator; Ryan Williams, Team Member; Mike Trcalek, Team Member
Audience: Approximately 1,200 people
Activity description/details: Super Bulldog Weekend at Mississippi State University hosts alumni, students, and the public for sports events. The Junction in the middle of the campus is filled with tents and booths for visitors. Our vehicle was on display and welcomed approximately 1,200 people.
Key messages covered: General overview of Challenge X.
Photos: *See Figures 31 and 32.*

Figure 31. The vehicle displayed at Super Bulldog Weekend.

Figure 32. Approximately 1200 people attended Super Bulldog Weekend.

31. <u>X Day</u>

Date/Time: April 9, 2008
Location: Mississippi State University Campus
Team participants: Josh Frazier, Team Member; Marketing class
Audience: Approximately 200 people
Activity description/details:
Key messages covered: General overview of Challenge X.
Photos: *See Figures 33, 34 and 35.*

Figure 33. Josh Frazier talks to one of the passersby on campus about our vehicle.

Figure 34. University students looking at the vehicle.

Figure 35. Students and staff looking at the vehicle.

32. <u>Visit from Bill Nye, "The Science Guy"</u>

Date/Time: April 9, 2008

Location: Mississippi State University Campus

Team participants: Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member; Stephen Phillips, Team Member; Matthew Doude, Team Member; Liza Sisson, Team Member

Audience: Bill Nye

Activity description/details: Bill Nye "The Science Guy" came to campus to give a lecture on global warming, climate change, and the importance of science. Our team provided the Challenge X Equinox as Mr. Nye's chauffer vehicle while he was in town, which gave him time to talk to the students and see the vehicle perform. A number of team members were able to have dinner with Mr. Nye after the presentation with a number of other students and administrators from the university. He also took the opportunity to drive the vehicle and discuss the design with team members.

Key Messages Covered: Increased visibility of Challenge X.

Any Measurable Results: 1 media hit. (*See Attachment 36)*

Photos: *See Figures 36, 37, 38, 39, and 40.*

Figure 36. Amanda McAlpin and Bill Nye at dinner.

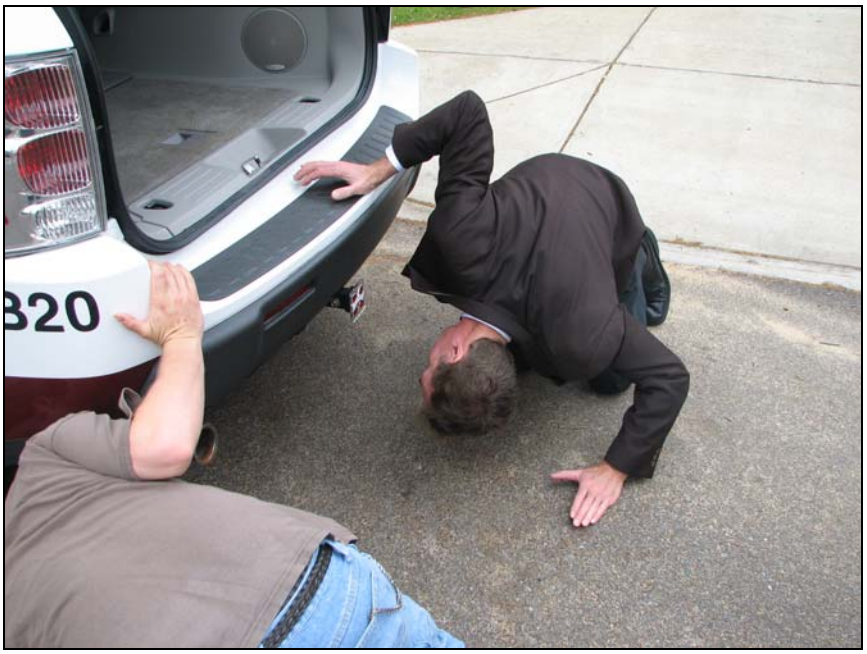


Figure 37. Mr. Nye takes a look under the vehicle.

Figure 38. Stephen Phillips explains the architecture of the vehicle.

Figure 39. The team poses with Bill Nye and the vehicle.

Figure 40. After driving the vehicle, Mr. Nye approves.

33. **Challenge X cups at the Cotton District Arts Festival**

Date/Time: April 19, 2008
Location: Mississippi State University Campus
Team participants: Amanda McAlpin, Outreach Coordinator
Audience: Approximately 250 cups handed out; 15,000 people attended the festival.
Activity description/details: The MSU Challenge X team designed and printed cups with the MSU Challenge X logo and a paragraph about the team and the address for our website. We gave 250 of the cups to The Cotton District Grill, a restaurant located in the middle of the area in which the festival was held. Visitors to the festival stop by this restaurant to get drinks to carry around the festival with them. The Grill used our Challenge X cups for the entire day for anyone who wanted a beverage "to go." These cups are reusable, and many restaurants in our town have similar cups. Most people take them home and reuse them.
Key messages covered: General coverage of Challenge X and Mississippi State's vehicle.
Any measurable results: Cups potentially taken home by 250 people.
Photos: *See Figures 41, 42 and 43.*

Figure 41. The front side of the cups displays the Mississippi State Challenge X artwork.

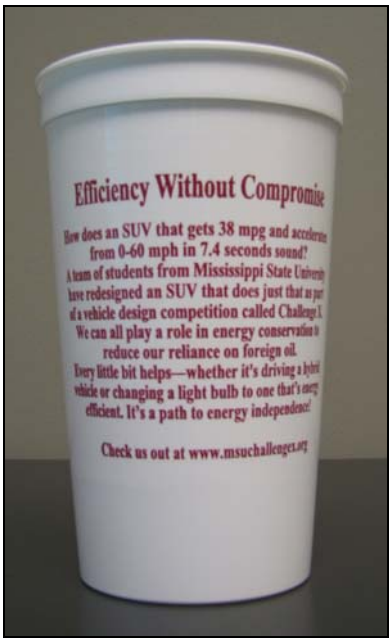


Figure 43. The back of the cups highlights our vehicle architecture, carries our key messages, and points readers to our website.

Figure 41. Visitors to the festival drink from Challenge X cups.

Figure 42. A woman who performed in the festival holds a Challenge X cup.

Figure 43. A woman drinks from a Challenge X cup while socializing at the festival.

34. "Green is the New Black" Fashion Show

Date/Time: April 19, 2008

Location: Starkville, MS

Team participants: Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member; Brady Cunningham, Team Member; Michael Barr, Team Member; Julian McMillan, Team Member; Ryan Williams, Team Member; Phillip Cranford, Team Member; Jenna Grantham, Team Member

Audience: Approximately 15,000 people

Activity description/details: The Mississippi State Challenge X team partnered with 3 other student organizations to put on this fashion show. The MSU Student Fashion Board put together the show, while art students sculpted art pieces to help decorate the runway, and the marketing classes helped with publicizing the event. The theme of the fashion show was "Green is the New Black," and it showcased eco-friendly and recycled fashion. The show also promoted energy-saving practices. All models were only allowed to take 8 minute showers and not use any electric appliances while preparing for the show, such as hairdryers or hot curlers. The Challenge X team was the main sponsor for the event, and our logo was on all posters for the event, *(See Attachment 40.)* as well as the programs for day-of publicity *(See Attachment 41).* A local radio station also announced the show each day for two weeks before the event, naming Challenge X as the sponsor. There was a Facebook event for the show that featured Mississippi State Challenge X as the sponsor. The announcer for the event read a paragraph about the Challenge X team before the show began, and announced that it was on display when the show closed.

On the day of the show, the Challenge X vehicle was displayed the entire day, so the vehicle got a huge viewing by all the people attending the festival. The vehicle was also set up directly to the side of the runway, so anyone watching the show was able to see the vehicle behind the models.

Jenna Grantham, one of our team members, designed and sewed a dress out of soy fabric *(See Figure 46)*. Since we are stressing our use of soybean-based biodiesel, this was a great tie-in for us. We made a flyer for the show detailing our interest in the show and why we had sponsored it, and the flyer featured a picture of Jenna wearing the dress standing next to our vehicle *(See Attachment 42).*

We felt that sponsoring a fashion show was a great way to reach our broader target audience, as well as to get people interested who might not normally pay attention to the vehicle.

The event was covered in a press release that ran in a local paper the day before the show, and covered by another local paper the following Monday after the event.

Key messages covered: Increased visibility of Challenge X, emphasis on soybean biodiesel.

Any measurable results: Three media hits *(See Attachments 31 and 37)*, posters around the city of Starkville, MS, with our name and logo.

Photos: *See Figures 44, 45, 46, 47, 48, and 49.*

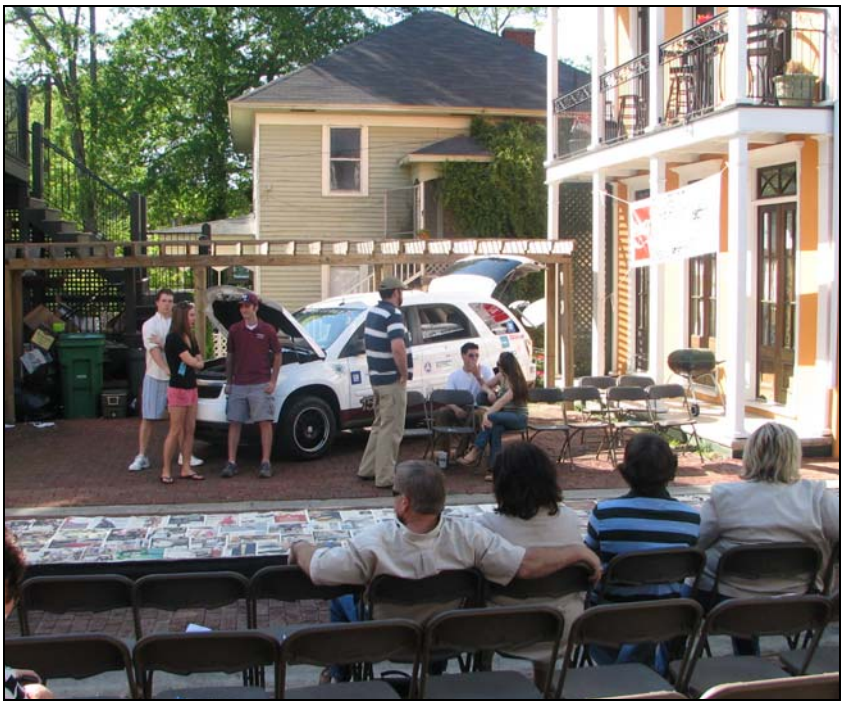


Figure 44. The vehicle was on display the entire day for festival attendees.

Figure 45. "Green is the New Black" was the name of the fashion show, highlighting eco-friendly fashions.

Figure 46. Jenna Grantham models the soy dress during the show, while the emcee reads about soy fabric and soy biodiesel.

Figure 47. The vehicle was on display after the fashion show with team members around to answer questions from visitors.

Figure 48. Jenna Grantham working on the soy dress.

Figure 49. Jenna Grantham models the soy dress.

35. <u>Recycling bins at Spring Fling</u>

Date/Time: April 22, 2008

Location: Mississippi State University Campus

Team participants: Amanda McAlpin, Outreach Coordinator; Jenna Grantham, Team Member; Michael Barr, Team Member

Audience: Approximately 500 attendees

Activity description/details: The Mississippi State Challenge X team partnered with the newly formed MSU Recycling Club to buy and paint recycling bins to be used at the campus Spring Fling, an event open to the public with free music and food. The recycling bins were each painted with recycling arrows and the Mississippi State Challenge X logo. The bins were placed around the event, near garbage cans. The Recycling Club will keep these bins and use them in all future events on campus and around Starkville where they recycle, so the logo will be seen for several years.

Key messages covered: Viewing of our logo by a wide audience, a tie-in to recycling.

Any measurable results: An article in The Reflector, the campus newspaper, talked about the recycle bins and how the Mississippi State Challenge X team was responsible for them. *(See Attachment 32)*

Photos: *See Figures 50, 51, and 52.*

Figure 50. Jenna Grantham paints the Mississippi State Challenge X logo on each bin.

Figure 51. The recycle bins display the Challenge X logo.

Figure 52. The recycle bins at Spring Fling.

36. <u>Basic Car Care Class</u>

Date/Time: April 24, 2008

Location: Center for Advanced Vehicular Systems, Mississippi State University

Team participants: Josh Frazier, Team Member; Liza Sisson, Team Member; Amanda McAlpin, Outreach Coordinator; Dustin Black, Team Member; Marshall Molen, Faculty Advisor, Mike Trcalek, Team Member

Audience: 12 attendees

Activity description/details: This car care class was held as a service to the community, and members of the team gave presentations on how to take care of your car for those with no previous experience. Topics of discussion were warning lights, how a car works, and checking vital fluids. An emphasis was place on saving fuel, and we tied it in to the Challenge X program. The class was advertised with a flyer, as well as through the Bagley College of Engineering online calendar. *(See Attachments 43, 54, and 55)*

Key messages covered: General overview of Challenge X, and practicing smart and safe driving habits

Photos: *See Figures 53 and 54.*

Figure 53. Dr. Molen discusses the Challenge X competition at the Car Care Class.

Figure 54. Mike Trcalek shows Car Care Class attendees how to check and maintain safe fluid levels.

37. <u>Challenge X Cups at "Veranda" local restaurant</u>

Date/Time: April 30-May 1, 2008
Location: Starkville, MS
Team participants: Amanda McAlpin, Outreach Coordinator; Josh Frazier, Team Member
Audience: 500 patrons of the restaurant
Activity description/details: Our Challenge X cups were given to the restaurant and used for two days during the lunch hour. People were able to read the paragraph about Challenge X while they were at the restaurant waiting on food or while they were eating. Several restaurants in our area use these plastic cups and it is common for people to take them home and reuse them.
Key messages covered: Challenge X overview, decreasing reliance on foreign oil.
Photos: *See Figures 55, 56, 57, 58, and 59.*

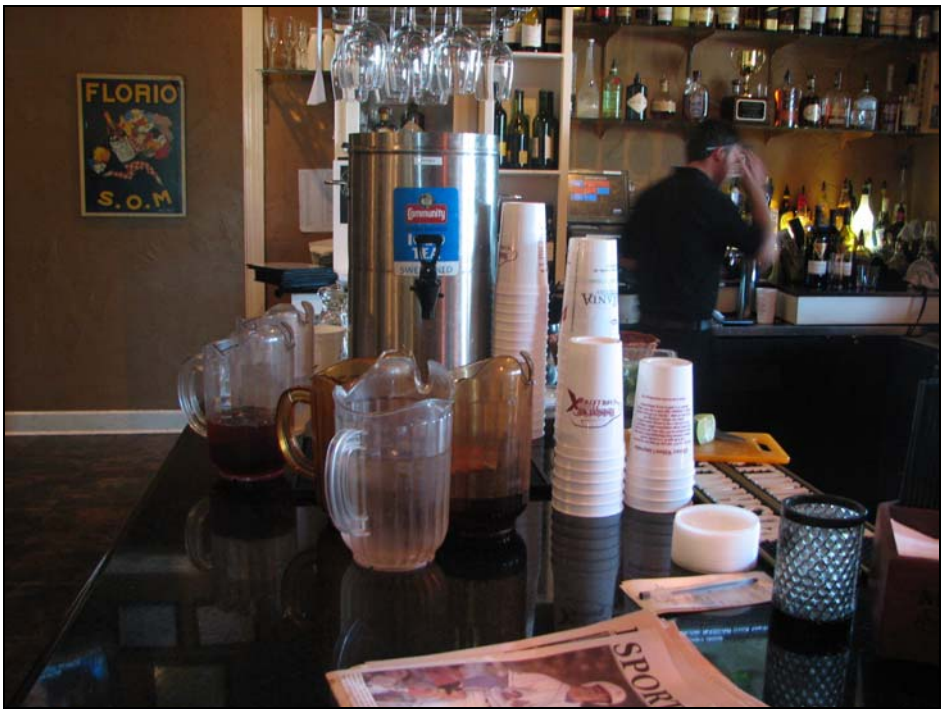


Figure 55. Cups at the bar waiting to be filled.

Figure 56. Cups at a table.

Figure 57. People eating lunch drink from Challenge X cups.

Figure 58. A waitress fills Challenge X cups with iced tea.

Figure 59. A table of people having lunch use Mississippi State Challenge X cups.

38. **<u>Reserved Hybrid Parking Spot at Golden Triangle Regional Airport</u>**
Date/Time: Spring 2008
Location: Columbus, MS
Team participants: Amanda McAlpin, Outreach Coordinator; Matthew Doude, Team Leader; Liza Sisson, Team Member
Audience: General public
Activity description/details: As we researched hybrid vehicles early in Year 4, we discovered that many larger cities have incentives in place for people who buy hybrid or electric vehicles. One incentive is free or discounted parking at many large airports. One of our team goals was to familiarize the public in our region with hybrid vehicles, and convince them that they are a desirable product. We decided that having a reserved spot at our local airport for hybrid vehicles would serve several purposes. One, it would reward anyone who owns a hybrid vehicle with a parking spot close to the airport entrance, and possibly discounted parking in the future; and also make the public aware that people in our area are buying hybrids vehicles. We worked with the Golden Triangle Regional airport, the airport closest to our university, to convince them to designate a spot in their parking lot exclusively for hybrid vehicles. We designed the sign that will be placed in the lot. The parking lot is now under construction to be repaved and build a space for the new sign, and will most likely be installed in late May. We intend to send out a press release when the sign has been put up. The sign was designed by one of our team members, and has been approved by the airport authorities. The director of the airport sent an email approving the space, and noted that it would be completed at the end of May. *(See Attachment 45)*
Key messages covered: Increased awareness of hybrid vehicles.
Photos: *See Figure 60.*

Figure 60. The sign that will be displayed in the parking lot was designed by team member Liza Sisson.

39. <u>Challenge X Cards with Gas Saving Tips</u>

Date/Time: Spring 2008

Location: Starkville, MS

Team participants: Amanda McAlpin, Outreach Coordinator; Josh Frazier, Team Member; Liza Sisson, Team Member

Audience: Public, approximately 500 cards handed out

Activity description/details: We printed up these cards with suggestions on how to get better gas mileage from your vehicle. One side of the card had the gas saving tips, and the other side had a paragraph about the Mississippi State University Challenge X team as well as a team picture with the vehicle and a link to the team's website.

Key messages covered: General overview of Challenge X, saving fuel, less reliance on foreign oil.

Photos: *See Figures 61, 62, and 63.*

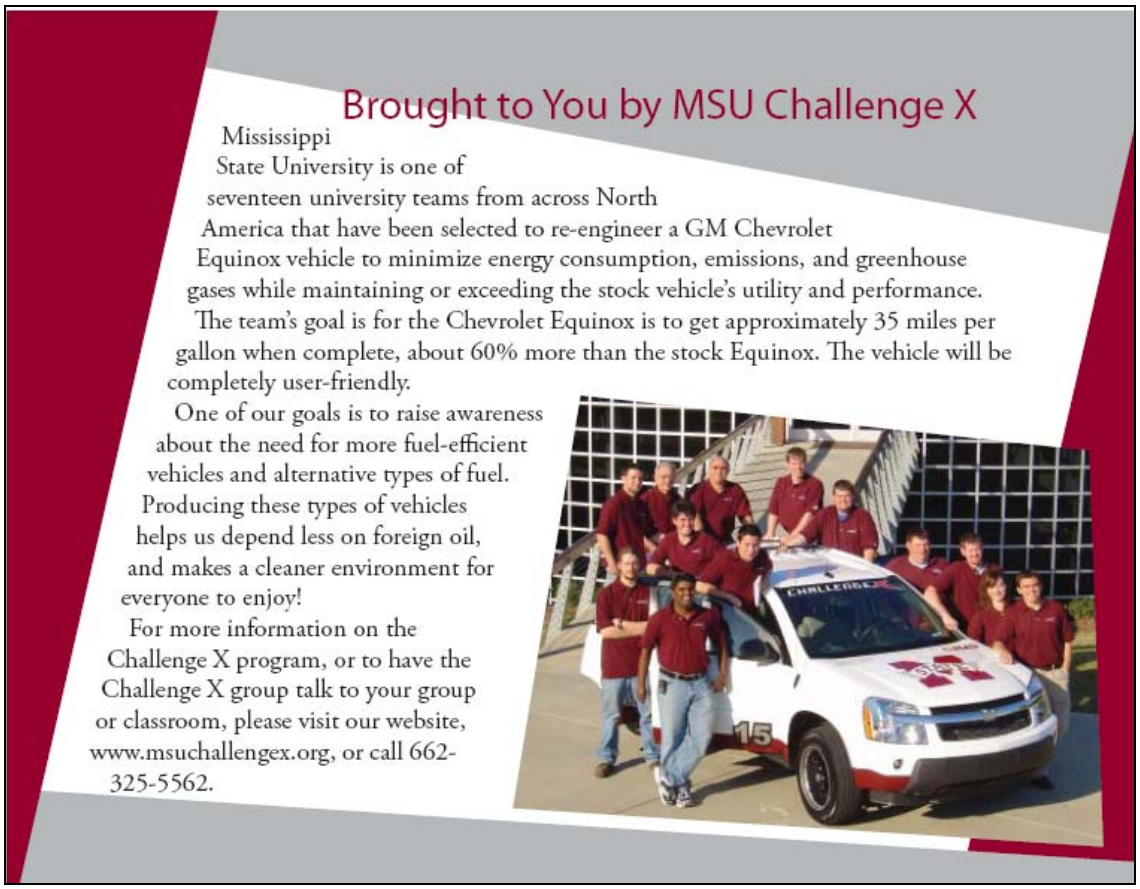


Figure 61. The front side of the gas savings cards tells about the Mississippi State Challenge X team.

Figure 62. The reverse side of the gas savings card gives tips on saving fuel in your own vehicle.

Figure 63. Cards with gas tips displayed with our 'beans in jars' displays.

40. Mississippi State Challenge X Newsletter

Date/Time: 2007/2008
Location: Regional
Team participants: Amanda McAlpin, Outreach Coordinator; Liza Sisson, Team Member
Audience: Approximately 400 newsletters distributed each time
Activity description/details: Our team publishes a newsletter each semester telling the community of the exciting events we are participating in. We also have a section that spotlights one of the students on the team and discusses how the Challenge X program has been beneficial for them. *(See Attachment 46)*
Key messages covered: General overview of Mississippi State University Challenge X team.

41. Fuel Consumption Displays with Beans

Date/Time: Spring 2008
Location: Starkville, MS
Team participants: Amanda McAlpin, Outreach Coordinator; Liza Sisson, Team Member; Josh Frazier, Team Member
Audience: Public
Activity description/details: To grab the public's attention and to reinforce one of our marketing strategies of using less foreign oil, we made a display using beans. According to our research, Americans use 7,600 barrels of oil per minute, so we filled a jar with 7,600 black beans. We then made small posters with that information, and a short description of Challenge X. We placed these in several different places in town and on campus during the semester, and placed either brochures or our cards with gas savings tips next to them.
Key messages covered: General overview of Challenge X, saving fuel, less reliance on foreign oil.
Photos: *See Figures 64, 65, and 66.*

There are *7600 beans* in this jar.

Americans import *11 million barrels* of oil a day from overseas.

This means that Americans consume *7600 barrels each minute*.

What can we do to reduce that ?

Changing the way we think about transportation can reduce how much oil we have to depend on from overseas. A team at Mississippi State University is building a hybrid SUV that gets 38 miles per gallon. The vehicle also runs on biodiesel, a fuel that is renewable and can be made in the U.S. Even with the great gas mileage, it offers no compromise to the driver in comfort, power, and style. This team is making steps to reduce our import of foreign oil.

www.msuchallengex.org

Figure 64. The poster we display in front of the jars.

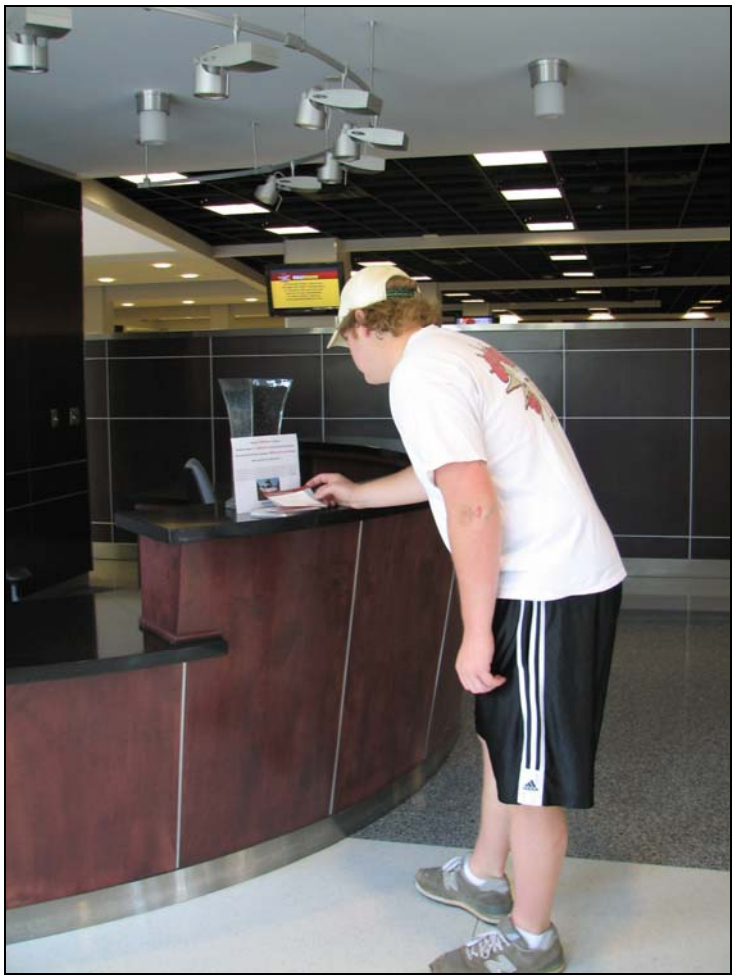


Figure 65. The jars are displayed in high-traffic areas on campus, such as the Colvard Student Union.

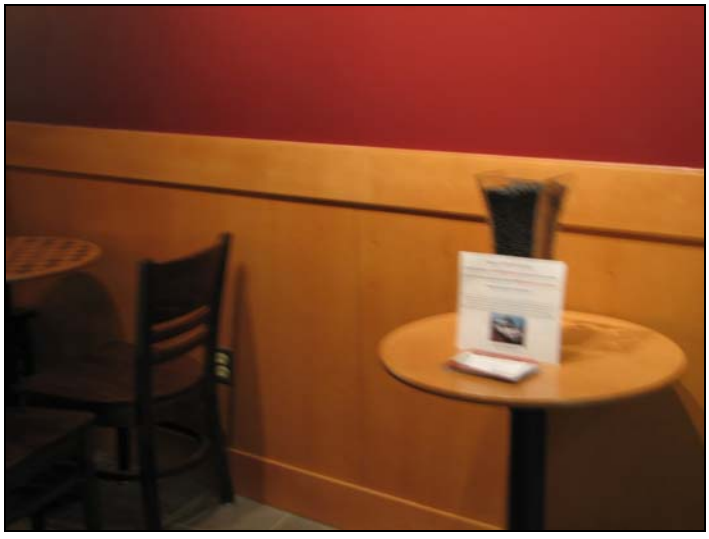


Figure 66. One of the jars displayed at a local coffee shop.

C. Education Program

Our 21 youth activities this year included school visits, field trips, visits with agricultural-focused clubs, an exhibit at an alternative energy awareness festival, and more. Our youth program, entitled "New Generation, New Energy," was underscored by specially designed brochures and stickers that targeted the audience. Reaching the community at an early age is particularly important for our region as individuals are not as familiar with the hybrid concept as in some other parts of the country.

Activity	Date	Location	Audience	Participants
42. Presentation to High School students from Mississippi School for Math and Science	June 22, 2007	MSU Campus	6 students	Stephen Phillips, Team Member; Amanda McAlpin, Outreach Coordinator
43. Presentation to National Science Foundation sponsored teacher group	June 27, 2007	MSU Campus	55 teachers	Amanda McAlpin, Outreach Coordinator; David Oglesby, Team Leader
44. Presentation at Greene County High School	August 9, 2007	Greene County High School, Greene County, MS	79 students and 5 teachers	Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member
45. Presentation to George County High School	August 10, 2007	George County High School, Lucedale, MS	18 students and 3 teachers	Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member
46. Mississippi Development Authority Energy Awareness Day	October 5, 2007	Jackson Agriculture Center, Jackson, MS	Approximately 1,000 students, teachers, and local community	Amanda McAlpin, Outreach Coordinator; Stephen Phillips, Team Member, Philip Cranford, Team Member

47. Presentation to Jackson Preparatory School	February 1, 2008	Jackson Preparatory School, Jackson, MS	39 students and 3 teachers	Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member
48. Presentation to Jackson Preparatory School	February 1, 2008	Jackson Preparatory School, Jackson, MS	42 students and 2 teachers	Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member
49. Presentation to Jackson Preparatory School	February 1, 2008	Jackson Preparatory School, Jackson, MS	55 students and 4 teachers	Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member
50. Presentation to Jackson Preparatory School	February 1, 2008	Jackson Preparatory School, Jackson, MS	31 students and 2 teachers	Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member
51. Presentation to Jackson Preparatory School	February 1, 2008	Jackson Preparatory School, Jackson, MS	38 students and 2 teachers	Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member
52. Presentation to Jackson Preparatory School	February 1, 2008	Jackson Preparatory School, Jackson, MS	27 students and 3 teachers	Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member
53. Mission: Eggcellence Competition, 1st through 3rd grade	February 16, 2008	MSU Campus	Approximately 60 students, teachers, and parents	Amanda McAlpin, Outreach Coordinator; Stephen Phillips, Team Member; Mike Trcalek, Team Member
54. Mission: Eggcellence Competition, 4th through 6th grade	February 16, 2008	MSU Campus	Approximately 80 students, teachers, and parents	Amanda McAlpin, Outreach Coordinator; Stephen Phillips, Team Member; Mike Trcalek, Team Member

55. Mission: Eggcellence Competition, 7th through 9th grade	February 23, 2008	MSU Campus	Approximately 20 students, parents, and teachers	Amanda McAlpin, Outreach Coordinator; Gene Long, Team Member; Brady Cunningham, Team Member; Ryan William, Team Member; Phillip Cranford, Team Member; Julian McMillan, Team Member
56. Mission: Eggcellence Competition, 10th through 12th grade	February 23, 2008	MSU Campus	Approximately 15 students, parents, and teachers	Amanda McAlpin, Outreach Coordinator; Gene Long, Team Member; Brady Cunningham, Team Member; Ryan William, Team Member; Phillip Cranford, Team Member; Julian McMillan, Team Member
57. Presentation to the Petal, MS Chapter of Future Farmers of America	February 29, 2008	Petal High School, Petal, MS	24 students and 4 teachers	Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member; Liza Sisson, Team Member; Stephen Phillips, Team Member; Jenna Grantham, Team Member
58. Visit from Henderson Middle School Technical Club	March 20, 2008	MSU Campus	15 students	Matthew Doude, Team Leader; Gene Long, Team Member; Ryan Williams, Team Member

59. Judging and Exhibit at North Mississippi Regional Science Fair	March 26, 2008	MSU Campus	Approximately 200 students, parents, and teachers	Michael Barr, Team Member; Liza Sisson, Team Member; Taylor George, Team Member
60. Judging and Exhibit at North Mississippi Regional Science Fair	March 27, 2008	MSU Campus	Approximately 150 students, parents, and teachers	Freddie Ervin, Team Member; Michael Barr, Team Member; Amanda McAlpin, Outreach Coordinator
61. Visit from 4th grade journalists	March 28, 2008	MSU Campus	26 students and 1 teacher	Amanda McAlpin, Outreach Coordinator; Ryan Williams, Team Member; Brady Cunningham, Team Member; Michael Barr, Team Member
62. Field Trip from Sequatchie Valley Preparatory Academy	April 22, 2008	MSU Campus	14 students and 1 teacher	Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member; Liza Sisson, Team Member

42. **<u>Presentation to high-school students from Mississippi School for Math and Science</u>**
Date/Time: June 22, 2007
Location: Center for Advanced Vehicular Systems, Mississippi State University
Team participants: Stephen Phillips, Team Member; Amanda McAlpin, Outreach Coordinator
Audience: 6 students
Activity description/details: The students were on campus for a summer learning program. Stephen gave a presentation about Challenge X, and we showed them the vehicle and gave them rides.
Key messages covered: Challenge X overview. The importance of science and math.
Photos: *See Figures 67 and 68.*

Figure 67. MSMS students posing after their ride in the vehicle.

Figure 68. Students look underneath the vehicle.

43. **Presentation to National Science Foundation Sponsored Teacher Group**
Date/Time: June 27, 2007
Location: Center for Advanced Vehicular Systems, Mississippi State University
Team participants: Amanda McAlpin, Outreach Coordinator; David Oglesby, Co-Team Leader
Audience: 55 high school math, science, and computer teachers
Activity description/details: This teacher group was sponsored by the National Science Foundation to give teachers a view of current and advanced technology so they would be able to relate this to their students. The group toured campus, and we gave them a presentation and showed them the Challenge X vehicle.
Key messages covered: General overview of Challenge X.

44. **Presentation at Greene County High School**
Date/Time: August 9, 2007
Location: Center for Advanced Vehicular Systems, Mississippi State University
Team participants: Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member
Audience: 79 students and 5 teachers
Activity description/details: We gave a presentation on Challenge X to these students and showed them the Challenge X vehicle.
Photos: *See Figure 69.*

Figure 69. Students listen to Matt Young discuss the Challenge X competition.

45. **<u>Presentation at George County High School</u>**
    Date/Time: August 10, 2007
    Location: Center for Advanced Vehicular Systems, Mississippi State University
    Team participants: Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member
    Audience: 18 students and 3 teachers
    Activity description/details: Gave a presentation to the students and showed them the Challenge X vehicle.
    Key messages covered: Challenge X overview. The importance of studying science and math.

46. **<u>Mississippi Development Authority Alternative Energy Awareness Day</u>**
    Date/Time: October 5, 2007
    Location: Mississippi Agriculture and Forestry Museum, Jackson, MS
    Team participants: Amanda McAlpin, Outreach Coordinator; Liza Sisson, Team Member; Philip Cranford, Team Member; Stephen Phillips, Team Member
    Audience: Approximately 1,000 students, teachers, and local community
    Activity description/details:
    Key messages covered: General overview of Challenge X.
    Photos: *See Figures 70, 71, and 72.*

Figure 70. Interested students look under the vehicle.

Figure 71. The Challenge X vehicle was one of the many places students could learn about alternative energy.

Figure 72. Liza Sisson poses with the infamous Energy Hog.

47. <u>Presentation to Jackson Preparatory School</u>

Date/Time: February 1, 2008, 8:00 a.m.
Location: Jackson Preparatory School, Jackson, MS
Team participants: Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member
Audience: 39 students and 3 teachers
Activity description/details: Presentation and viewing of the Challenge X vehicle. The day was very cold, but we took the students outside for a quick look at the vehicle.
Key messages covered: Overview of Challenge X and MSU's progress in the competition, encouraging the students to study math and science in preparation for studying engineering. Our education program, called "New Generation, New Energy," has standard presentations and a brochure that introduces youth to alternative energy and vehicles.
Any measurable results: The event was covered in the school newspaper.
Photos: *See Figure 73.*

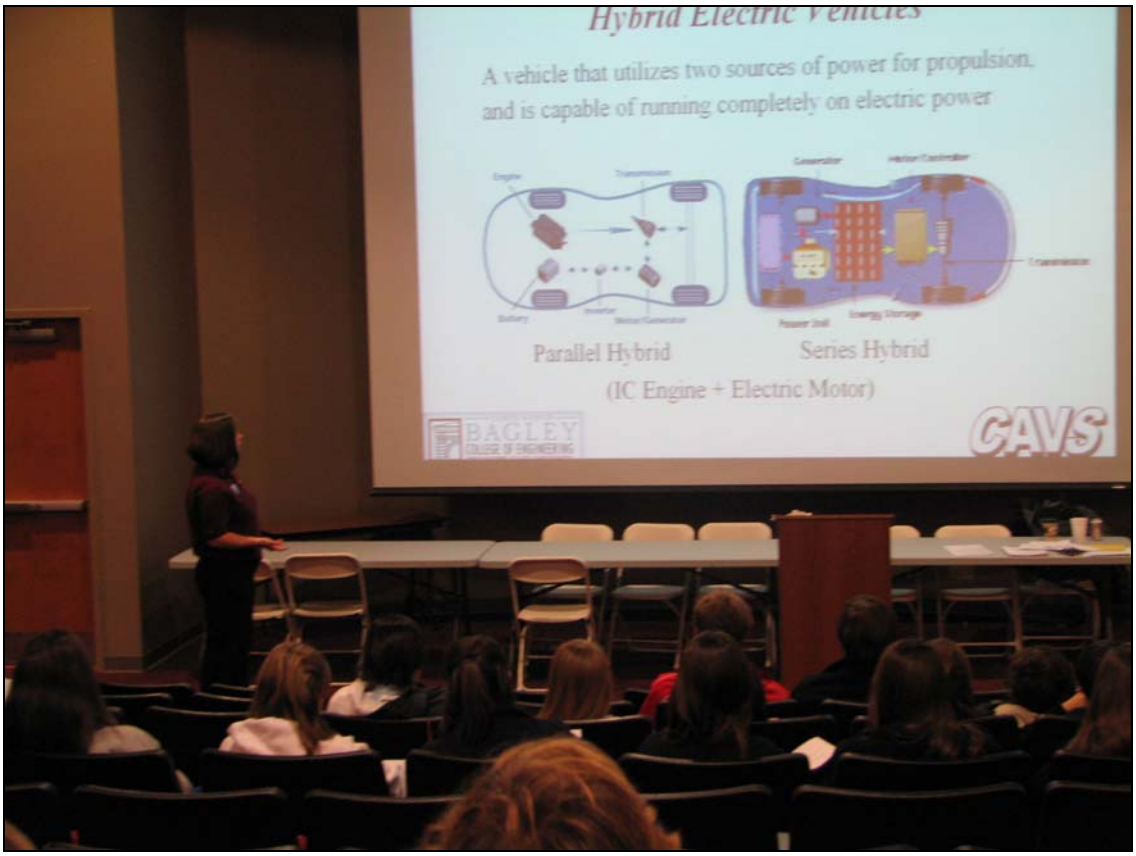


Figure 73. Amanda McAlpin talks to the students about hybrid vehicle configurations at Jackson Preparatory School.

48. <u>Presentation to Jackson Preparatory School</u>

Date/Time: February 1, 2008, 9:00 a.m.
Location: Jackson Preparatory School, Jackson, MS
Team participants: Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member
Audience: 42 students and 2 teachers
Activity description/details: Presentation and viewing of the vehicle. This group had class members from 8th and 9th grade science classes. The students were very interested in the project, and asked a lot of questions.
Key messages covered: Overview of Challenge X and MSU's progress in the competition. Encouraging the students to study math and science in preparation for studying engineering. Our education program, called "New Generation, New Energy," has standard presentations and a brochure that introduces youth to alternative energy and vehicles.
Any measurable results: The event was covered in the school newspaper.
Photos: *See Figure 74.*

Figure 74. The students from Jackson Prep learned about the dynamic vehicle tests that our team participates in during the Challenge X competition.

49. <u>Presentation to Jackson Preparatory School</u>

Date/Time: February 1, 2008, 10:00 a.m.
Location: Jackson Preparatory School, Jackson, MS
Team participants: Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member
Audience: 55 students and 4 teachers
Activity description/details: Presentation and viewing of the Challenge X vehicle. This class was an environmental science class, and had been recently learning about the effects of transportation on the atmosphere. Our presentation was a good way for them to see how what they had learned could tie in to the real world.
Key Messages Covered: Overview of Challenge X and MSU's progress in the competition, encouraging the students to study math and science. Our education program, called "New Generation, New Energy," has standard presentations and a brochure that introduces youth to alternative energy and vehicles.
Any measurable results: The event was covered in the school newspaper.
Photos: *See Figure 75.*

Figure 75. This class was an environmental science class, so the presentation was especially beneficial.

50. <u>Presentation to Jackson Preparatory School</u>

Date/Time: February 1, 2008, 11:00 a.m.
Location: Jackson Preparatory School, Jackson, MS
Team participants: Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member
Audience: 31 students and 2 teachers
Activity description/details: Presentation and viewing of the Challenge X vehicle. This class was mostly juniors and seniors, so we emphasized how they could get involved in projects like Challenge X when they enter a university.
Key messages covered: Overview of Challenge X and MSU's progress in the competition, encouraging the students to study math and science. Our education program, called "New Generation, New Energy," has standard presentations and a brochure that introduces youth to alternative energy and vehicles.
Any measurable results: The event was covered in the school newspaper.
Photos: *See Figure 76.*

Figure 76. All science classes at Jackson Preparatory came to at least one presentation that day.

51. <u>Presentation to Jackson Preparatory School</u>

Date/Time: February 1, 2008, 1:00 p.m.
Location: Jackson Preparatory School, Jackson, MS
Team participants: Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member
Audience: 38 students and 2 teachers
Activity description/details: Presentation and viewing of the Challenge X vehicle. The students at Jackson Prep were very educated on vehicle technology, and asked questions that were very in-depth.
Key messages covered: Overview of Challenge X and MSU's progress in the competition, encouraging the students to study math and science. Our education program, called "New Generation, New Energy," has standard presentations and a brochure that introduces youth to alternative energy and vehicles.
Any measurable results: The event was covered in the school newspaper.
Photos: *See Figure 77.*

Figure 77. Jackson Prep students looking at the vehicle engine bay.

52. <u>Presentation to Jackson Preparatory School</u>

Date/Time: February 1, 2008, 2:00 p.m.
Location: Jackson Preparatory School, Jackson, MS
Team participants: Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member
Audience: 27 students and 3 teachers
Activity description/details: Presentation and viewing of the Challenge X vehicle. This group of students was in an earth science class.
Key Messages Covered: Overview of Challenge X and MSU's progress in the competition, encouraging the students to study math and science. Our education program, called "New Generation, New Energy," has standard presentations and a brochure that introduces youth to alternative energy and vehicles.
Any measurable results: The event was covered in the school newspaper.
Photos: *See Figure 78.*

Figure 78. The science teacher introduces Amanda McAlpin to the students.

53. <u>Mission: Eggcellence Competition</u>

Date/Time: February 16, 2008, 8:00 a.m. until 11:00 a.m.
Location: Mississippi State University Campus
Team participants: Amanda McAlpin, Outreach Coordinator; Stephen Phillips, Team Member; Mike Trcalek, Team Member
Audience: Approximately 60 students, parents, and teachers
Activity description/details: Mission: Eggcellence is a competition is for K-12 students designed to teach the students about ways to build a safe vehicle. The Challenge X team helped with the competition by assisting students with their vehicles and the competition. We also gave a short presentation before each competition about our own vehicle project, Challenge X. We displayed the vehicle outside, and the entire group of students in the competition walked outside together to see it. It was displayed before and after the competition so that parents and teachers could also see it. The youngest competitors in the program built vehicles made from car kits, and made bumpers for cars out of different materials.
Key Messages Covered: Overview of Challenge X and MSU's progress in the competition, emphasized biofuels being used in the vehicle
Photos: *See Figures 79, 80, 81, 82, 83, and 84.*

Figure 79. Stephen Phillips explains the rules of the Mission: Eggcellence competition.

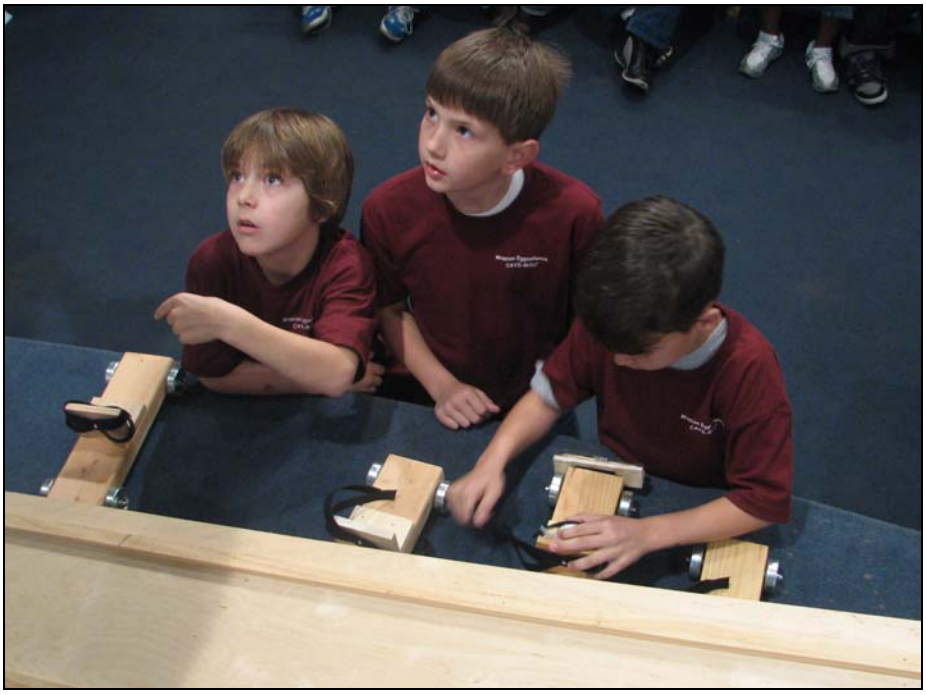


Figure 80. Some students and their vehicles, ready for the competition.

Figure 81. A student releases his vehicle on the ramp.

Figure 82. Stephen Phillips weighs parts of vehicles for two students.

Figure 83. Stephen Phillips helps make sure the car is at the right place on the ramp.

Figure 84. Amanda McAlpin hands out awards.

54. Mission: Eggcellence Competition

Date/Time: February 16, 2008, 1:00 p.m. until 3:00 p.m.
Location: Mississippi State University Campus
Team participants: Amanda McAlpin, Outreach Coordinator; Stephen Phillips, Team Member; Mike Trcalek, Team Member; Julian McMillan, Team Member
Audience: Approximately 80 students, parents, and teachers
Activity description/details: Mission: Eggcellence is a competition is for K-12 students designed to teach the students about ways to build a safe vehicle. The Challenge X team helped with the competition by assisting students with their vehicles and the competition. We also gave a short presentation before each competition about our own vehicle project, Challenge X. We displayed the vehicle outside and the entire group of students in the competition walked outside together to see it. It was displayed before and after the competition so that parents and teachers could see it as well. This group of students made vehicle similar to the first group, but had stricter rules that applied to their vehicles.
Key Messages Covered: Overview of Challenge X and MSU's progress in the competition, emphasized biofuels being used in the vehicle.
Photos: *See Figure 85.*

Figure 85. Students brought their vehicles to Stephen Phillips before they were allowed to compete with them, so that he could measure the weight.

55. <u>Mission: Eggcellence Competition</u>

Date/Time: February 23, 2008, 8:00 a.m. until 11:00 a.m.
Location: Mississippi State University Campus
Team participants: Amanda McAlpin, Outreach Coordinator; Stephen Phillips, Team Member; Mike Trcalek, Team Member; Julian McMillan; Ryan Williams, Team Member
Audience: Approximately 20 students, parents, and teachers
Activity description/details: Mission: Eggcellence is a competition is for K-12 students designed to teach the students about ways to build a safe vehicle. The Challenge X team helped with the competition by assisting students with their vehicles and the competition. We also gave a short presentation before each competition about our own vehicle project, Challenge X. We displayed the vehicle outside and the entire group of students in the competition walked outside together to see it. It was displayed before and after the competition so that parents and teachers could see it also. Parents as well as teachers accompanied the students to the competition.
Key Messages Covered: Overview of Challenge X and MSU's progress in the competition, emphasized biofuels being used in the vehicle
Photos: *See Figures 86 and 87.*

Figure 86. Ryan Williams shows the Eggcellence competitors the vehicle.

Figure 87. Gene Long holds the ramp steady for a young competitor.

56. <u>Mission: Eggcellence Competition</u>

Date/Time: February 23, 2008, 1:00 p.m. until 3:00 p.m.
Location: Mississippi State University Campus
Team participants: Amanda McAlpin, Outreach Coordinator; Stephen Phillips, Team Member; Mike Trcalek, Team Member
Audience: Approximately 15 students, parents, and teachers
Activity description/details: The Challenge X team helped with the competition by assisting students with their vehicles and the competition. We also gave a short presentation before the competition about our own vehicle project, Challenge X. We displayed the vehicle outside and the entire group of students in the competition walked outside together to see it. It was displayed before and after the competition so that parents and teachers could see it also. The last section of competitors were high school students, and many had great vehicles. The team members enjoyed seeing what the competitors had built.
Key Messages Covered: Overview of Challenge X and MSU's progress in the competition, emphasized biofuels being used in the vehicle
Photos: *See Figures 88, 89, and 90.*

Figure 88. Phillip Cranford talks about the vehicle to the high school group of competitors.

Figure 89. Brady Cunningham and Gene Long make sure the vehicles aren't over the maximum weight.

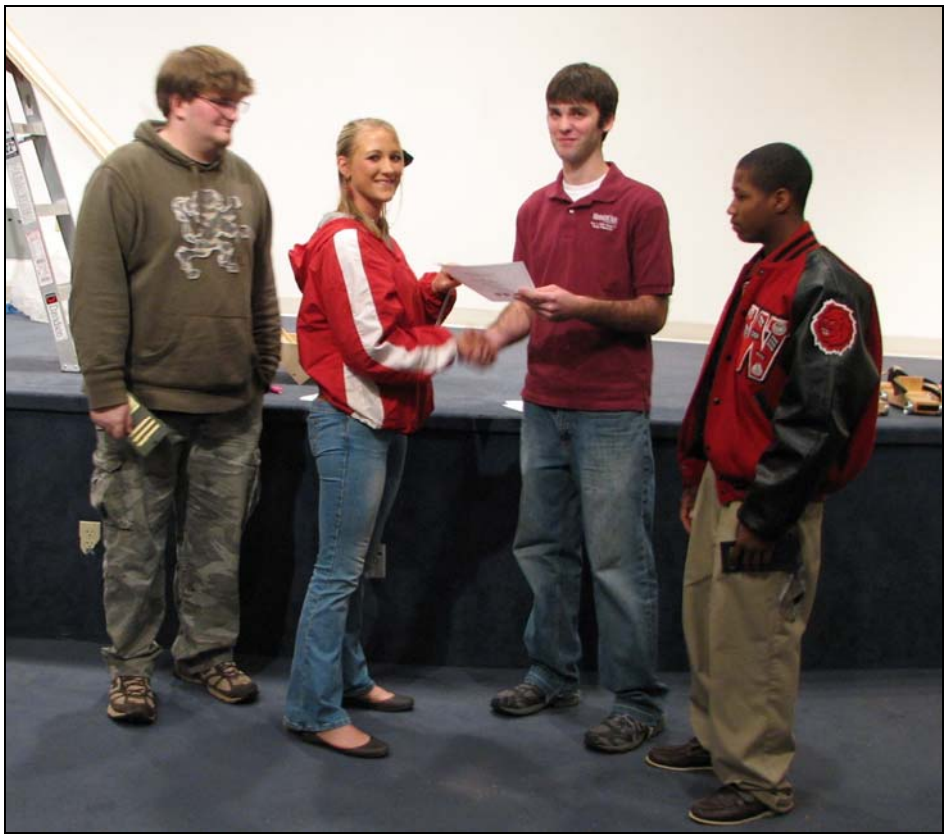


Figure 90. Julian McMillan shakes hands with an award winner.

57. <u>Presentation to the Petal, MS, Chapter of Future Farmers of America</u>

Date/Time: February 29, 2008, 12:15 p.m.
Location: Petal High School, Petal, MS
Team participants: Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member; Liza Sisson, Team Member; Stephen Phillips, Team Member; Jenna Grantham, Team Member
Audience: 24 students and 4 teachers, members of the Future Farmers of America
Activity description/details: The team visited the Petal, MS chapter of the Future Farmers of America to make a presentation and show our vehicle. Since our vehicle uses biodiesel, we related this to farmers who may be producing crops to be used for fuel. Soybeans are a crop that is grown throughout Mississippi, so we emphasized to the students that the crops they may grow someday could be fuel for their vehicles.
Key messages covered: Overview of Challenge X and MSU's progress in the competition, emphasis on use of biofuels for the vehicle.
Photos: *See Figures 91, 92, and 93.*

Figure 91. Amanda McAlpin talks to students about how soybeans can be made into fuel.

Figure 92. Stephen Phillips and Matt Young answered a lot of questions from the interested students.

Figure 93. Matt Young shows students the engine that uses biodiesel.

58. <u>Visit from Henderson Middle School Technical Club</u>

Date/Time: March 20, 2008, 9:00 p.m.
Location: Mississippi State University Campus
Team participants: Gene Long, Team Member; Matthew Doude, Team Leader; Ryan William, Team Member
Audience: 15 students
Activity description/details: This group of students was part of a technical club at the local middle school. They made a trip to the university to learn about how computers are used in engineering projects. Gene gave a presentation on the Challenge X and how computers were used in different parts of the vehicle. The students all got rides in the vehicle, and got to see the computer parts up close.
Key messages covered: General description of Challenge X and MSU's vehicle.
Photos: *See Figures 94, 95, 96.*

Figure 94. The students all got a chance to ride in the vehicle and see the computer display work.

Figure 95. The students get into the Equinox for a ride.

Figure 96. The students pose in front of the MSU Equinox.

59. <u>Exhibit at North Mississippi Regional Science Fair and Judging of Fair</u>
Date/Time: March 26, 2008, 3:00 p.m.
Location: Mississippi State University Campus
Team participants: Liza Sisson, Team Member; Taylor George, Team Member; Michael Barr, Team Member
Audience: Approximately 200 students, parents, and teachers
Activity description/details: The North Mississippi regional science fair was held on Mississippi State's campus. Several of our team members volunteered to be judges for the fair, and were recognized during the program. We also displayed the vehicle outside the coliseum where the event was held, during the time that the students and their parents were on break.
Key messages covered: General description of Challenge X and MSU's vehicle.
Photos: *See Figure 97 and 98.*

Figure 97. Michael Barr, a team member, wears his name badge after helping judge the regional science fair.

Figure 98. A parent attending the science fair looks at the reflection of the motor.

60. <u>Exhibit at North Mississippi Regional Science Fair, Day 2</u>

Date/Time: March 27, 2008, 3:00 p.m.
Location: Mississippi State University Campus
Team participants: Michael Barr, Team Member; Freddie Ervin, Team Member; Amanda McAlpin, Outreach Coordinator
Audience: Approximately 150 students, parents, and teachers
Activity description/details: The North Mississippi regional science fair was held on Mississippi State's campus. We displayed the vehicle outside the coliseum where the event was held, during the time that the students and their parents were on break.
Key messages covered: General description of Challenge X and MSU's vehicle.
Photos: *See Figure 99.*

Figure 99. Driving the vehicle into the display location.

61. <u>Visit from 4th grade journalists</u>

Date/Time: March 28, 2008, 1:00 p.m.
Location: Mississippi State University Campus
Team participants: Amanda McAlpin, Team Member; Michael Barr, Team Member; Brady Cunningham, Team Member; Ryan Williams, Team Member
Audience: 26 students and 2 teachers
Activity description/details: These 4th grade students were learning how to write newspaper articles. They visited several places on campus, and one of their stops was at the Challenge X vehicle. They listened to a presentation on Challenge X, and then got to take rides in the vehicle and wrote down their impressions. Later they were able to ask questions to the team members.
Key messages covered: General description of Challenge X and MSU's vehicle.
Photos: *See Figures 100, 101, and 102.*

Figure 100. A young journalist asks a question after hearing a presentation on Challenge X.

Figure 101. Two journalists take notes in the garage.

Figure 102. Ryan Williams answers questions about the vehicle as the journalists take notes.

62. **Field Trip from Saquatchie Valley Preparatory Academy**
Date/Time: April 22, 2008
Location: Center for Advanced Vehicular Systems, Mississippi State University
Team participants: Amanda McAlpin, Outreach Coordinator; Matt Young, Team Member; Liza Sisson, Team Member
Audience: 14 students and 1 teacher
Activity description/details: These students were on a field trip to visit different areas in the south that pertain to agriculture. They heard about the Mississippi State Challenge X vehicle and its use of biodiesel, and requested to see it. We gave them a presentation and showed them the vehicle, and we talked about how they as possible farmers one day could grow the crops that fueled our vehicle.
Photos: *See Figure 103, 104, 105.*

Figure 103. Amanda McAlpin leads the way through the garage to the Challenge X vehicle.

Figure 104. Amanda McAlpin answers a question from one of the students.

Figure 105. Matt Young teaches the class about the importance of biodiesel.

D. Social Marketing

The Mississippi State University Challenge X website *(See Figure 106.)* is a very effective tool for providing information that reinforces our marketing strategy. The website is easily navigated through bars at the top marking the website into sections.

Under the team section of our website, we have listed all team members with a link to their resume. We have also created an "Alumni" section (*See Figure 107.*), where former members of the Challenge X team who have graduated write about what jobs they have taken, where they are now, and how Challenge X helped them get there. We think this is a great way to give recognition to the members who have graduated, to create a cohesive team unit, to stir excitement on our team, and to demonstrate to viewers of the website that Challenge X has played an important role in the students' careers.

As mentioned in our marketing plan, the cost of a hybrid vehicle is a very important consideration to people in our area. Because of this we created a page on our website that lists incentives that hybrid buyers in our area can receive *(See Figure 108.)*. Members of the team keep a constant watch for hybrid incentives available in our region to keep this section regularly updated.

Since another problem in our area is the lack of familiarization with hybrid vehicles, we have begun posting a wide variety of articles on our website that pertain to hybrid vehicles. We particularly try to post articles that will be persuasive to, and attract attention from, our target audience, such as "Are Hybrids for Men?" an article that discusses truck and SUV hybrid models that are currently available. Since many people in our area typically drive trucks and SUVs, this article is especially applicable to our audience. We also post interesting articles and video, such as one video of late night show host Jay Leno talking about biodiesel. We think that by posting articles and videos of people with whom consumers are familiar (such as Jay Leno), we are able to draw more interest to our site and more effectively communicate what we are doing.

In alignment with our emphasis on the use of biodiesel, we have an entire page that is dedicated to this biofuel. This page provides a link that shows the locations of biodiesel stations in our area and a video about the benefits of biodiesel. Our goal is to emphasize the local availability and production of biodiesel.

We believe that our region is still in the early stages of its acceptance of hybrid vehicles. One way to encourage people to accept a new technology, and to dispel misconceptions about it, is to point out how other people in their area are already adopting it. We have created a page on our website that features hybrid vehicle owners in our region *(See Figure 109.)*. Under the picture of the hybrid owner and their vehicle, the owner writes a testimony as to why they like their hybrid vehicle. We also created a document that is posted on the website that lists common myths about hybrid vehicles and gives facts to dispel them.

The youth section of our website features our youth program called "New Generation, New Energy," and answers questions about the Challenge X vehicle, and hybrid technologies in general, in a way that kids can understand (*See Figure 110.*) To create the question section, we used many of the same questions that we have been asked by students during our K-12 education events. The youth page also links to the "*GMability*" site.

As stated in our marketing plan, we have added a traffic counter to our website and monitor it during the year.

In other media, the team still maintains pages on *Facebook* and *MySpace*, two popular networking sites for young people who fit into one of our target audience age brackets. In addition, we continue to have videos posted to *YouTube*, a popular video sharing website. We have news articles available through iTunes, and continue to work with staff in our Bagley College of Engineering to post more stories to the site.

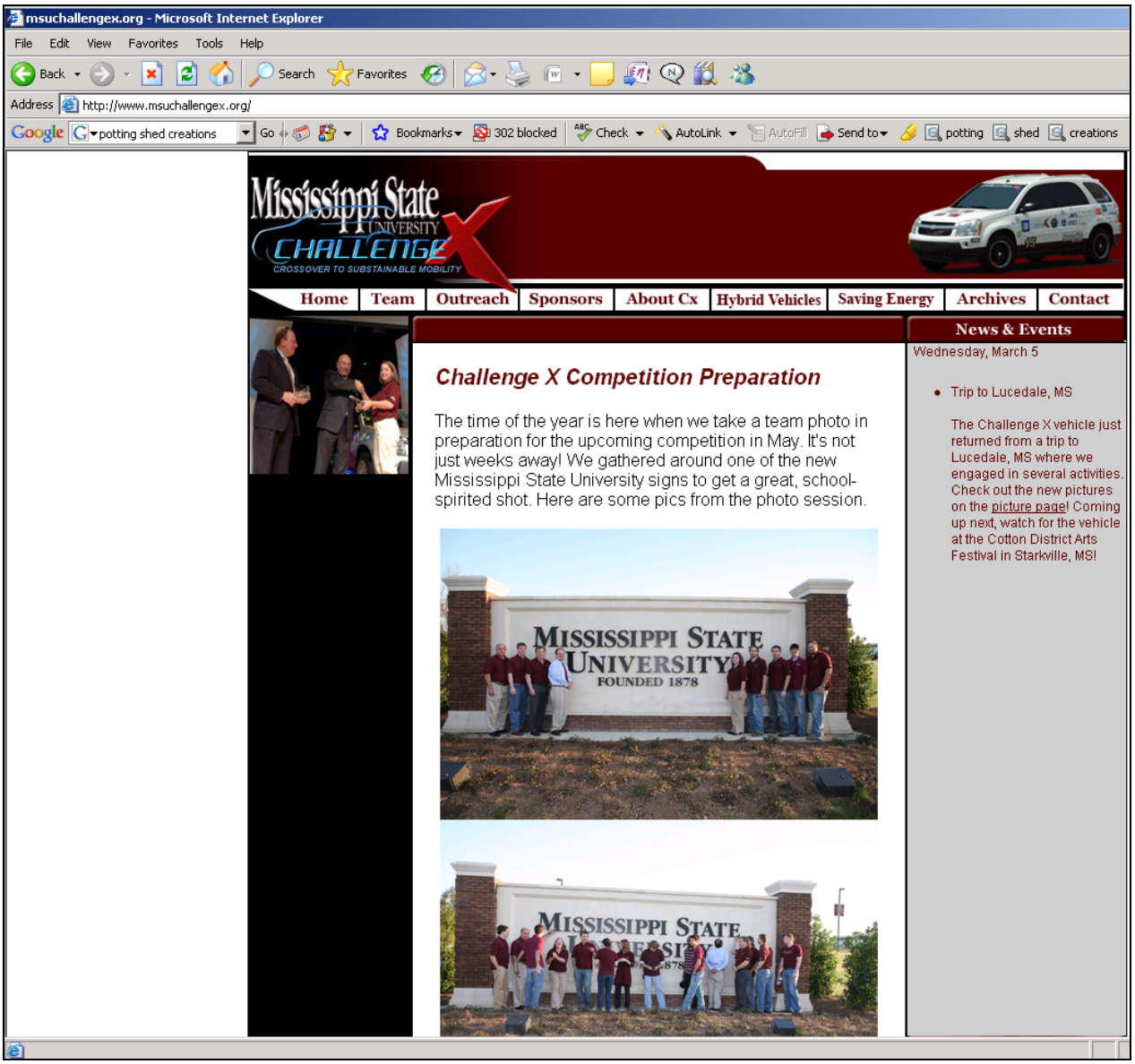


Figure 106. A screen capture of the Mississippi State Challenge X homepage.

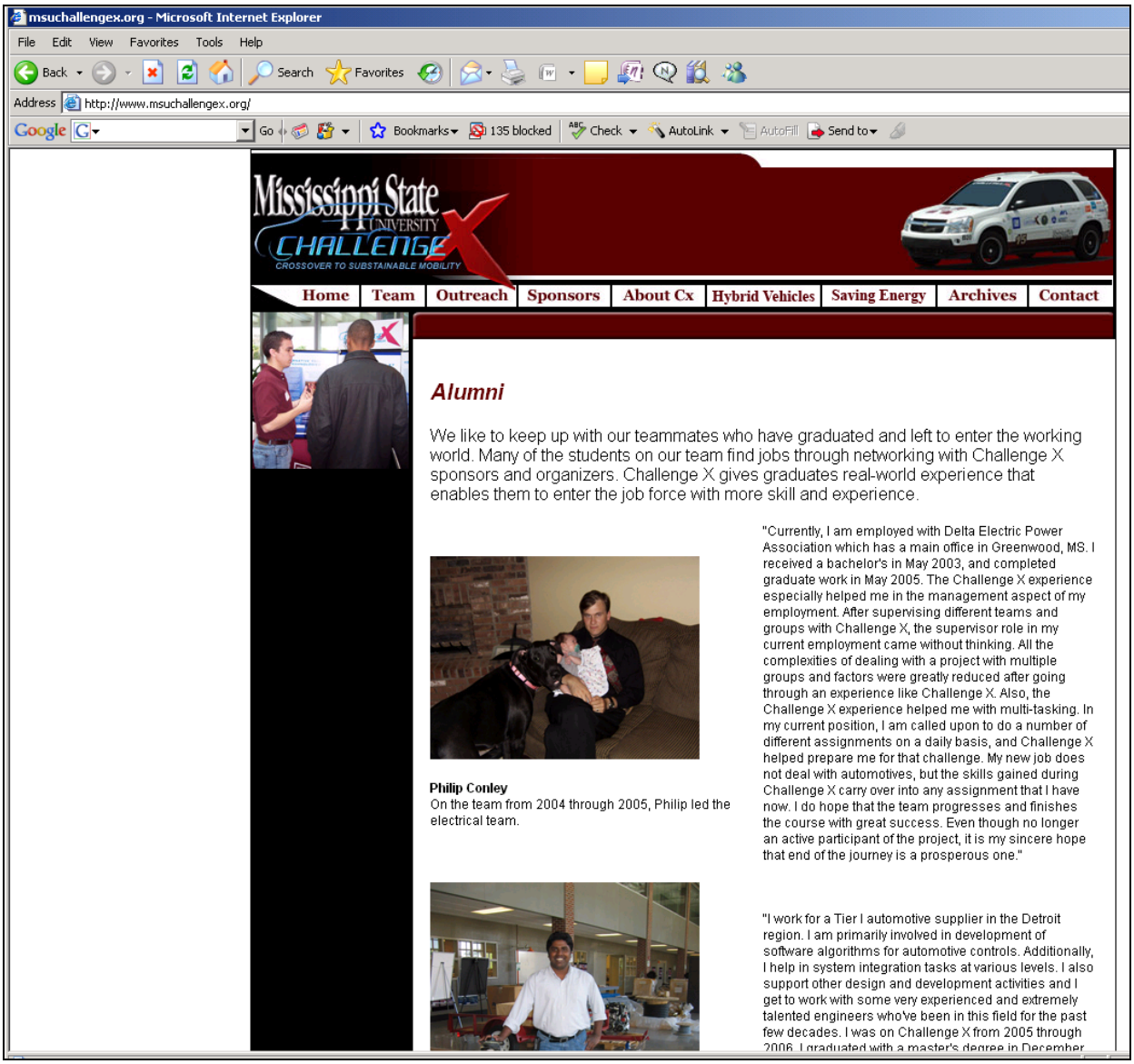


Figure 107. A screen capture of the Alumni section of our website.

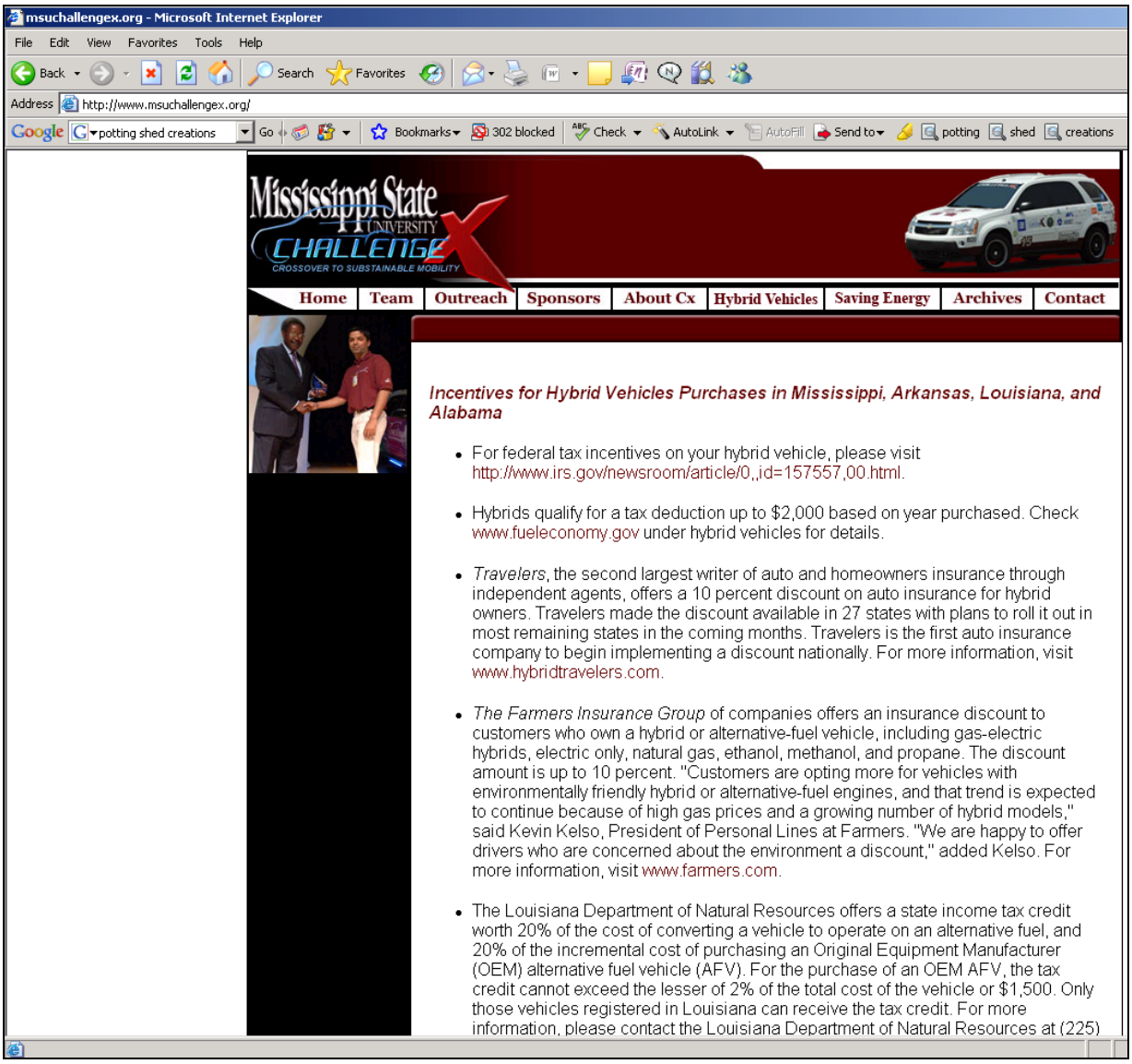


Figure 108. Incentives for buying hybrids in our region are listed on our website.

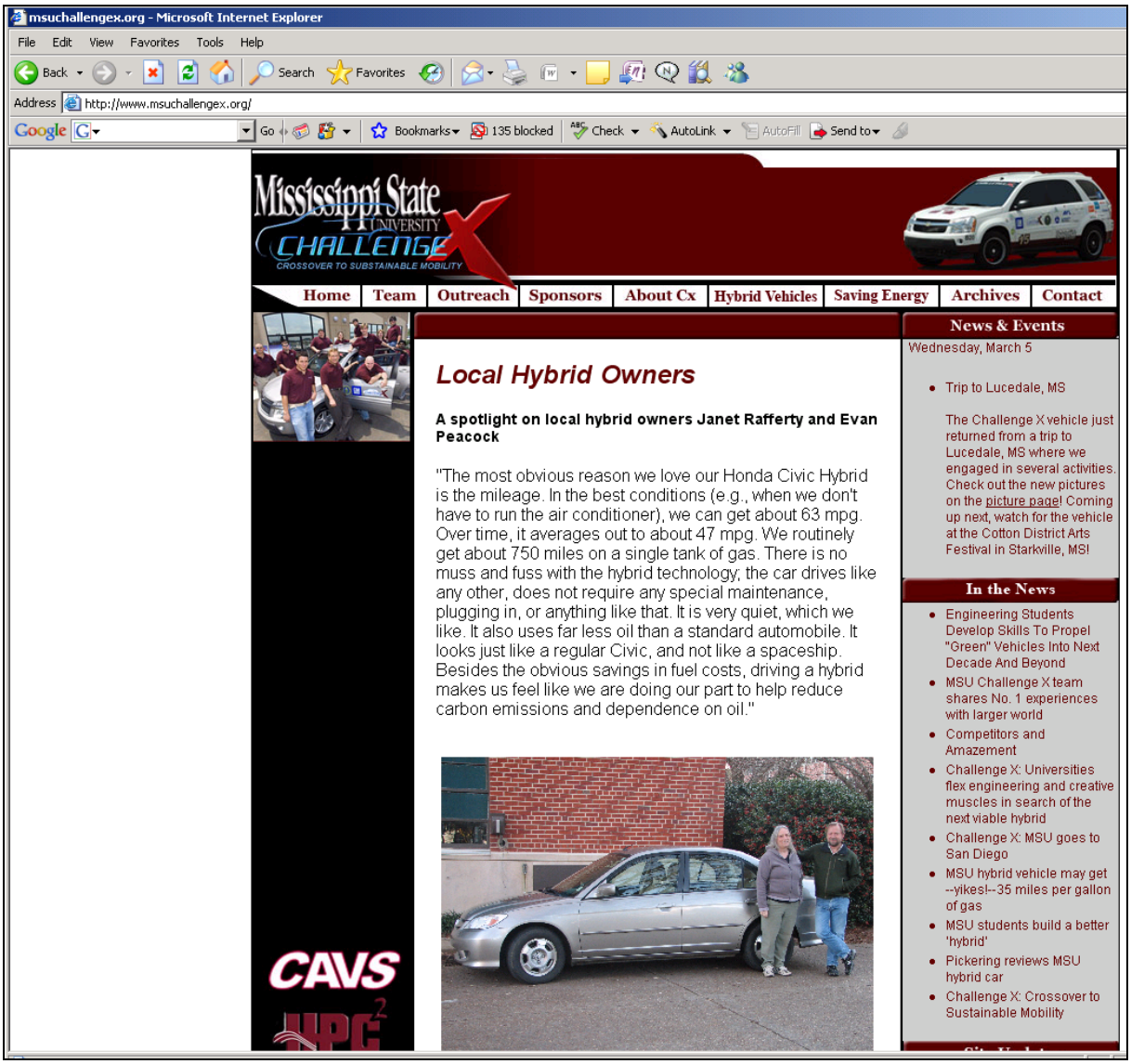


Figure 109. A hybrid owner talks about his vehicle on our website.

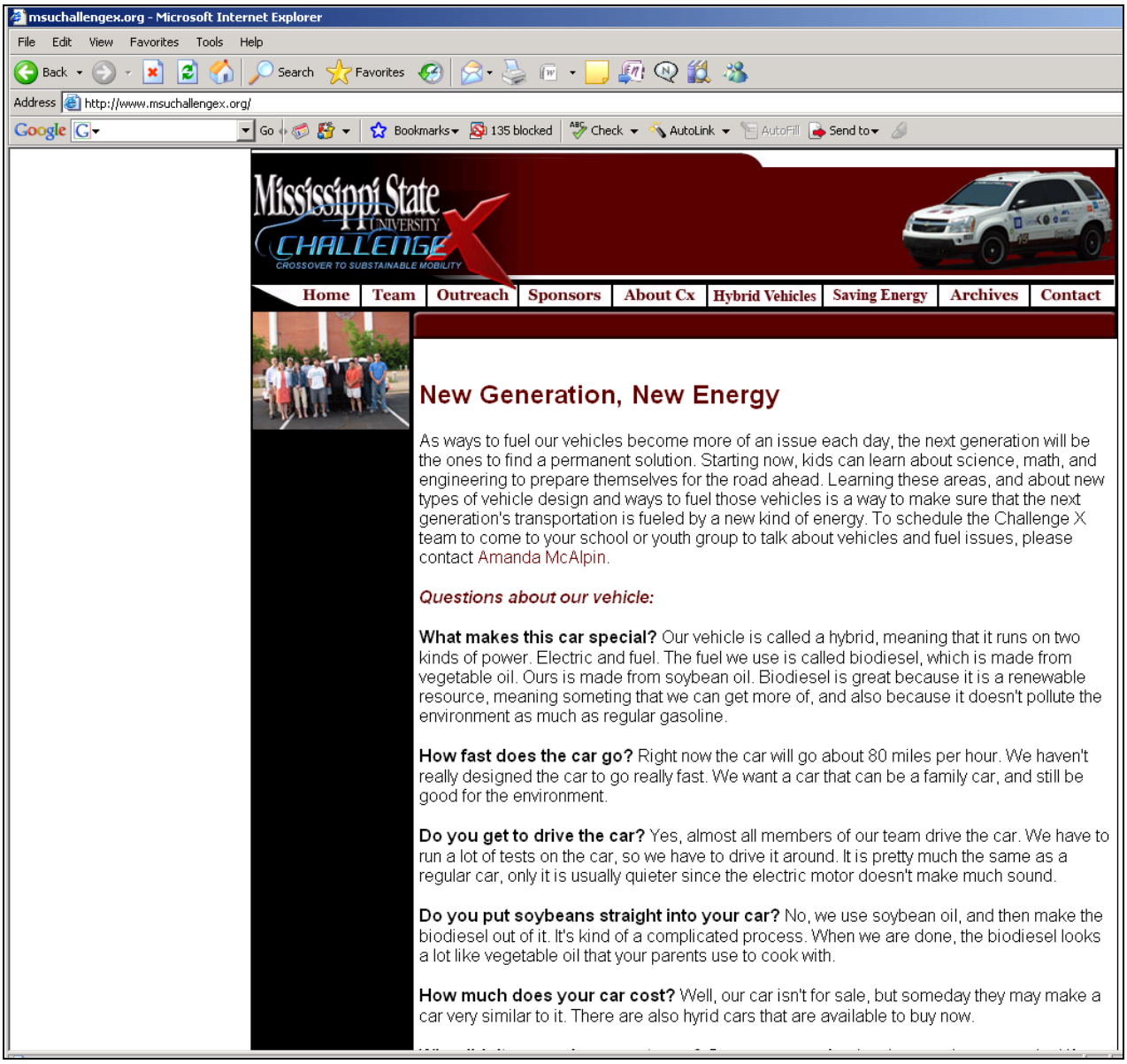


Figure 110. A screen capture of the "Kids" page on our website.

E. Other Activities

a. Marketing Class Partnership

Much of our progress this year can be attributed to our collaboration with senior marketing classes in the College of Business and Industry at our university. Dr. Jason Lueg, our marketing faculty advisor, was instrumental in helping to coordinate these classes and our team's work. The purpose of working with the marketing classes was not only to gain from their marketing perspective and expertise, but also to offer them the opportunity to be engaged in a "real world" marketing project. An added benefit of this partnership was the invaluable experience students received by working on a group project comprised of individuals from such vastly different fields.

Involvement with the marketing classes began in the fall semester when two of Dr. Lueg's classes conducted projects pertaining to Challenge X. During the spring semester we became heavily involved with two senior marketing classes. Each semester a senior marketing class is given a company or institution for which to build part of a marketing plan. This semester the Mississippi State Challenge X team was the client for these two marketing classes. One class focused on the branding and development of a logo, and the other class focused on an outreach event, while both classes did extensive research together. For this study, they researched existing data on hybrid vehicle buying behavior, and then developed their own survey, which was distributed to over 200 people with the help of the Challenge X team (*See Attachment 48*).

The Mississippi State University Challenge X team used this research and other information produced in our own marketing and outreach program; and as such, the two classes became an extension of our team. The partnership proved to be a huge success as the marketing students learned how to work with professionals from other fields, facing many of the same situations they will when they enter the work world, while the engineers learned the process and considerations that must take place in marketing something that they have designed.

The first class

This past spring semester, the Mississippi State Challenge X team further developed the Outreach segment of the fourth year of competition by bringing in a Senior Marketing Management class from the College of Business and Industry as a team of marketing consultants. This particular team was presented with two objectives: 1) to perform marketing research to be used in creating a commercial, and 2) to collaborate with other MSU student organizations to produce a social outreach event.

The first step in this process was to determine the general public's current state of knowledge concerning hybrid vehicles. Through the use of previous surveys and internet sources such as CNN.com, the marketing team was able to conduct a market analysis that included an analysis of strengths, weaknesses, opportunities, and threats, known as a SWOT. Through these analyses the team was able to determine what aspects of the product they wanted to target in their research, such as demographics, purchasing power, and important features for automobiles in general.

It was very important that the information gathered from the research be used to determine the features highlighted in the commercial. The commercial was targeted towards both the young age group of eighteen to twenty-three year olds and the age group of forty to sixty year olds. The commercial highlights the great fuel economy of the car, its many internal features, and its very spacious interior. This commercial will be shown through the local website of Mississippi State's Challenge X team as well as other possible venues.

The last objective of the marketing team was to create a social outreach event for the Challenge X team. In doing so, the team worked alongside the MSU Fashion Board, the local Student Art Association, and Kitchen Blues, a local band, to produce "Green is The New Black," a fashion show that encourages energy-saving alternatives for an environmental friendly lifestyle. The show was put on during a local arts festival that brings hundreds of people from the surrounding region to the city of Starkville, Mississippi. The fashion show included clothes made out of organic and recycled materials, and featured the MSU Challenge X vehicle, along with the team, who were there to explain our vehicle's features and qualities to any interested attendees.

(See Figures 111 and 113.)

The second class

The mission of the second class was to create a brand, slogan, and logo, and to perform outreach activities to help promote the Challenge X team's vehicle. The class was divided into four groups: a market analysis team, a market research team, an editor, and an agency coordinator. Each team performed research to develop an accurate and robust body of data that could be used to market the Challenge X vehicle. The team discovered that currently, hybrids are being purchased primarily by consumers around the age of 50. Since hybrid vehicles are typically more expensive than a standard vehicle, they are usually purchased by people who are financially stable. Some national perceptions that consumers have about hybrids are that they lack certain important features available in non-hybrid vehicles, that they have less power than their non-hybrid counterparts, that there is a lack of variety in vehicle styles, and that they are smaller in size. However, the Mississippi State team's vehicle has more features and more power than most non-hybrids, and is an SUV, thereby making it larger than most people perceive hybrids to be.

The marketing team developed the brand based on research that utilized a number of different resources, such as internet resources, periodicals (magazines, newspapers, etc.), information from competitor vehicles' websites, consumer surveys that were performed the previous year (secondary research), and a new survey that gathered information about consumers' knowledge of hybrids in this region (region defined as: Mississippi, Alabama, Tennessee, Louisiana, and Arkansas). The possible brands the team came up with were the "Chevy Econox" and the "Equinox Realm." The "Chevy Econox" brand was developed to convey an image which is ecological as well as economical, and would closely resemble the current name of the vehicle, which could be easily identified by the consumer. The "Equinox Realm" was developed on the basis that the word "realm" itself is a synonym for the word "environment," and it represents a complete coverage of the Challenge X vehicle features. The name that was chosen was the Equinox Realm, through votes from the class and the Challenge X team. After performing research to help devise a slogan, the team decided to use the current slogan of

"Efficiency Without Compromise." We felt that this fulfilled the marketing class's mission to the consumer.

Once the consumer surveys were analyzed, the class then held an event, "X Day," which helped spread the word about the Equinox Realm on MSU's campus. The event was held on April 9th, from 9:00 a.m. to 12:00 p.m., and was in an excellent, high-traffic location in front of the Colvard Student Union in the center of campus.

Once the brand name of the vehicle had been selected, a graphic design contest was then initiated for the purpose of producing a logo for the vehicle for marketing purposes. The contestants were graphic design students here at Mississippi State University competing for a $100 cash prize. Once the designs were entered, we had a vote taken by the Challenge X team and the Marketing Management class to determine the winner. The winner of the contest was graphic design student Jonathon Joan, who was presented the prize on April 15, 2008 by members of the team. Pictures of the winner and his logo were featured on the Mississippi State homepage during April 22 and April 23, along with a descriptive paragraph.

The class worked to publicize the events through University Relations and the campus television station. University Relations was there to publicize the winner of our contest by taking photographs that would be shown on the Mississippi State website. The campus television station also agreed to help promote the vehicle by having the brand, logo, and slogan appear on a commercial during their airtime.

A note from the second marketing class read: "During this project, we feel like we have accomplished our mission to create a brand, slogan, logo, and perform outreach activities to promote the new Equinox Realm. This project has helped our class use the principles that we have learned in our Marketing studies. It also has helped us to work with both the media and engineers with whom we will have to work throughout our careers. This project gave us insight into the importance of hybrid vehicles and the importance of marketing to create a product that would be successful in the marketplace. Our slogan, 'Efficiency without Compromise' could also be our mission as we enter the business world where we can make a difference."

(See Figures 109 and 111)

Figure 111. The agency coordinator the first marketing classes presented to us their activities and research for the semester.

Figure 112. The second marketing class focused on branding the vehicle.

Figure 113. The first marketing class at the end of the semester.

Figure 114. The second marketing class.

b. Recycling Bins

As mentioned in the outreach section of the report, we worked with the campus Recycling Club to buy and paint recycling bins *(See Figure 115)* to be used for several events this semester. We have also given the bins to the recycling club to be used in all future campus events where recycling will be done.

Figure 115. Jenna Grantham paints the recycle bins with the Mississippi State Challenge X logo.

c. Media Training

It is very important to the Mississippi State University team to be well prepared for the media. There are numerous events throughout the year when we are required to speak with media, and we invite them to most of our outreach events. Therefore we worked with a professor from our Communications Department on campus to provide workshops for our team to teach them about talking to media. Dr. Don Vaughan has spent many years working with mass media, and he currently teaches classes on public speaking. We felt that we could learn from his experiences cooperating with media. During the

workshops, Dr. Vaughan taught the team members how to convey the specific messages we want to express, how to carry themselves in a professional manner, and he conducted mock interviews with the team members.

d. Media Materials

The Mississippi State team is always prepared with media materials for the public and media. This year our materials included brochures, media kits, and fact sheets. Our sponsors are listed on our brochures and youth brochures. We also send media alerts to our entire media list for each event that we hold.

e. Research

This year one of our team's main focuses was on market research. We felt it was important not only to help tailor our outreach and marketing efforts to our specific region, but also to help build a more general understanding of hybrid buying behavior in our area because there is currently little to no research available on the subject.

We began our marketing strategy by researching general hybrid buying behavior nationwide. We also attempted to identify specific data on our area, but soon exhausted all our sources. A small survey of our area *(See Attachment 47)* was conducted, so as to guide us in the development of our marketing objectives.

The next phase of our research was the more intensive survey we did in conjunction with the marketing classes *(See Attachment 48)*. These students prepared a more scientific survey on some of the same issues we had originally addressed, and also collected more data on topics we wanted to cover during the spring semester, such as the commercial.

The team first used the previously conducted analysis of the market and designed a two-page survey that would accurately obtain the information needed to determine the target market and how to reach that market. The surveys were conducted in the state of Mississippi and the other states in the target region, surveying over two-hundred people. From the analysis of these surveys, the team determined that the primary target market would be eighteen to twenty-three year-olds and forty to sixty year-olds (gender and race was irrelevant). These two groups were the most willing to buy a vehicle and were those

who would be purchasing a vehicle the earliest. The team also used the survey information to determine what form of a commercial and what information included in that commercial would best target this audience. The team determined that it would be most important to deliver an informative, yet humorous, commercial, while also emphasizing the features most important to the audience: the fuel economy, style, and interior space of the vehicle.

The last phase of research was another small survey we did that was identical to the first survey. We did this survey to determine if we had raised awareness of Challenge X in our area since the beginning of this year. The first survey we did this year has a question phrased "Did you know that a hybrid vehicle that runs on soybean-based fuel has been developed here in Mississippi?" Originally, 14 of the 22 respondents answered no. When we gave the survey the second time, our goal was to have a 'yes' response raised by 25%. After giving the survey, we increased the 'yes' response by 27%

f. Preparing for the Competition

The Year 4 Challenge X competition is a great opportunity for our team to spread the word about our vehicle and Challenge X. We prepared for the competition to maximize the media and outreach we could get from it. We began by working with our University Relations department several months ahead to provide them with information on the competition and help them prepare a press release. The release was sent out two weeks before the competition to alert media that the event was coming up.

We then worked with our campus alumni office to create invitations to all Mississippi State University alumni who live in the areas we will be visiting. We sent out this letter several weeks before the competition, and invited all our alumni to any events during the competition that are open to the public. We feel like the alumni will be happy to see a team from their alma mater that has built a successful vehicle, and our team will enjoy seeing other Mississippi State alumni while at these events.

We also prepared for the vehicle display at the Baltimore Science Museum by creating an extra poster geared toward youth, and by bringing along our youth brochures and stickers.

F. Wrap-up

This year, we have accomplished and surpassed the outreach objectives set forth in our marketing plan. We have gained media attention, and engaged in many community outreach events and youth education activities. After finding a lack of research on hybrid buying behavior, we performed our own extensive market research in our target region. We used the findings to shape our further marketing and outreach activities. Our target region has the lowest hybrid vehicle sales in the nation, and some see this as a 'hard sell' for our technology. However, we took this as a challenge, and aligned our vehicle aspects with the values of the consumers in our region.

As mentioned in the marketing plan, this year the team relied on media to get our message to a wide audience. The team has gained 50 media hits since last June. Press releases were sent to regional and niche media, which emphasized appealing aspects of our vehicle to each of their target audiences. This resulted in increased coverage.

Our youth program has influenced K-12 students to begin thinking about alternative energy at a young age. Our team members have visited many classrooms and youth groups, have served as judges to youth competitions, and exhibited the vehicle at youth events.

Our community program has evolved in a way that specifically appeals to those in our target demographic. We have involved not only the public, but alumni, academia, local businesses, and even a celebrity. We completed 39 community events, reaching over 22,900 people directly. Since June 2007, we have driven the MSU Challenge X Equinox over 2,800 miles for outreach and youth events.

In our marketing plan, we laid out several key messages that we wanted to highlight through the year's activities. Some of those specific messages were designed to change public attitudes toward hybrids in our region and position hybrid vehicles as a vehicle "for everyone," to promote current availability of hybrid vehicles, and to make the public award of our hybrid architecture that runs on a soybean-based biodiesel fuel. To evaluate the use of these messages by the media, we analyzed all our media hits from the time we submitted the marketing plan until competition. We found that in total, our specific messages were carried 27 of times in the 50 media hits we gained over the year. One way we accomplished this was through training team members on getting across the key messages in interviews, and by providing media with fact sheets and brochures.

The impact of our program is easy to see. Through our outreach events, we have reached thousands of people face to face, and reached countless more through our media hits. We have also have performed services for the community, such as our Basic Car Care class and recycle bins. We have delivered brochures, youth materials, and plastic cups carrying Challenge X information into the hands of thousands of people. Through surveys, we found that knowledge of our Challenge X team increase by 27%, above our target increase goal of 25% which we stated in our marketing plan. We feel that our program was well received and had a great impact on the public *(See Appendix C for letters of thanks to the Mississippi State team).*

We have transformed the Mississippi State University Challenge X team into not just a team of engineers, but a multidisciplinary project that mimics the real world, and involves students from fields as diverse as fashion design and graphic art, working toward a common goal.

Our team's superior performance was accomplished through our dedication to research, and our ability to tailor our message to effectively communicate with individuals in our geographic region. We have worked to insure that all our events exhibited the highest levels of quality and creativity, and were designed to appeal to a wide variety of audiences, while still focusing on our target demographic. As the Mississippi State University team concludes the final year of the Challenge X competition, we feel that our team has achieved great success in reaching our target demographic and in convincing them of the many benefits of hybrid vehicle technology.

Budget

The Mississippi State University Outreach team received both Outreach grants of $2,500 totaling $5,000.

- Printing for brochures…….……..……..……$412.00
- Printing stickers, brochures, and other youth materials. ….$321.56
- Printing for cards with gas saving tips…….……..…$150.00
- Supplies such as markers, poster board, etc.…….…..…..$156.35
- Printing for business cards for team members…..…….$78.36
- Batteries for camera..…..…….…….……$36.89
- Trip to Mobile, AL, to display vehicle……...……$727.93
- Trip to Jackson Extravaganza to display vehicle…..…..……$204.48
- Trip to Yazoo City alumni gathering to display vehicle…..…$137.26
- Travel to other local schools, organizations, and events…...$1098.36
- Beans and jars for display…….$83.26
- Supplies for Basic Car Care class……..…...…….....$25.10
- Refreshments for X Day……..…....……..…….….$28.43
- Prize for logo contest…….…….....….....…..$100.00
- Supplies for filming commercial…….…….....…….$75.36
- Sponsorship of fashion show, and posters.…….…..……..$476.00
- Recycling bins…….……....…….....…$226.13
- Printed logo cups…….…….…….....….....….....$725.00

Total..... $5062.37

Reported by: Amanda McAlpin Date: 5/7/08
Dr. Jason Lueg
Dr. Marshall Molen
David Oglesby
Jenna Grantham
Josh Frazier
Liza Sisson

Appendix A: Copies of Media Clips

Attachment 1.

« Researcher Applies Raman Imaging to Identify Better Biofuel Crops | Main | UN Report: Global Food Import Costs Rising; Biofuels Partly to Blame »

Mississippi State University Team Wins Challenge X 2007 Competition

7 JUNE 2007

The winner. Photo: David Freers

Students from Mississippi State University took top honors at the third annual Challenge X: Crossover to Sustainable Mobility engineering competition, primarily sponsored by GM and the US Department of Energy (DOE).

The Mississippi State team designed a through-the-road parallel hybrid electric with a 1.9-liter GM direct injection turbodiesel engine fueled by B20 biodiesel, a 330V NiMH battery pack from Johnson Controls, and a 45 kW Ballard Integrated Power Transaxle. The vehicle achieved a 48% increase in fuel economy over the production 2005 Chevrolet Equinox that served as the basis for all the entries.

The second place vehicle, engineered by students at the University of Wisconsin-Madison, is also a through-the-road parallel biodiesel electric hybrid design with a 1.9-liter GM diesel turbocharged engine that runs on B20, 228V NiMH battery pack from Johnson Controls, and a 45 kW Ballard transaxle.

Virginia Tech was awarded third place overall with a split parallel hybrid architecture that runs on E85 ethanol with a 2.3-liter turbo spark ignition engine, a 336V Cobasys NiMH pack, a 52 kW Ballard AC Induction Transaxle and an 8 kW MES AC Induction Belt-Alternator/Starter.

GM has already hired 40 students from the first two years of the competition, and intends to extend several offers at the conclusion of this year's program, according to Larry Burns, vice president of GM Research and Development and Strategic Planning. Other Challenge X sponsors, including Caterpillar, National Instruments, Freescale Semiconductor, Johnson Controls and MotoTron, also have hired students out of the program.

Challenge X is a unique engineering competition that provides 17 university teams from across North America the opportunity to follow the GM Global Vehicle Development process and develop advanced propulsion technology solutions to increase energy efficiency and reduce environmental impact. The teams are using a variety of alternative fuels including biodiesel (B20), ethanol (E85), reformulated

From the Dashboard

US Sales of Hybrids Up 10% in March

Total reported hybrid sales by month as of March 2008. Hybrid share of new vehicle sales climbed back to 2.8%.

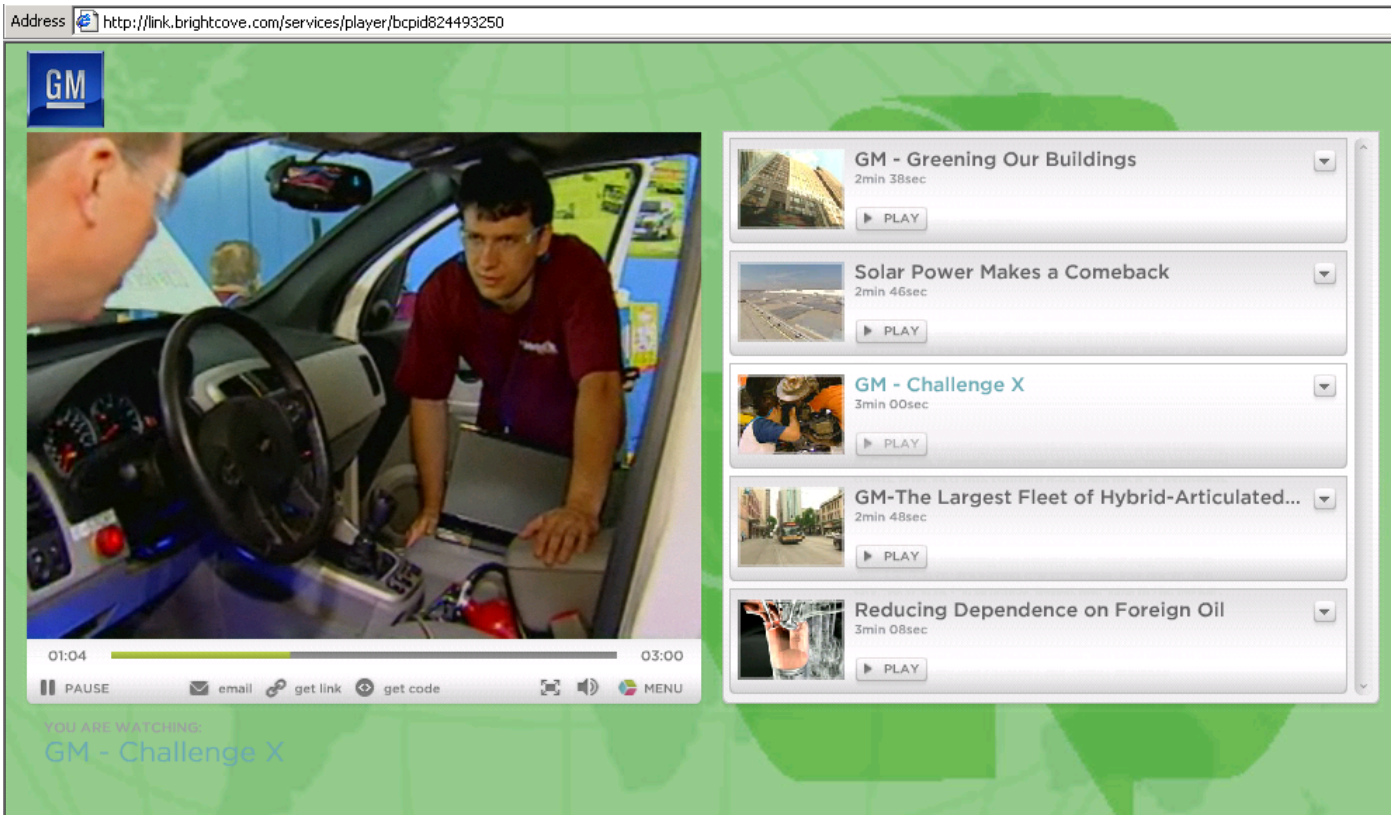
US Sales of Hybrids in Feb 2007 Drop From 2006

Hybrid share of US new vehicle sales, February 2008.

Diesels Reach 53.3% Share of New Car Registrations in Europe

Diesel share of new car registrations in Western Europe, 1990-2007.

Attachment 2.



Attachment 3.

Attachment 4.

Attachment 5.

'Zine Directory
More Feature Stories
More Headlines
Insider Commentaries
EV Forums
Owner Journals
Guest Blogs
Book List
Critical Links
Premium Subscribe
Premium Login
PDF Library
Opinion Polls
Web Links
Syndicated
RSS/XML Feed
Photo Archive
Audio Files
3D Jigsaw Puzzles
Crossword Puzzle
EVents Calendar
Energy Prices/Stocks
Metric Converter
Manage Email Subscription
Advertising/Media Kit

MSU Wins Challenge X Competition

Source: General Motors
[Jun 08, 2007]

SYNOPSIS: The Mississippi State team designed a through-the-road parallel hybrid electric vehicle with a 1.9-liter GM direct injection turbo diesel engine fueled by B20 biodiesel. It achieved a 48% increase in fuel economy over the production vehicle.

General Motors (GM) and the U.S. Department of Energy (DOE), lead sponsors for the Challenge X: Crossover to Sustainable Mobility engineering competition, congratulated students from Mississippi State University, who took top honors today at the third annual competition.

The Mississippi State team was among 17 universities from across North America that have re-engineered a 2005 Chevrolet Equinox crossover SUV using advanced propulsion technologies that increase fuel efficiency and reduce environmental impact, yet retain its consumer appeal.

The Mississippi State team designed a through-the-road parallel hybrid electric vehicle with a 1.9-liter GM direct injection turbo diesel engine fueled by B20 biodiesel. It achieved a 48% increase in fuel economy over the production vehicle.

The second place vehicle, engineered by students at the University of Wisconsin-Madison, is also a through-the-road parallel biodiesel electric hybrid design with a 1.9-liter GM diesel turbocharged engine that runs on B20. Virginia Tech was awarded third place overall with a split parallel hybrid architecture that runs on E85 ethanol with a 2.3-liter turbo spark ignition engine.

Attachment 6.

Attachment 7.

DGED IN ARIZONA: Ole Miss drops first game of Super Regional *Sports, Page*

SUNDAY

THE COMMERCIAL DISPATCH

www.cdispatch.com

IE 10, 2007 — *A locally owned newspaper with a mission of service* — 128TH YEAR, NO. 78

7 THE COMMERCIAL DISPATCH — *The Commercial est. 1894, The Dispatch est. 1879, Consolidated March 12, 1922; Columbus, Mississippi*

MSU students win GM, DOE competition with hybrid c

Special to The Dispatch

DETROIT — General Motors and the U.S. Department of Energy, lead spon- s for the Challenge X: ossover to Sustainable obility engineering compe- on, congratulated students m Mississippi State iversity, who took top hon- at the third annual compe- on.

The MSU team was among universities from across rth America that have re- gineered a 2005 Chevrolet uinox crossover SUV using vanced propulsion technolo- s that increase fuel efficiency d reduce environmental pact, yet retain its consumer peal.

The MSU team designed a ough-the-road parallel hybrid ctric vehicle with a 1.9-liter d direct injection turbo diesel gine fueled by B20 biodiesel. chieved a 48 percent increase in fuel economy over the production vehicle.

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"Developing more energy-efficient and 'greener' automotive technologies has become a global priority," said John F. Mizroch, principal deputy assistant secretary, U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy. "Students competing in Challenge X are on a quest to deliver environmentally friendly, functional and fuel efficient vehicles that consumers want to buy."

Larry Burns, vice president of GM Research and Development and Strategic Planning, said advanced powertrain technologies and alternative fuels play a key role in GM's overall strategy to help decrease the nation's dependence on petroleum and reduce greenhouse gas emissions. "The vehicles developed by the Challenge X teams are right in line with GM's strategy and thinking," said Burns. "The real-world training you have gained though this program has given you invaluable engineering experience that has made you very marketable to the industry. In fact, GM has already hired 40 students from the first two years of the competition, and we intend to extend several offers at the conclusion of this year's program."

> *"Developing more energy-efficient and 'greener' automotive technologies has become a global priority."*
>
> ***John F. Mizroch***
> *Principal deputy assistant secretary*

Other Challenge X sponsors, including Caterpillar, National Instruments, Freescale Semiconductor, Johnson Controls and MotoTron, also have hired students out of the program.

Challenge X is a unique engineering competition that is providing 17 university teams from across North America the opportunity to follow the GM Global Vehicle Development process and develop advanced propulsion technology solutions that will increase energy efficiency and reduce environmental impact. The teams are using a variety of alternative fuels including biodiesel (B20), ethanol (E85), reformulated gasoline and hydrogen.

The first year of the program, which began in 2004, focused on vehicle simulation and modeling and subsystem development and testing. In years two and three, students have been integrating their advanced powertrains and subsystems into the Chevrolet Equinox. In the fourth year, students will focus on customer acceptability and over-the-road reliability and durability of their advanced propulsion systems with real-world evaluation outside of the laboratory and proving ground environment.

The 17 teams participating in Challenge X include Michigan Technological University, MSU, The Ohio State University, Pennsylvania State University, Rose-Hulman Institute of Technology, San Diego State University, Texas Tech University, University of Akron, University of California, Davis, University of Michigan,

Attachment 8.

CITIES

The Week in Sustainable Mobility (6/10/07)

MIKE MILLIKIN
JUNE 10, 2007 9:17 AM

At the **G8 Summit**, six of the G8 countries agreed to "at least halve global carbon dioxide emissions by 2050" and to achieve this goal together "as part of a United Nations process." The US and Russia were holdouts on halving. Together, all eight nations agreed to "substantial" emissions cuts, without setting any target. The agreement paves the way for talks beginning in Bali, Indonesia in December to find a successor to the UN-backed Kyoto Protocol.

Students from Mississippi State University took top honors at the third annual Challenge X: Crossover to Sustainable Mobility engineering competition, primarily sponsored by GM and the US Department of Energy (DOE). The Mississippi State team designed a through-the-road parallel hybrid electric with a 1.9-liter GM direct injection turbodiesel engine fueled by B20 biodiesel, a 330V NiMH battery pack from Johnson Controls, and a 45 kW Ballard Integrated Power Transaxle. The vehicle achieved a 48% increase in fuel economy over the production 2005 Chevrolet Equinox that served as the basis for all the entries. More...

Demand for electricity in **Beijing** hit 10.51 million kilowatts—the highest so far this year—as more families and businesses switch on the air conditioners in the early summer heat, according to Beijing Electric Power Corporation. More...

Current **fuel economy bills** in the US Congress are proposing targets that are further away and less aggressive than the earlier 4%/year proposals spurred by the State of the Union speech in January. More... The House bill under consideration also contains language that would **bar** states from setting their own greenhouse gas emission standards for vehicles. More...

More than three-quarters of Americans (76%)—including 78% of likely 2008 voters—want Congress to **raise fuel economy standards** to 40 mpg (5.88 l/100km) by 2010 rather than waiting to reach a more modest goal by 2018,

Attachment 9.

AUTOPIA

Mississippi State Wins Third Annual Challenge X

By Marty Jerome June 11, 2007 | 6:29:00 AM Categories: Alt Fuel

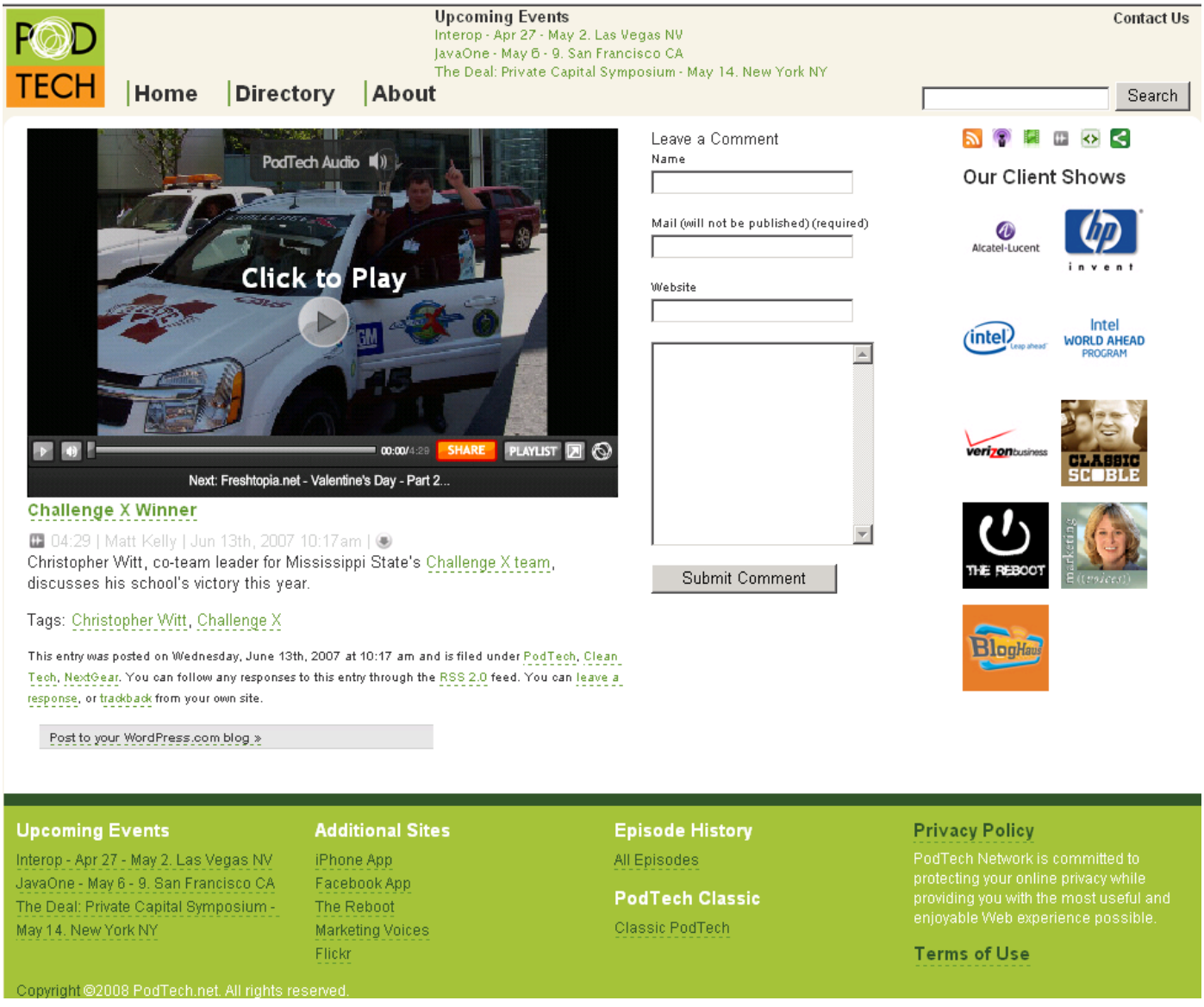
The competition, sponsored jointly by General Motors and the Department of Energy, attracted 17 entrants to convert an Equinox to an alternative fuel drivetrain. Engineering students from Mississippi State converted a 1.9 GM turbodiesel to a hybrid drivetrain running on B20 biodiesel fuel.

Source: Autoweek

More Information

Attachment 10.

Attachment 11.



Attachment 12.

Winner Of GM/DOE Challenge X Announced

MAKING GREEN

National engineering award program, also sponsored by Caterpillar, Johnson Controls and others, focuses on "sustainable mobility."

By Brad Kenney

June 14, 2007 -- General Motors (GM) and the U.S. Department of Energy (DOE), lead sponsors for the Challenge X: Crossover to Sustainable Mobility engineering competition, recently awarded students from Mississippi State University top honors at the third annual competition.

The Mississippi State team was among 17 universities from across North America that have re-engineered a 2005 Chevrolet Equinox crossover SUV using advanced propulsion technologies that increase fuel efficiency and reduce environmental impact while retaining its consumer appeal.

The Mississippi State team designed a through-the-road parallel hybrid electric vehicle with a 1.9-liter GM direct injection turbo diesel engine fueled by B20 biodiesel. It achieved a 48% increase in fuel economy over the production vehicle.

The second place vehicle, engineered by students at the University of Wisconsin-Madison, is also a through-the-road parallel biodiesel electric hybrid design with a 1.9-liter GM diesel turbocharged engine that runs on B20. Virginia Tech was awarded

Attachment 13.

Starkville DAILY N

SERVING STARKVILLE, OKTIBBEHA COUNTY AND MISSISSIPPI STATE UNIVERSITY FOR 105 YEARS • SATURDAY, JUNE 16

for this afternoon. Friday's heavy rainfall turned some Starkville city streets into rivers, including the Lampkin Street-Jackson Street intersection.

MSU Challenge X team honored at reception

By KELLY DANIELS
Starkville Daily News

Out of 17 national competitors, Mississippi State University's Challenge X Team won first place in a contest to redesign a hybrid Chevrolet Equinox.

The team was honored yesterday during a reception at the Center for Advanced Vehicular Systems, a facility which provides the team with garage space, financial support and advising.

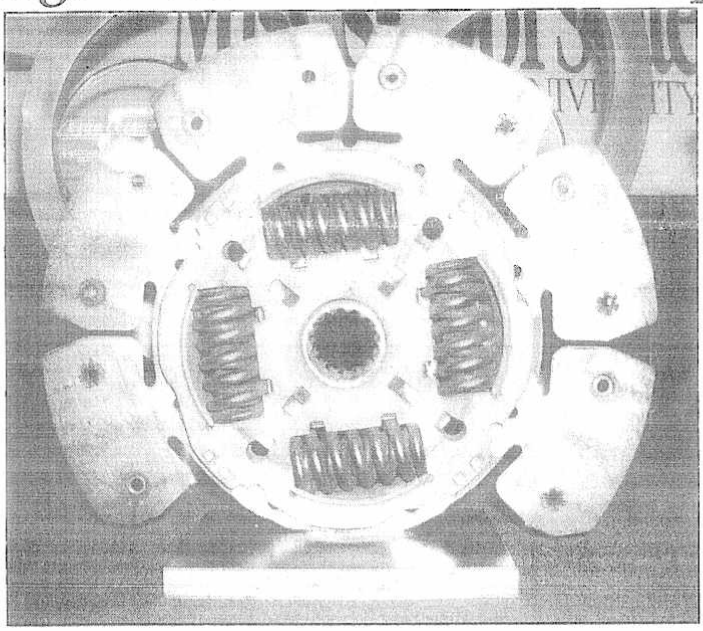
The three-year competition, "Challenge X: Crossover to Sustainable Mobility," developed by the U.S. Department of Energy and General Motors was tested from May 30 to June 7 at the GM proving grounds in Milford, Mich.

The team of 14 members met the challenge, designing a "through-the-road parallel hybrid electric" vehicle and installing a 1.9 liter GM direct injection diesel engine, which takes B20 biodiesel, which produces less harmful emissions than regular diesel.

The winning and easily mass produced Equinox gets about 35 miles per gallon, which is about 48 percent more than the stock Equinox that the team was given.

Team member Stephen Phillips called the challenge "reverse engineering."

"We tore the vehicle completely apart and put it back together," Phillips said. "The hardest job was interfacing all of the components together."



Kelly Daniels/SDN
This "clutch trophy" (one of nine) from Challenge X was awarded to the Mississippi State Challenge X team for replacing a clutch within several hours.

The team also rebuilt the vehicle's rear end, which now has full trunk space behind five passenger seating.

"This typically took 40-50 hours a week," said team leader David Oglesby. "Probably more than that."

The team is made up of students majoring in computer science, communications, education and all fields of engineering.

Next year judges will evaluate how well the vehicle has been refined.

General Motors has hired two of the team members who graduated from MSU after the 2007 spring semester. Another member has accepted a job for Motortron System, Inc., a research and development company that produces components compatible with brushless motor systems.

"Winning a competition like this looks good when you're trying to get a job in engineering," said Phillips. The team also received car parts, which Phillips said are expensive, for next year's projects.

Dr. Marshall Molen, professor in the MSU Electrical and Computer Engineering Department, won the Outstanding Faculty Advisor award, carrying $15,000.

Among first place overall, the team also won awards in acceleration, drive quality, consumer acceptability, on-road energy use, overall outstanding outreach program, best media/pr outreach and best engineering/fabrication workmanship.

The environmentally friendly SUV is currently undergoing tests from GM at the proving grounds in Mich.

Attachment 14.

« FRAM washable air filter helps eliminate need to purchase disposable air filters | Main | Father's Day: New Dad Does Car Seat Safety Check »

June 16, 2007

Engineering Students Design Hybrid Vehicles in 'Challenge X 2007'

Mississippi State University Students Win GM And DOE Challenge X 2007 Competition; Engineering Students Design "Green" Biofuel-powered Hybrid Vehicle

General Motors (GM) and the U.S. Department of Energy (DOE), lead sponsors for the Challenge X: Crossover to Sustainable Mobility engineering competition, congratulates students from Mississippi State University, who took top honors this week at the third annual "Challenge X" competition.

The Mississippi State team was among 17 universities from across North America that have re-engineered a 2005 Chevrolet Equinox crossover SUV using advanced propulsion technologies to increase fuel efficiency and reduce environmental impact, yet retain its consumer appeal.

The Mississippi State team designed a through-the-road parallel hybrid electric vehicle with a 1.9-liter GM direct-injection turbo diesel engine fueled by B20 biodiesel. It achieved a 48% increase in fuel economy over the production vehicle.

The second place vehicle, engineered by students at the University of Wisconsin-Madison, is also a through-the-road parallel biodiesel electric hybrid design with a 1.9-liter GM diesel turbocharged engine that runs on B20. Virginia Tech was awarded third place overall with a split parallel hybrid architecture that runs on E85 ethanol with a 2.3-liter turbo spark ignition engine.

"Developing more energy-efficient and 'greener' automotive technologies has become a global priority," said John F. Mizroch, Principal Deputy Assistant Secretary, U. S. Department of Energy's Office of Energy Efficiency and Renewable Energy. "Students competing in Challenge X are on a quest to deliver environmentally friendly, functional and fuel efficient vehicles that consumers want to buy."

Larry Burns, vice president of GM Research and Development and Strategic Planning, said advanced powertrain technologies and alternative fuels play a key role in GM's overall strategy to help decrease the nation's dependence on petroleum and reduce greenhouse gas emissions. "The vehicles developed by the Challenge X teams are right in line with GM's strategy and thinking," said Burns. "The real-world training you have gained though this program has given you invaluable engineering experience that has made you very marketable to the industry. In

Attachment 15.

« Photo of the Day: Jimmie Johnson | Main | Challenge X Talks to Bloggers »

The Thrill of Competition

By Amanda McAlpin
Guest Blogger, Mississippi State University

Editor's Note: Recently, GM announced the winners for the ongoing Challenge X. Take a look at what Amanda McAlpin, part of the of the Mississippi State team, had to say about the experience.

What a trip! From the deep South, our Mississippi State University team traveled north to Detroit to compete with our hybrid vehicle against 16 other teams from across North America.

Competition is a fun experience. It's always great to get to see all the students from the other teams. The first day, when all the teams gather for the opening night dinner, is exciting. All the teams come in, usually dressed in their team shirts (with University of California Davis in their hats and Wisconsin with their inflatable cow), and you just get a feeling of excitement. We're all competitive, but there is such a feeling of camaraderie.

Being at the proving grounds was exciting. On the third day of competition, I hopped on board one of the buses to take a tour. It was a fascinating tour. We saw all the roads and courses that GM uses to test their vehicles. To me it's just SO exciting to see this place where vehicles are tested, vehicles that will eventually end up in a car lot

Attachment 16.

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Sponsored By SPECTRUM

Hey, Soccer Moms: Drive These SUVs!

By **John Voelcker**

"Ummmm, who's got that restart key?"

The speaker is a slightly worried Mike Wahlstrom, co-team leader for the University of Waterloo's Challenge X team. The impetus for his question is your intrepid reporter, who has managed to stall the Canadian team's unique, fuel-cell-powered Chevy Equinox. It won't restart, and we're blocking a traffic lane at midday in downtown Detroit.

The cause of the problem? My aggressive driving: mimicking any suburban commuter, I floored the accelerator as I pulled into oncoming traffic. Because one of the two electric motors was disabled, as Wahlstrom explained after we got the car restarted, the vehicle controller fed too much voltage into the remaining motor, whose control software triggered a shutdown to protect it from burning out.

8 of 8

Photograph by Roy Feldman/Challenge X

Take off all the sponsor logos, and many SUV buyers might never notice the advanced technology that's been shoehorned into this white 2005 Chevrolet Equinox (if they can drive a six-speed manual and don't mind filling up with diesel, anyway). This year's first-place winners from Mississippi State University produced a vehicle whose interior and exterior were very close to showroom stock.

Flooring a car isn't unusual, though; drivers do it every day. And that challenge—making a highly modified SUV usable by everyday consumers—lay at the heart of the third year of Challenge X. It's a competition funded by the U.S. Department of Energy and dozens of other sponsors, including General Motors Corp. GM donated brand-new 2005 Chevrolet Equinoxes to the 17 college teams, which each must attempt to build a sport-utility that uses less petroleum and emits fewer pollutants and greenhouse gases.

Following a full year of computer modeling, simulation, and design testing, the teams set to work

Attachment 16 Cont.

with cutting torches in 2005. In last summer's event to end Year Two, their modified engineering prototypes—known by the industry as "mules" for their often-balky behavior—were put to the test at GM's Desert Proving Grounds in Mesa, Arizona.

The challenge for Year Three was to improve those mules to a "99 percent acceptability level." In English, that means making them something a soccer mom could drive—ideally without ever noticing the technology changes, except perhaps at the gas pump.

No Jerking, Shuddering or Noise, Please

My drive in the Waterloo vehicle followed another week of testing, this time at GM's Milford Proving Ground, outside Detroit. The tests were modeled on the same challenges that any new production vehicle must meet: smooth and consistent drivability under all circumstances, without jerking, shuddering, or power-train noise; brakes that last through repeated hard stops from high speed; the ability to tow a trailer weighing 500 kilograms or more; air-conditioning that works flawlessly; ultrareliable accessories like electric windows and navigation system; high-quality interior trim and appointments; and so on.

Unlike last year, this summer the winning vehicles were pretty close to showroom-ready. Mississippi State University, the surprise come-from-behind victor over last year's second-place University of Wisconsin-Madison team produced a vehicle so professional that it could easily have appeared on a dealer's floor—assuming the multicolor paint job and 30 or so sponsor logos were removed. A neat cover shrouded its direct-injection 1.9-liter turbo diesel engine, and the batteries for its hybrid electric drive fit beneath the floor of the load bay, eliminating any compromise in load space. (The battery pack occupied the former spare-tire well, as all 17 teams were equipped with identical run-flat tires.) In fact, Mississippi managed to *increase* rear load space; they cleverly fitted updated, less intrusive interior panels from a 2007 Equinox. Their vehicle performed on the road, too, achieving a 48 percent reduction in fuel usage over the baseline unmodified 2005 Equinox.

> *"Most of the teams finished most of the events, but that wasn't enough—we found the level of competition unexpectedly high"— Eric "Hot Shot" Schacht, Ohio State University*

But the competition was fierce, and the two top teams were separated by merely 7 points out of a possible 1000: Mississippi scored 895.5, Wisconsin 888.3. Last year's winner, Virginia Tech got 809 points, only enough this year to take third. As Ohio State's Eric "Hot Shot" Schacht put it, "Most of the teams finished most of the events, but that wasn't enough—we found the level of competition unexpectedly high."

Like any competition, this one had its share of mishaps. Virginia Tech broke a half-shaft during the trailer tow. A pipe ruptured in Michigan State's unique hydraulic hybrid, making quite a mess on GM's test track. And the Waterloo team persevered through a series of freak accidents that earned it other teams' astounded sympathy. During the first day's first inspection, a hydraulic lift malfunctioned and the vehicle slipped sideways, damaging an expensive custom-made carbon-fiber doorsill. Then, in on-road testing, the suction cup holding the tester's accelerometer to the windshield failed—dropping the instrument directly onto the dash-top kill switch, cracking its housing and triggering a full shutdown of the batteries and fuel cell at speed.

Weight Loss and Plastic Surgery

But such events are a standard part of development. And it had been a busy year of modifications, with every team tweaking, replacing, improving, and refining dozens of components, major and minor. Michigan Technological University, for example, cut its estimated coefficient of drag from 0.42 to 0.36 by adding rear-wheel-well covers (or "spats") and modifying the front air dam, to cut fuel usage at high speed and reduce wind noise. Wisconsin reduced the number of cells in its battery from 44 to 40, letting it restore rear load volume to standard. Penn State cut 5 kg from each disc brake by creating titanium rotors mounted on aluminum hubs.

Waterloo shaved the weight of its very heavy—and heavily modified—fuel cell vehicle by using carbon fiber for the hood (dropping it from 23 to 8 kg), creating a new wiring harness with 22-gauge wire rather than 18-gauge (8 more kg), moving the voltage controller (eliminating 7 kg of heavy cable), and so on. The final vehicle weighed in at 2173 kg, merely 4 kg under the maximum

2177 kg.

And that year of refinement really brought results. In drive after drive, the mongrelized SUVs—most with new engines, hybrid-electric drive added, and a plethora of sophisticated new systems—ran almost like production vehicles. One giveaway was the six-speed manual transmission used by many: Few North American SUVs even offer manuals. Diesel clatter was another telltale, though some teams muffled it better than others, with Ohio State's active-damping of engine vibrations winning it the lowest-noise prize.

For all the teams, said on-site organizer Steve Gurski of Argonne National Laboratory's Transportation Technology R&D Center, which coordinates the event, the biggest engineering challenge proved to be "mimicking GM's high-speed LAN protocols" after replacing the engine and adding new components. He stressed the enormous time it took to ensure compatibility among the control modules for new, more complicated hardware (battery packs and one or more electric motors) whose components had to interact frequently to provide smooth operation under any conceivable driving pattern.

Wanted: More Time for Control Software

Every team's wish list included more time to refine the control software. (Lithium-ion batteries, aluminum front and rear subframes, and better communication with offshore vendors filled out several lists.) Discussing both control software and the contest itself, Andrew Shabashevich from the University of California-Davis team said simply, "It's the largest learning curve I've ever had."

> *"It's the largest learning curve I've ever had"— Andrew Shabashevich, University of California-Davis*

Despite the setbacks, the long hours, and the less-than-perfect results, the teams were jubilant—and less exhausted and hollow-eyed than last year. In 2006, the challenge had been just to keep their vehicles running. This year, it was a true competition among well-matched foes.

The rewards were many. For Penn State's Tim Cleary, "The best part of the proving grounds week was being able to drive amazing cars, like a Cadillac XLR-V; that made all the late nights worthwhile." For the Waterloo team, it was a personal visit from GM chairman Rick Wagoner, who even took their car for a spin. At 6 foot 5, (1.96 meters), he was a tight fit; they used lightweight racing seats to fit over the 36-centimeter-tall fuel cell that replaced the floor pan of their Equinox.

Almost 30 team members got a more tangible reward: a job offer from one of the contest sponsors. GM alone extended 12 offers this year during competition week.

A late surprise was the addition of a fourth year to the former three-year contest. Reinforcing the importance of consumer acceptance, the Challenge X entrants will go on the road and seek public feedback. Prizes are likely to go to teams whose vehicles are best rated by actual consumers along the way, and remain drivable and reliable over an 800- to 1600-kilometer road rally that will end in Washington, D.C.

Like the others, the Waterloo team is eager to show off its years of hard work. Last year it won the Spirit of the Contest award for choosing to use a fuel cell—more audacious in 2004 than it would be today, given GM's announcement that it expects to market a fuel-cell car by 2015. This year, it got sixth place *and* a visit from GM's chairman.

Even aggressive driving by a journalist couldn't dampen the team's élan. They'll clearly have the second motor back in operation a year hence. So, would I buy their Equinox? Not yet. Among other concerns, it has no rear load space—that's occupied by the hydrogen tank. But like the rest of the entrants, every team member has a future in auto engineering. And for a North American auto industry under siege, that makes Challenge X a bright beacon of hope for the future.

About the Author

John Voelcker is the automotive editor for IEEE Spectrum. He has also covered automotive technology in print, online, and on air for *Wired*, *Popular Science*, Portfolio.com, and various National Public Radio programs. Beyond auto journalism, he consults on business strategy and product development for interactive media.

Attachment 17.

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Competition success should mean top automotive engineering jobs for MSU students: Faculty adviser

By Skip Descant
Dispatch Starkville Bureau
sdescant@cdispatch.com

Wednesday, July 11, 2007 11:59 AM CDT

STARKVILLE - Taking first place in a national competition to redesign a conventional car to increase performance, efficiency and reduce emissions will move Mississippi State University graduates to near the front of the line when it comes to landing top automotive engineering jobs.

"Now, any student that's on our team that wants a job with an automotive company has got it. Any company they want," said Dr. Marshall Molen, the faculty adviser for MSU's Challenge X Team, speaking to the Starkville Rotary Club Monday.

Challenge X is a multi-disciplinary group of students just finishing year three of a four-year project to explore automotive design through hands-on teaching and testing. The project is sponsored by General Motors, the U.S. Department of Energy and other industries. GM provided the students with a Chevrolet Equinox to be redesigned. And through the redesign process, the students equipped the SUV with a small turbo-diesel engine powering the front wheels and an electric motor to power the rear wheels, in what is known in engineering parlance as a "through-the-road parallel hybrid electric" configuration. The car now gets roughly 38 miles-per-gallon using bio-diesel, said team member Amanda McAlpin.

"We've gotten a lot of exposure out of this, and I think it's something that's been very good for Mississippi State and the state of Mississippi," said McAlpin, speaking for the team's first place winnings.

In early June when the MSU team competed against 18 other universities, through test drives to measure towing capacity, speed, efficiency and other factors like community outreach, the Bulldog team brought home top awards in nearly every category including first place overall.

Part of how MSU students will get

NEW

Attachment 18.

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WINNING HYBRID

Mississippi State University undergraduate Amanda McAlphin, left, and graduate student Matt Young of Meridian, pose in front of an award-winning vehicle that was developed by a group of MSU students for a competition hosted by General Motors and the U.S. Dept. of Energy. The hybrid car won first place in a competition hosted by GM. The team also won for on road fuel economy and best engineered vehicle. The diesel/electric hybrid, made from a Chevrolet Equinox, is designed to drive just like a traditional car. Chris Whitt of Meridian also was on the team.

PHOTO BY GEORGIA E. FRYE
THE MERIDIAN STAR

New Orleans district attorney shaking up office

NEW ORLEANS (AP) — Criticized after dropping charges against suspects in two high-profile murder cases, the district attorney said Friday that a unit created in March with city and federal money will take over all cases previously handled by

review up to 10 years of homicide and violent crime cases handled by the New Orleans district attorney's office in hopes of improving prosecutions and stemming the city's spiraling murder rate.

In the immediate future, Jordan said,

Attachment 20.

AutoWeek

July 24, 2006

THAT OLD COLLEGE TRY; Challenge X lets students engineer advanced-technology **vehicles**

BYLINE: KEVIN A. WILSON

SECTION: NEWS; Pg. 5

LENGTH: 305 words

While some continue to debate the human contribution to climate change, there is no question interest in alternative-propulsion technologies is heating up. On the very same weekend sustainable mobility was taking center stage in Paris (page 17) and in New York's Finger Lakes region (above), students from 17 universities were showing off their accomplishments in the Challenge X competition. Virginia Tech won the second-round event conducted in the warm environs of General Motors' Desert Proving Ground in Mesa, Arizona.

Conducted by the U.S. Department of Energy and sponsored by General Motors, Challenge X is a three-year program that pits engineering students against one another in a competition to reduce emissions and improve fuel economy. In the first phase, during the 2004-05 school year, the students used computer math modeling to devise proposed drivetrain alterations for a Chevrolet Equinox crossover **vehicle.** The following year they installed the new technology. Now they can go to work refining their inventions for the finals next year.

Virginia Tech's solution is a split-parallel **hybrid** using two electric motors and running its engine on E85 fuel. The combination pares the **vehicle's** well-to-wheels use of petroleum by 74 percent. In the judging Virginia Tech topped the other entries with the best written report, by negotiating the braking/handling course in the shortest time and posting the lowest reading on regulated tailpipe emissions.

University of Wisconsin-Madison ran a close second with its entry using a biodiesel-electric **hybrid** system, while **Mississippi** State came in third, also employing a biodiesel-electric **hybrid** approach. Wisconsin's converted Equinox posted the best acceleration time, while **Mississippi** scored tops in drive quality and the minimization of greenhouse gas emissions overall.

Attachment 21.

Champion Challenge X Team honored

Mississippi State's Challenge X team that won first place in a national competition to redesign a fuel-efficient and environmentally-friendly SUV was honored in June during a reception at the university's Center for Advanced Vehicular Systems.

CAVS is located north of campus in the Thad Cochran Research, Technology and Economic Development Park.

The program involved some 15 team members who discussed their experiences reengineering a 2005 Chevrolet Equinox crossover sports utility vehicle. They placed first overall and took top honors in 10 individual categories during the nine-day competition in Milford, Mich.

In addition to team honors, two of the students have accepted jobs with General Motors, while another one recently was hired by Motortron System Inc., a research and development company that produces equipment associated with "brushless motor systems."

Mississippi State was one of 18 universities selected to compete in the competition organized by GM and the U.S. Energy Department's Argonne National Laboratory. More than a dozen categories designed to test the vehicles included acceleration, off-road performance, greenhouse gas impact, fuel economy, emissions, and consumer acceptability.

The MSU team designed a "through-the-road parallel hybrid electric" vehicle with a 1.9 liter GM direct injection turbo diesel engine fueled by B20 biodiesel. It also used advanced propulsion technologies that increased fuel efficiencies and reduced environmental impact.

NOTE: While the reengineered vehicle continues to be tested by GM in Michigan, the team's trophies will be on display. ●

Attachment 22.

From the August 2007 Issue

Daring to Design the Vehicle of the Future

The 2007 Challenge X: Crossover to Sustainable Mobility competition enables today's students to shape tomorrow's vehicles.

By Bryan Sims

As a young boy helping his big brother work on cars for a living, Matt Young knew somehow, someway he was destined to get his hands dirty working in the automotive industry. "I've always enjoyed working on vehicles," Young tells *Biodiesel Magazine*. "My brother was the big mechanic so I learned as much as I could when I was real young."

When he first started college he didn't know exactly what to pursue but he was interested in the engineering aspect of automobiles. So he decided to study computer engineering, which led him into designing automotive controls and eventually into a national vehicle design competition.

Young, a graduate student in electrical engineering at Mississippi State University (MSU), finally received the opportunity to put his childhood aspirations into practice when he joined the MSU Center for Advanced Vehicular Systems (CAVS). CAVS is an interdisciplinary center that allows engineering, research, development and technology transfer teams to focus on complex problems, such as those encountered in the technologies designed to improve human mobility.

At CAVS Young, with his background in computer engineering, learned the fundamentals of automotive controls and would later apply that valuable knowledge by participating in the 2007 Challenge X: Crossover to Sustainable Mobility event that was held at the General Motors Corp. (GM) proving grounds in Milford, Mich., May 30-June 7.

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The Mississippi State University team poses with its "through-the-road" parallel hybrid electric 1.9-liter GM direct-injection turbo diesel engine vehicle fueled by B20.

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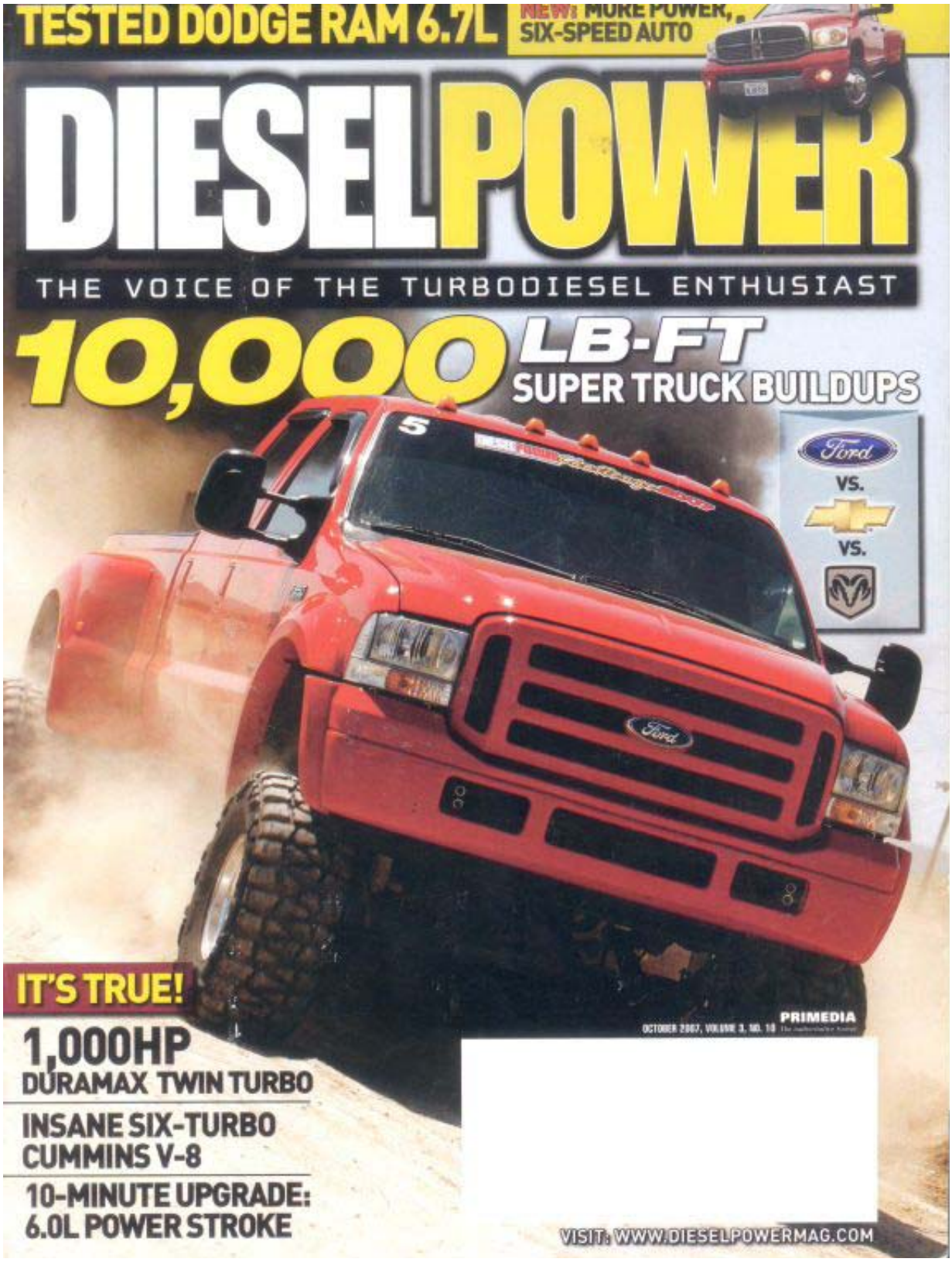
Attachment 23.



POWER BITS

CHALLENGE X 2007

MIXING ENGINEERING STUDENTS, THE AUTO INDUSTRY, AND the government sounds like the ingredients for some kind of witchcraft stew, but an alternative use for the combo platter is Challenge X: Crossover to Sustainable Mobility, which started in the '04–'05 academic year as a way to get teams from engineering programs to come up with concepts for decreasing energy consumption and emissions in a crossover vehicle. Sponsor General Motors says this is modeled after its own Global Vehicle Development Process; the U.S. Department of Energy also came on board as a sponsor. The three-year program starts off with students getting a vehicle and then creating models and simulations, including powertrain development. The remaining two years include refining the idea. The vehicle must feature advanced technology and alternative fuel such as biodiesel.

Beating out 16 other universities in the third edition of Challenge X was Mississippi State University, which converted an '05 Chevy Equinox into a diesel-electric hybrid using a 1.9L GM turbodiesel running on biodiesel, said to give it a 48 percent increase in fuel economy over the factory Equinox. Second Placer, the University of Wisconsin,

also ran a biodiesel-fueled electric-hybrid 1.9L turbodiesel. In fact, 12 teams used biodiesel. The engineering prowess from the first two years of the competition resulted in 40 students being hired by GM, while other sponsors, such as Caterpillar, have also done recruiting.

GRAND CHEROKEE DIESEL: ALREADY A REBATE DELIGHT

OUCH, *AUTOMOTIVE NEWS* IS REPORTING THAT CONSUMERS WHO were looking to buy the Jeep Grand Cherokee 3.0L CRD in July were getting $3,500 knocked off the sticker price. There was $2,500 in customer cash, followed by $1,000 in bonus cash; the diesel Grand had been on sale only since March. But it's not the diesel's fault—the Grand model overall has been hurting compared with '06 sales.

Proof that Chrysler isn't blaming the CRD? The rag also said the automaker is looking at its lineup to see what else it can stick this six-cylinder into. It also wants to build a four-cylinder diesel.

COAL: SHOULD WE OR SHOULDN'T WE?

ACCORDING TO THE ASSOCIATED FOREIGN PRESS, THE HOT BUTTON in Washington is production of synthetic diesel fuel from coal. One side says it can help reduce the United States' dependence on foreign oil. The others say coal would increase greenhouse emissions. A proposal is floating around the senate for a coal-to-liquid project worth about $10 billion in loans, although potential tax credits and other incentives are also being discussed. South Africa is the model being studied for producing fuel from coal, and Germany swore by it during World War II.

COULD IT BE ...

TOYOTA HAS SAID IT FINDS HYBRIDS ARE WHERE ITS FOCUS SHOULD BE for now (they're cost-effective) instead of on diesels. However, Toyota seems to be in talks with Isuzu on diesel engines—maybe a diesel-hybrid vehicle? Toyota bought a 5.9 percent stake in Isuzu last year, so we're sure Isuzu returns Toyota's phone calls.

CANADA'S DIESEL MANDATE

BRITISH COLUMBIA WILL BE THE FIRST CANADIAN province to make clean technology mandatory in older commercial transport diesel vehicles. It will be necessary to have oxidation catalyst filters (or related equipment) by 2009.

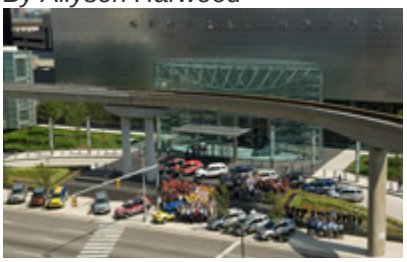
"After a few minutes, organisers [sic] discovered they had simply run out of juice (the biodiesel fuel which powered the stage and arena lights). It was the first time anyone had used biodiesel for such a big concert."

–News Ltd., reviewing the Australia side of the global Live Earth production

Attachment 24.

Challenge X: Universities flex engineering and creative muscles in search of the next viable hybrid

By Allyson Harwood



VIEW LARGER IMAGE

It's one thing to hear about the automotive advances being made on university campuses; it's quite another to drive them. Challenge X is an event sponsored by the U.S. Department of Energy and GM where schools get to flex their engineering and creative muscles. GM provides the vehicles -- in this case, each school received a Chevrolet Equinox -- and the schools' goal is to reengineer them with reduced emissions. The universities began computer simulations a year before the keys were handed over, then received the vehicle and spent the next two years doing the physical work, much of which involved integrating components and systems not specifically designed for these vehicles. An SUV may be an ideal platform for an event like this, because adding weight of new components isn't as critical (the suspension and structure are designed from the factory to carry added gear and people) and there are more places to add batteries and other equipment. For this Challenge X event, there were 17 universities involved, and all the vehicles were hybrids.

VIEW LARGER IMAGE

We started the day behind the wheel of the University of Waterloo's series fuel-cell hybrid. This school's entry is powered by hydrogen, stored in a tank that takes up the cargo area. The fuel cells are stored under the seats, and the battery pack is under the hood, as is a motor inverter. To reduce vehicle weight, this team replaced as many OE steel components as possible with aluminum and used carbon fiber wherever it was realistic.

As it operates, it makes some noises you wouldn't necessarily expect -- some hums and groans that are louder than in, say, a Prius -- but they're certainly minor. This Equinox does not have the same power output as a stock model, but has a 120-mile range and zero emissions -- its exhaust only drips warm water. Once a hydrogen infrastructure is in place, which some estimates put at 15-20 years from now, this could be a viable future power source for cars and SUVs.

VIEW LARGER IMAGE

Next was Mississippi State's entry, which was announced as the winner of the third-annual Challenge X in June. We can see why: Part of the competition is to design a reduced-emissions vehicle with consumer appeal, and this one uses an engine and transmission from GM's European models (a 1.9-liter turbodiesel inline-four and six-speed manual), which are already established, backed with reliable hybrid technology. The diesel engine runs on B20 soybean-based biodiesel and, though physically smaller than the stock V-6, is in the same location. The team redesigned the re[Type a quote from the document or the summary of an interesting point. You can position the text box anywhere in the document. Use the Text Box Tools tab to change the formatting of the pull quote text box.]

ar suspension cradle to accommodate the 67kW electric motor. The engine and battery pack put out a total of 240 horsepower and approximately 230 pound-feet of torque, and 0-to-60 is estimated at 7.5 seconds-more than 1.0 second faster than a stock Equinox. And, if that's not enough, this biodiesel Equinox gets about 35 mpg combined city/highway fuel economy.

VIEW LARGER IMAGE

In this through-the-road parallel hybrid, the Equinox runs on electric power at low speed. At higher speed, though, it's used as a gradual power boost, with an incredibly smooth transition from electric to diesel power. Anyone who enjoys shifting gears would love driving this AWD Equinox -- it's just like driving anything else with three pedals. The team members must've loved driving it, too -- they put as many miles on their vehicle (over 15,000) as the next four teams put on theirs combined. The most noticeable difference between this and a typical small SUV is that the brakes, likely because of the regen system, are somewhat grabby.

VIEW LARGER IMAGE

Our third and final drive for the day was Ohio State's biodiesel hybrid, also with a GM-sourced 1.9-liter

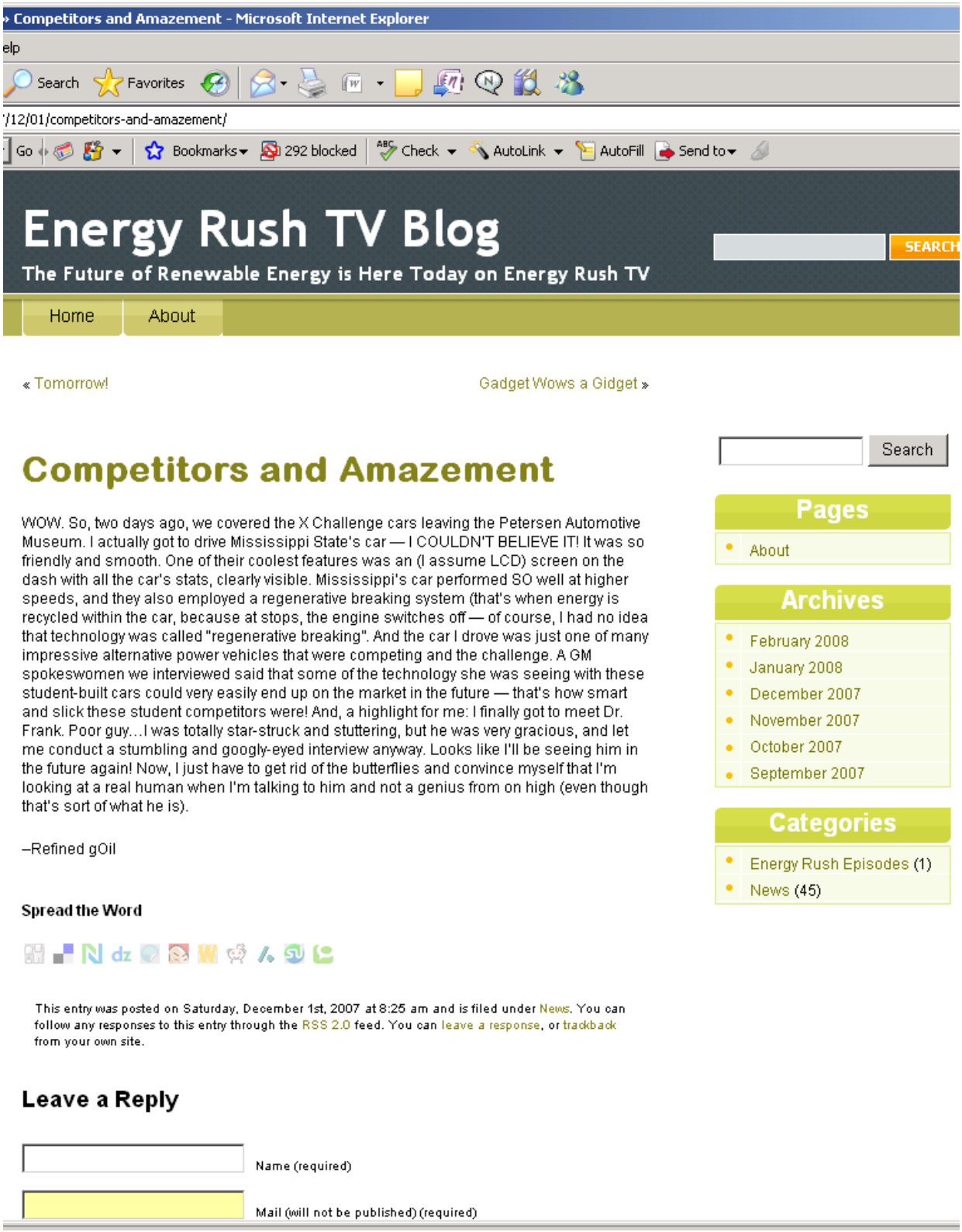
turbodiesel running on B20, but this one backed by an Aisin six-speed automatic. This is the most like a stock Equinox -- put it in Drive and go. Transitions aren't as smooth, but driving it is close to what an SUV driver would experience in a stock vehicle.

Other entries used ethanol, ethanol/hydrogen, and reformulated gasoline. UC Davis's plug-in hybrid, the only such entry, can operate like a regular hybrid as well as a plug-in. It uses large enough batteries that during a power failure, it could potentially power a single-family home for two days.

These universities are doing the R&D that could lead to the next generation of hybrid vehicles, and it's smart for OEs to sponsor competitions like this and reap the benefits. But it helps the universities as well. One school that participated had a volunteer -- only automotive program three years ago; now there's a full automotive program on campus, and the students work for credit. And the enthusiasm, the passion, and the innovation that is coming from our schools is absolutely inspiring.

The next phase of the third Challenge X involves a road rally from New York to Washington, D.C., this coming May 2008, where the goal is to have politicians get behind the wheel of these Equinoxes. After that is the next competition, known as EcoCAR. For more information, visit www.challengex.org.

Attachment 25.



Attachment 26.

MSU Challenge X team shares No. 1 experiences with larger world

University Relations News Bureau (662) 325-3442 Contact: **Robbie Ward** December 14, 2007

Publication Quality Photo: Right click on the photo below, then select **Save Target As** or **Save Link As**. Selecting **Save Picture As** or **Save Image As** will save the low resolution image.

Comedian Jay Leno (l) and MSU student Stephen Phillips discuss the winning Challenge X vehicle. Phillips is an electrical engineering graduate student from French Camp.

STARKVILLE, Miss.--Members of Mississippi State's Challenge X team are back at the university after completing a road trip to California to help promote fuel-efficient vehicles with reduced environmental impacts.

After winning earlier this year the national Challenge X competition organized by General Motors and the U.S. Department of Energy and organized by Argonne National Laboratory, the five-member student team joined with counterparts from 16 other universities to promote more environmentally protective vehicles.

In addition to taking first in the overall competition and tops in 10 individual categories, MSU's entry boasts a fuel efficiency of about 32 miles per gallon, and close to sports car level acceleration.

Technically speaking, the "through-the-road parallel hybrid electric" vehicle features a 1.9 GM direct injection turbo diesel engine fueled by B20 biodiesel. It beat all the others because the students succeeded in increasing its fuel economy by 48 percent, compared to the original design.

While in the Golden State, Matt Young of Meridian and other team members shared with numerous car enthusiasts various details of the 2005 Chevrolet Equinox crossover sports utility vehicle they re-engineered to win the three-year competition.

Young, a graduate student in electrical engineering, said the MSU group spent time with late-night television show host Jay Leno, a well-known motorcycle and car collector.

"He asked us what we did different compared to others," Young said. "We also discussed how to make this more mainstream."

In addition to vehicle enthusiasts, the competition provided the MSU students with numerous opportunities to network with top automotive executives and other potential employers. Among those opportunities was the Society of Automotive Engineer's Electric Vehicle Symposium attended by experts in the field from around the world.

Young plans to work in the auto industry after graduation, either in research or design. He said the many learning experiences provided by Mississippi State's Bagley College of Engineering and the university's Center for Advanced Vehicular Systems will be of considerable benefits in his job search.

"I can say I helped work on the No. 1 hybrid vehicle developed at Mississippi State University," he said.

Several other MSU students who learned about hybrid technologies through the Challenge X competition already have jobs in the field. Lauderdale native Christopher Whitt and Columbus native Kyle Crawford, recent graduates of the university's Bagley College of Engineering and the Challenge X team, now work for GM.

For winning top honors, the team received $31,500 in prize money. The amount included $15,000 awarded by the National Science Foundation to electrical and computer engineering professor Marshall Molen for being named the outstanding faculty adviser.

Other Challenge X teams represented the universities of California at Davis, Michigan, Tennessee, Texas at Austin, Tulsa, Waterloo, and Wisconsin-Madison, as well as Michigan Technological, Ohio State, Pennsylvania State, San Diego State, Texas Tech, Akron, Virginia Tech, and West Virginia universities, and Rose-Hulman Institute of Technology.

For more information, contact Amanda McAlpin at 662-312-8672 or **www.msuchallengex.org**.

Attachment 27.

CAR OF THE FUTURE

Engineering Students Develop Skills To Propel "Green" Vehicles Into Next Decade And Beyond

(NAPSI) - Challenge X, a multi--year collegiate vehicle competition sponsored by General Motors and the U.S. Department of Energy, is helping students gain valuable training and is providing the industry with experienced engineers who are ready to develop the "green" vehicle technologies needed today -- and tomorrow.

As the automotive industry is focusing more and more on the development of alternative vehicle technologies such as hybrids and fuel cells, new engineers will be needed to develop these innovative engine technologies.

Challenge X provides 17 university teams from across North America with real-world vehicle engineering experience. The teams follow the GM global vehicle development process to create technologies that increase energy efficiency and reduce environmental impact. Each team has re-engineered a Chevy Equinox with a range of hybrid, plug-in or fuel cell propulsion systems, powered by alternative fuels such as biodiesel, ethanol and hydrogen.

Since the competition began in 2004, GM has hired more than 50 students from the program. "Challenge X has prepared me for an exciting automotive career," said David Oglesby, student team leader of Mississippi State University, which won the Year Three competition in 2007. "It's a unique program that provided me with hands-on training that will give me an advantage in the job market."

Cindy Svestka, GM powertrain engineering manager and Challenge X graduate, also has praise for the program. "When we hire a Challenge X student, we know that we are getting a top-notch engineer with great experience and strong knowledge of our vehicle development process," she said. "It's a win-win for both the student and the automaker."

Ed Wall, the U.S. Department of Energy's manager of the Vehicle Technologies Program, Office of Energy Efficiency and Renewable Energy, hopes the competition will create greater awareness of alternative fuels. "This competition focuses on advanced technology that promotes energy security and economic growth," he said. "Challenge X demonstrates how government, industry and academia are working together to develop creative approaches and solutions to decreasing energy consumption and greenhouse gas emissions in some of America's most popular vehicles."

Additional information is available on the Web at www. challengex.org.

Mississippi State University's Challenge X vehicle, which won the program's Year Three competition in 2007, cruises on a test track.

Attachment 28.

From CarJunky.com

Alternative Fuel Vehicles

Engineering Students Develop Skills To Propel "Green" Vehicles Into Next Decade And Beyond

By
Sat, 23 Feb 2008, 18:04

(NAPSI) - Challenge X, a multi--year collegiate vehicle competition sponsored by General Motors and the U.S. Department of Energy, is helping students gain valuable training and is providing the industry with experienced engineers who are ready to develop the "green" vehicle technologies needed today -- and tomorrow.

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"Challenge X demonstrates how government, industry and academia are working together to develop creative approaches and solutions to decreasing energy consumption and greenhouse gas emissions in some of America's most popular vehicles."

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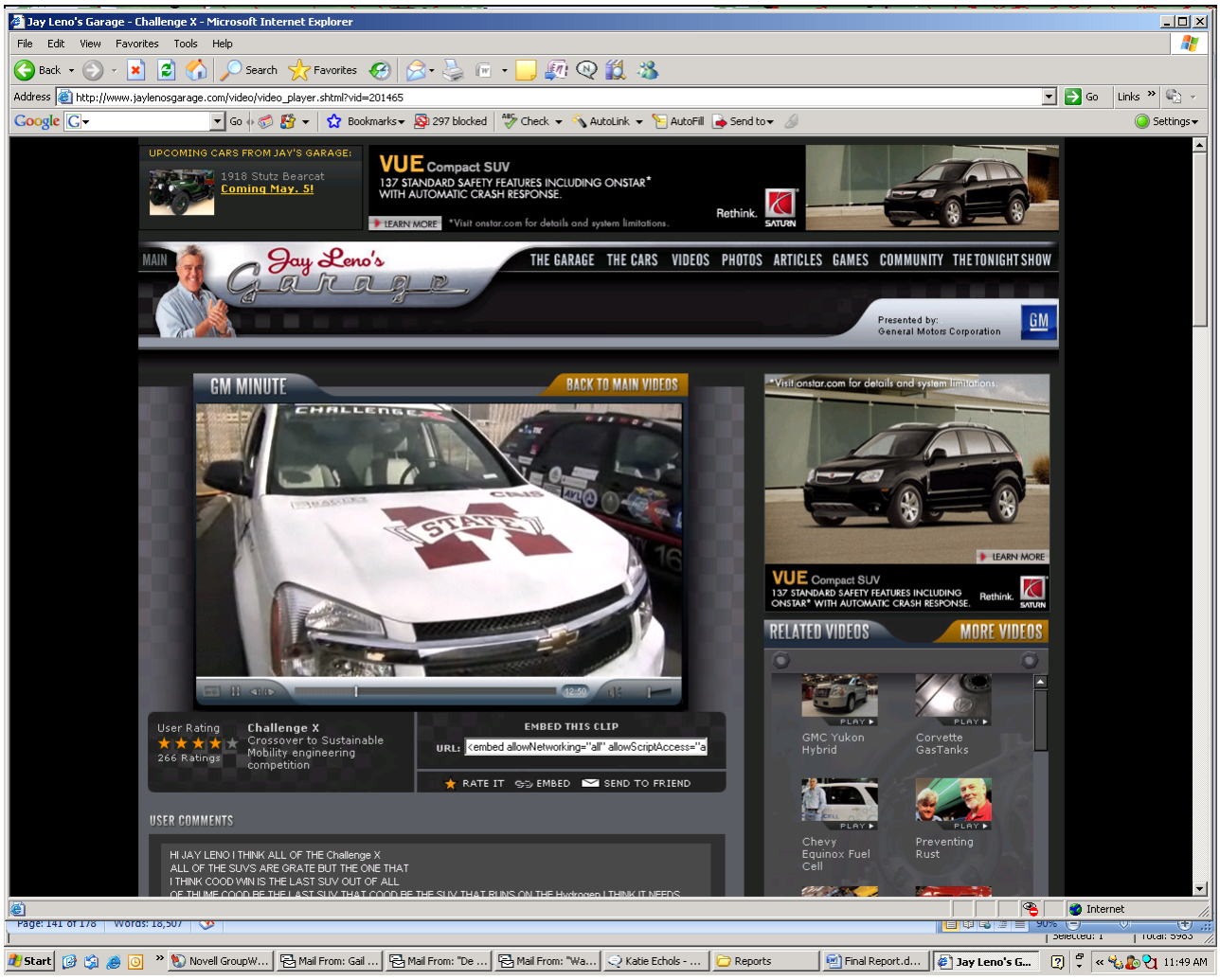
Attachment 29.



Attachment 30.

Students from Mississippi State University Challenge X team visited the Walt Massey dealership. From left to right, Roger Summerour, MSU alumni who coordinated the visit; Stephen Phillips, team member; Amanda McAlpin, team member; Matt Young, team member; Jenna Grantham, team member; Tom Wilder; Kim Loftin; Danny Moorman and Monty Michini.

Challenge X team visits Lucedale

Lucedale - One vehicle on the lot of Walt Massey Chevrolet dealership wasn't quite the same as all the others on Saturday.

Students from the Mississippi State University Challenge X team brought their hybrid SUV to the dealership to display it. The students converted the vehicle, a Chevrolet Equinox, to run on a combination of an electric motor and an engine. The vehicle is fueled by B20 biodiesel, a type of diesel that is made from biomass, and in this case, soybeans. The team of students brought the vehicle to Lucedale as an outreach to the community.

"We want to show that a vehicle that runs on biodiesel is being created right here in Mississippi," said Amanda McAlpin, one of the team members that exhibited the vehicle on Saturday. "Using fuel that can be created here helps us to depend less on foreign oil."

"We are trying to create a vehicle that will lessen the country's dependence on foreign fuel."

The team built the vehicle as part of the Challenge X competition, a program sponsored by General Motors and the U.S. Department of Energy, and organized by Argonne National Laboratories. The team has had a winning year with their vehicle, placing first in the nation against 16 other teams who are building similar vehicles.

The objective of the competition is to re-engineer a Chevrolet Equinox to get better fuel economy and produce less harmful emissions, while still maintaining stock vehicle performance. The team works on all aspects of the vehicle, such as convenience, 0-60mph performance, and driver comfort so that a consumer will be just as comfortable driving this vehicle as any other.

The competition will last for four years. The first year was mostly spent on designing new components for the vehicle. Year 2 was spent integrating that design into the actual vehicle. Year 3 included refining the design and making it acceptable to consumers. As well as winning the overall competition in June 2007 at the General Motors proving grounds, the team also took first place as well as winning Best Acceleration, Best Static Consumer Acceptability, Best On-Road Energy Use, Overall Outstanding Outreach, Best Media and PR Outreach, Best Engineering and Fabrication Workmanship, and the National Science Foundation Award for Best Faculty Advisor.

The students working on this vehicle come from all areas of the engineering fields. Challenge X gives them an opportunity to apply what they have learned in the classroom to a hands-on project. The MSU Challenge X team has about 30 members spanning from freshmen to graduate students.

"We were excited to have the Challenge X team visit us," said Tom Wilder, promotions director for the Walt Massey Chevrolet dealership.

"We are always interested in learning about the newest vehicle technologies so that we can bring them to our customers."

For more information on the Challenge X competition, please contact Amanda McAlpin at 662-325-5562, or by email at amcalpin@cavs.msstate.edu, or visit the website at www.msuchallengex.org.

Attachment 31.

MONDAY

THE COMMERCIAL DISPATCH

www.cdispatch.com

IL 21, 2008 — *A locally owned newspaper with a mission of service* — 129TH YEAR, NO. 35 ■ 25

THE COMMERCIAL DISPATCH

The Commercial est. 1894, The Dispatch est. 1879. Consolidated March 12, 1922, Columbus, Mississippi

Green fashions

Student-designed clothing and off-the-rack clothing grace the runway during an environmentally aware fashion show. 3A

EWS TIPS 328-2471

TODAY'S QUOTE: *"This gives us the opportunity to hopefully get all the parties back to the table and hopefully set legislation that the restaurant association, the university and the city can support."*
—ComVest Managing Member D. Brooks Holstein of Starkville mixed-used building development; story on Page 1A

PAG

THE COMMERCIAL DISPATCH

'Green is the new black'

Fashion show focuses on environmental awareness

By Skip Descant
Dispatch Starkville Bureau
sdescant@cdispatch.com

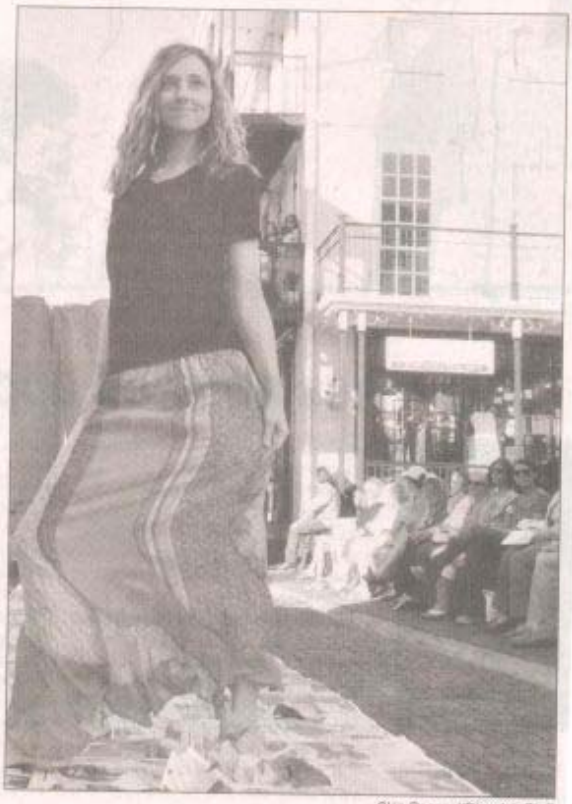
STARKVILLE — Sometimes subtle, sometimes not, but clothing has always been full of message and often, consciousness-raising.

So when the Mississippi State University Fashion Board and the Challenge X Team — not the most obvious of partners — came together to stage an environmentally-inspired fashion show during Earth Day weekend, they had more than couture on their minds. With the theme, "Green is the new Black," they were thinking about big-picture issues like climate and raising environmental awareness through say, a recycled scarf or fabric made from soybean fabric.

"We're kind of reinventing what clothing can be," said organizer Justine Couvillion of Starkville, an apparel, textiles and merchandising major at MSU, just before the two dozen student models were set to take to the runway on the Rue du Grand Fromage in the Cotton District Saturday afternoon.

"This show is about organic or recycled clothing," explained Couvillion, while wearing a strapless blue silk floral-patterned dress that used to be a curtain and big vintage-looking Prada sunglasses.

Much of the designs shown that afternoon were part of the Super Lucky Cat line found at Lagniappe, a boutique in the Cotton District, and are made from recycled fabrics formed into all new clothing. For example, an old silk scarf suddenly becomes



Skip Descant/Dispatch Staff

Meredith Lee, a student at Mississippi State University, models an organic cotton skirt made out of recycled quilts and materials during the "Green is the new Black" fashion show Saturday in Starkville.

the movement reached regular old Main Street and opened up awareness among consumers in terms of the "carbon footprint" each garment produces, when consid-

Eco-fashion, as progenitors of this level of clothing design refer to the green-inspired garments, is not new.

made here in the U.S. and become conscious of what we buy. I try to look at the garment's tag before I purchase anything."

"I feel very strongly about designers manufacturing solely in America," remarked Couvillion. "This would not only create jobs in the U.S. but would also keep import and export costs

Attachment 32.

SPRING FLING

TUSCALOOSA

TUESDAY

The REFLECTOR

ENTERTAINMENT

Fourth Spring Fling features acoustic rocker Tim Blane

Reuben Sandwich & Wrap

Arby's

New Chocolate Turnover

I'm thinking Arby's

DAVE'S DARK HORSE TAVERN

Pizza Buffet Thursday & Friday Lunch Buffet 11-2 only

AS STARKVILLE'S ONLY TAVERN WE PROVIDE A FUN, CHARMING ATMOSPHERE WITH GREAT FOOD AND GOOD TIMES. VISIT US TONIGHT.

Entertainment Calendar

Tuesday	Wednesday	Thursday	Friday	Saturday
Jesse Robinson	Thomas Jackson	Jim Boat & The Trawling Moors	Coal Paper	Moon Tra

Attachment 33.

LEAN, GREEN BIODIESEL MACHINE

BY AMANDA MCALPIN

A team of students at Mississippi State University (MSU) has redesigned a 2005 Chevrolet Equinox into a hybrid that runs on biodiesel fuel for a competition called Challenge X.

Challenge X includes teams from 17 North American universities, and is sponsored by General Motors and the U.S. Department of Energy. For the competition, a stock Chevrolet Equinox was donated to each team. The teams were required to alter their vehicle to get better gas mileage and produce less harmful emissions.

The MSU Challenge X team chose to produce a diesel-electric hybrid, powered by a GM 1.9-liter turbocharged engine and six-speed manual transmission and a Ballard Ac induction electric motor and Johnson Controls Nickel Metal Hydride (NiMH) 330V rechargeable battery pack.

The diesel engine is fueled by B20 biodiesel. The MSU team employed several emissions after-treatments to clean the diesel exhaust, including a diesel oxidation catalyst, diesel particulate filter and urea SCR system.

THE TEAM'S VEHICLE gets about 38 mpg – a 48% fuel economy improvement over the stock vehicle. With the improved fuel economy and use of biofuel, the MSU Equinox uses 50% less petroleum than a stock model.

In searching for the best fuel for the vehicle, the team chose a soy-based biodiesel fuel because it creates less harmful emissions, is renewable and can be made from local sources.

For the Challenge X competition, the fuel used was a blend of 80% ultra-low-sulfur diesel and 20% soy-based biodiesel (B20). The blend used in the Challenge X competition can operate in most diesel engines without engine modifications.

At the 2007 Challenge X competition at the General Motors proving grounds in Milford, MI, the MSU team placed first overall, and also won in several other categories.

For more information contact Amanda McAlpin (amcalpin@cavs.msstate.edu or 662-325-5562). The team's Web site is *www.msuchallengex.org*.

Attachment 34

DELTA FARM PRESS®

FRIDAY, APRIL 18, 2008

TIMELY, RELIABLE INFORMATION FOR MID-SOUTH AGRICULTURE

Upper Mid-South—

Wet fields will delay planting

By David Bennett
Farm Press Editorial Staff
dbennett@farmpress.com

Heavy rains the first week of April increased flooding and problems in already-waterlogged Mid-South crop fields. Some of the wheat crop is already ruined — Jason Kelley, Arkansas Extension wheat specialist, estimates some 25,000 acres of wheat in his state have been flooded — and the concern now is being able to plant other crops in a timely manner.

"Forget the rains that are falling now or coming this weekend; farmers are already facing water that's backed up on fields over the last 10 days," said Chuck Wilson, Arkansas Extension rice specialist on April 2. "The rains that hit Missouri (the last

(See HEAVY, Page 6)

In national competition—

MSU designs for energy independence

By Elton Robinson
erobinson@farmpress.com
Farm Press Editorial Staff

An award-winning hybrid SUV is not only a crucial first step toward energy independence in the United States, but it's also the handiwork of a design team from right here in the Delta.

A student team at Mississippi State

BIOFUELS RENEWABLE ENERGY

University beat out 16 other universities across the United States and Canada with its "through the road parallel hybrid" which makes use of both a diesel engine and an electric motor.

The team's Chevrolet Equinox gets

(See MSU's, Page 2)

MEMBERS OF a Mississippi State University student team display their trophy for developing an energy-efficient automobile. From left are Amanda McAlpin, Christopher Whitt, Kyle Crawford, Michael Barr, Kennabec Walp, John Mosroch with the Department of Energy, Matthew Young, David Oglesby, Ryan Williams, Bob Reuter with General Motors, Ron Lewis, Dustin Black, Marshall Molen, team faculty advisor, Stephen Phillips and Bob Kirkland.

A PENTON MEDIA PUBLICATION VOLUME 65, NUMBER 16 www.deltafarmpress.com

Uses B20 soydiesel—

MSU's hybrid SUV averages 38 mpg

Continued from Page 1

about 38 miles per gallon, about 48 percent more than a stock Equinox. The vehicle uses B20 soydiesel (20 percent soydiesel) instead of 100 percent petroleum diesel, which helps the vehicle produce less harmful emissions.

The diesel engine powers the front wheels and the electric motor powers the rear wheels, so that it functions as an all-wheel drive vehicle, according to student team member and MSU mechanical engineering student Matthew Doude. "The only thing that connects those two power sources is the road."

This system "allowed us to downsize the internal combustion engine. So instead of a 6-cylinder gasoline engine that came in the vehicle, we were able to switch to a 4-cylinder biodiesel engine, which is far more efficient."

The four-year competition, called Challenge X: Crossover to Sustainable Mobility, was sponsored by General Motors Corp., the U.S. Department of Energy and other government and industry leaders.

In 2004, 17 teams including MSU were selected to re-engineer an Equinox, a crossover sport utility vehicle, to minimize energy consumption, emissions, and greenhouse gases while maintaining or exceeding the vehicle's utility and performance.

Argonne National Laboratory, a Department of Energy research and development facility, provided competition management, team evaluation and technical and logistical support.

One reason the Equinox was chosen was because of the popularity of family-sized vehicles and the simultaneous demand to reduce energy consumption and vehicle emissions.

Year 1 focused on modeling, simulation, and testing of the vehicle powertrain and vehicle subsystems selected by each school. In June 2005, teams came together to undergo extensive judging and evaluation.

Teams that demonstrated a mastery of the key aspects of modeling their powertrain choice and constructing and controlling the powertrain received a donated Equinox after the June 2005 competition.

Years 2 and 3 required teams to develop and integrate their advanced powertrain and subsystems into the Equinox.

THIS CHEVROLET Equinox was re-engineered by Mississippi State University students into a hybrid vehicle powered by a diesel engine and an electric motor.

Awards are given after each year of the competition.

The objective of the competition was to transform the vehicle into a hybrid-type vehicle while still maintaining stock vehicle performance. The team worked on all aspects of the car, such as convenience, 0-60 performance, and driver comfort.

The MSU team won the third year round of competition and is preparing for the final year when the students are judged on further refinement to the vehicle. "At the end of this year, they want a vehicle that's production feasible that looks and operates like a car on the showroom floor," Doude said.

In deciding to build a biodiesel engine, students analyzed all the fuels available for the competition, including soy biodiesel, ethanol and hydrogen, and determined that soy biodiesel "had the best compromise of fuel economy and good emissions. A side effect was that a lot of soy is produced in Mississippi," Doude said.

"Obviously, the goal is to be energy independent in America, which will allow us to greatly reduce the amount of petroleum we must import. Hybrids are necessary stepping stones towards the vehicle architecture of the future, which may be hydrogen or all-electric vehicles."

According to Doude, the build required "a lot of integration and packaging. We had to find ways to incorporate the new components of the vehicle without reducing cargo room or passenger capacity. We also had to integrate the systems so that the typical consumer wouldn't notice anything different. The driver turns the key and it cranks up — no additional switches or computer programming was required to operate the vehicle."

The hybrid also makes use of regenerative braking, noted Doude. "When you step on the brake pedal, the electric motor also serves as a generator, so it recaptures the energy while you're stopping and stores it in the battery."

Doude said students learned most of the basics for building the car at MSU, "but a lot of it was really specialized, so it took a lot of personal research and learning."

The team put about 16,000 miles on the hybrid vehicle as part of the competition's outreach program. Team members drove the SUV to K-12 schools, community organizations and events to demonstrate the benefits of hybrid vehicles.

According to Amanda McAlpin, MSU Challenge X outreach coordinator and an MSU graduate student, these events have taken the students as far away as California, though most destinations are within Mississippi. The events are instrumental for getting the word out about hybrid vehicles.

"One of the misconceptions in our area about hybrid vehicles is they only come in one size — small. This vehicle is a regular SUV, one that you would enjoy driving. It helps people realize that hybrids are available in a lot of different models, and can suit just about any type of lifestyle."

Challenge X has also proved helpful as a job-hunting tool for MSU students. Several students who have been part of the team have founds jobs after graduation through contacts they have made during the competition. Several students have taken jobs at General Motors.

Nearly 30 industry sponsors provided participating teams with math simulation software, automotive propulsion systems, fuels, emissions-control technologies, fuel cells and other tools and technologies to compete in the program. They also provide mentoring support to the students.

The selection process was open to all accredited engineering schools in the United States and Canada and began in September 2003. Mississippi State University learned that it was chosen to participate in the Challenge X competition in the summer of 2004.

The MSU team is made up of students majoring in computer science, communications, education, and all fields of engineering. This May, MSU students will apply for a follow-up competition, called Eco Car.

House delays FTA vote

The House voted April 10 224-195 to remove the requirement that the House vote on the U.S.-Colombia Free Trade Agreement within the next 60 legislative days, as provided for under "fast track" rules. The action severely damages prospects for approval of the trade agreement with benefits to U.S. agriculture.

USA Rice Federation President and CEO Betsy Ward said, "It's time to vote on this agreement and we are disappointed in today's House action.

"The agreement contains real, immediate benefits for U.S. rice producers and exporters. The FTA was negotiated in 2006 and removing the 60-day deadline delays implementing an agreement that will deliver strong economic and security benefits to the United States," Ward said.

The House vote does not preclude a vote by Congress this year, and some speculate that the agreement will be taken up after the November elections.

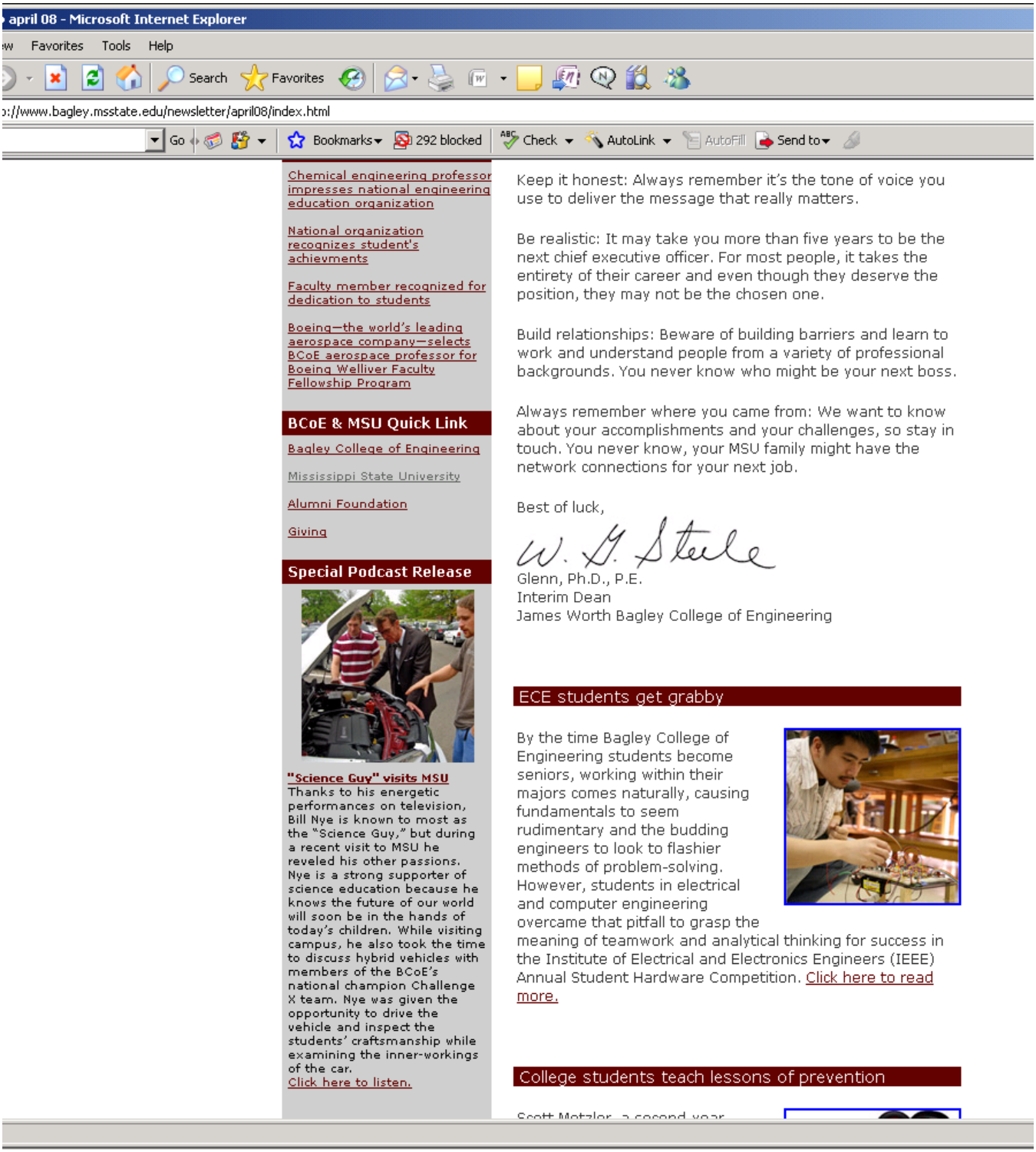
"USA Rice will continue to press for congressional approval," USA Rice Senior Vice President Bob Cummings said. "We will also ask that Congress and the administration focus on what's important in international trade — increasing market opportunities for U.S. products, vigorous enforcement of existing trade agreements, and providing meaningful assistance to those U.S. workers displaced."

Secretary of Agriculture Ed Schafer, speaking before the Agribusiness Club of Washington, said he is "extremely disappointed" with House Speaker Nancy Pelosi's decision to have a vote on delaying the agreement, which he called "an unwise course of action."

Schafer said the administration was committed to working in a bipartisan manner with Congress on the agreement.

Attachment 35.

Attachment 36.



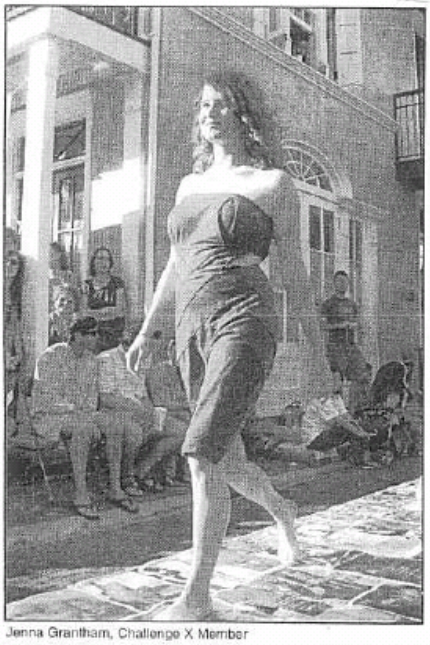
Attachment 37.

FASHION

eco friendly

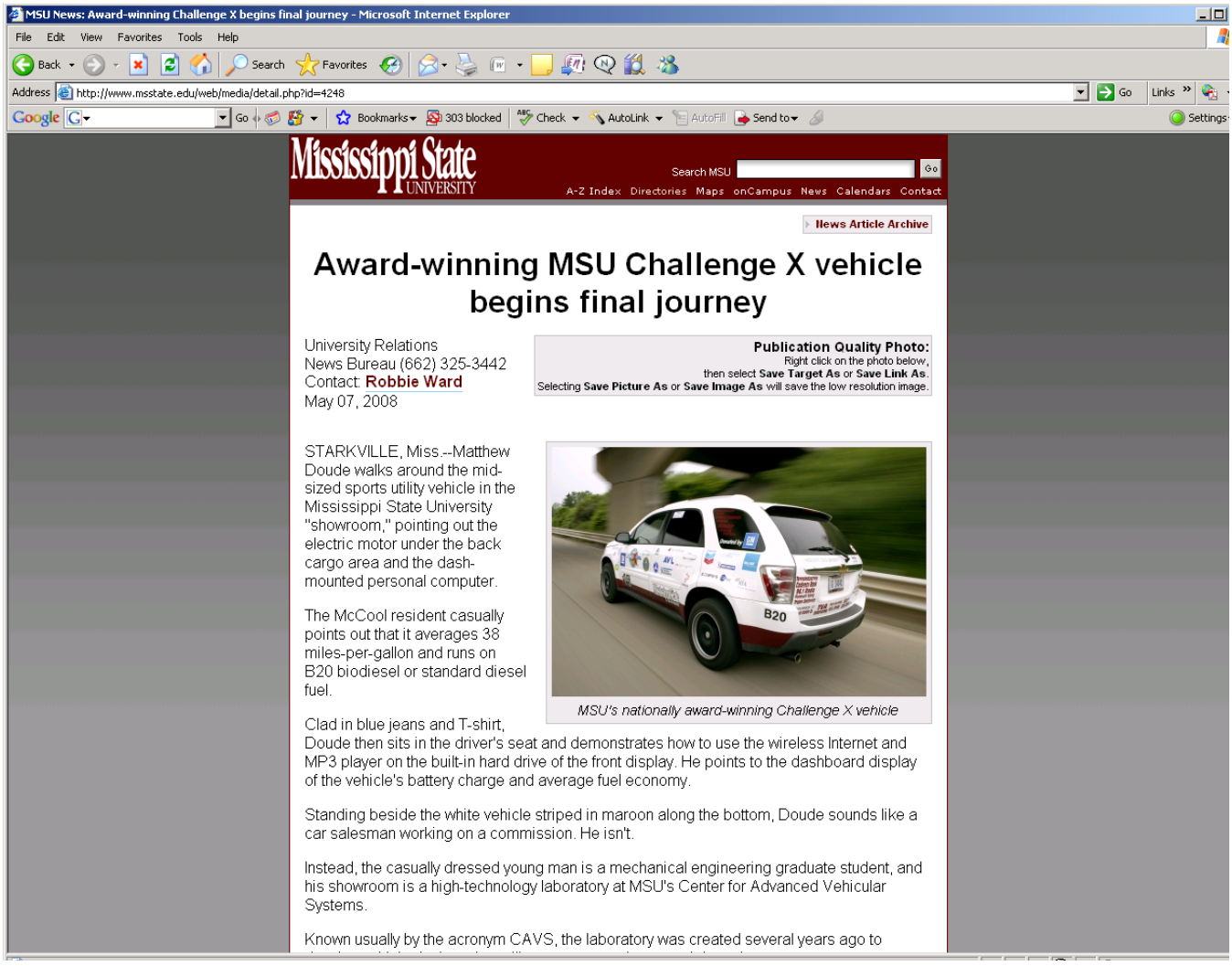
It is a "going green" theme and the Mississippi State University Fashion Board joined with numerous campus organizations for their final show of the semester. The apparel and textiles merchandising students made outfits from eco friendly fibers. And engineering student, Jennifer Grantham, made an outfit from soybean fibers. GM's Challenge X (the MSU engineering dept) sponsored the show to help promote their hybrid vehicle. The marketing department in the school of business handled thei marketing plan and promotions. So, in the effort to promote an eco-friendly future, these three MSU organizations when together to give us a glimpse into what can be done to make life a little cleaner and greener, right here at home. The fashion show took place just after this year's Cotton District Arts Festival in the Cotton District.

Justine Couvillion



Jenna Grantham, Challenge X Member

Attachment 38.



Appendix B: Other Marketing/Outreach Materials

Attachment 40. Poster.

Attachment 41. Side 1 of program.

Attachment 41. Side 2 of program.

SET I: MODELS PERSONAL ORGANIC & RECYCLED GARMENTS

SET II: SUPER LUCKY CAT CLOTHING FROM LAGNIAPPE

SET III: ECO-FRIENDLY CLOTHES DESIGNED BY JUSTINE COUVILLION, ASHLEY GUNKEL, PARRON EDWARDS, MOLLY GEE WAGGENER, & JENNA GRANTHAN

Models

Justine Couvillion- President
Pryor Lott- Vice President
Molly Gee Waggener- Treasurer
Jessica Diamond
Lindsey Russell
Brittany Brewer
Morgan Daly
Meredith Lee
Lydia Hammock
Jenny Massey
Mary Smith
Land Latimer
Chelsey Penson

Sara Powers
Blair Johnson
Anna Buchcanan
Iris Goodwin
Laura McBeath
Claire Daigre
Parron Edwards
Kenya Murray
Sharde Marks
Lauren Dorbeck
Vincent Stephens
Kara Davis

A special thanks to MSU Challenge X Team for sponsorship, the Couvillion brothers for set design, MSU Art Association for their unique sculptures, Dr. Beverly Howell our student advisor, Lagniappe, Dan Camp, Grenadeers, and Justine Couvillion & Pryor Lott for their hardwork and dedication for the past two years.

Attachment 42.

Join Us!

This year's **Fashion Board**'s Spring Fashion Show, "*Green is the New Black*" is sponsored by MSU's **Challenge X** Team. Here are a few quick facts about **Challenge X** and the team here at Mississippi State:

- Challenge X is a competition sponsored by the U.S. Department of Energy and General Motors
- It's a 4-year, student-led competition to redesign a 2005 Chevy Equinox to be more fuel efficient and to produce less harmful emissions
- In June of 2007, the team competed against 17 other teams from across North America and took first place
- Mississippi State's team consists of about 20 members, ranging from engineering to business majors
- The team's hybrid Equinox features a diesel engine and an electric motor, and it gets around 35 miles per gallon of bio-diesel
- The Equinox's engine runs on bio-diesel that is made from soybean by-products

The **Fashion Board**'s Spring Fashion Show is trying to bring awareness to the conservation of resources and to the availability of alternative fuels. As a part of this message, a **Challenge X** team member designed a dress to be featured in the show. This dress (seen below, next to the Challenge X hybrid), was designed using a fabric made of soy, the same plant used to fuel the **Challenge X** hybrid vehicle.

April 19, 5PM, The Cotton District

For more info on MSU's Challenge X Team, contact Matthew Doude at mdoude@cavs.msstate.edu or visit the website at www.challengex.org

Attachment 43.

Free Car Care Class

MSU CHALLENGE X
"Efficiency without Compromise"

A free car care class will be held on Thursday, April 24th in CAVS room 2200.The Challenge X car care class will cover many basic ways to keep your car running great. Instruction will be given by a certified mechanic and automotive engineers. If you've ever wanted to learn about basic maintenance, or just want come and ask questions, than come on over.

Place: CAVS Building in Thad Cochran Research Park
Date: Thursday April 24th
Time: 6-8 pm
For more information contact Josh Frazier at 662-312-0702.

Mississippi State University
Center for Advanced Vehicular Systems
200 Research Boulevard
Starkville, Mississippi 39759
Contact: Josh Frazier
Phone: 662-312-0702
E-mail: jrf110@msstate.edu

Attachment 44.

2008 Spirit OF STATE AWARDS

Matthew Tyler Young

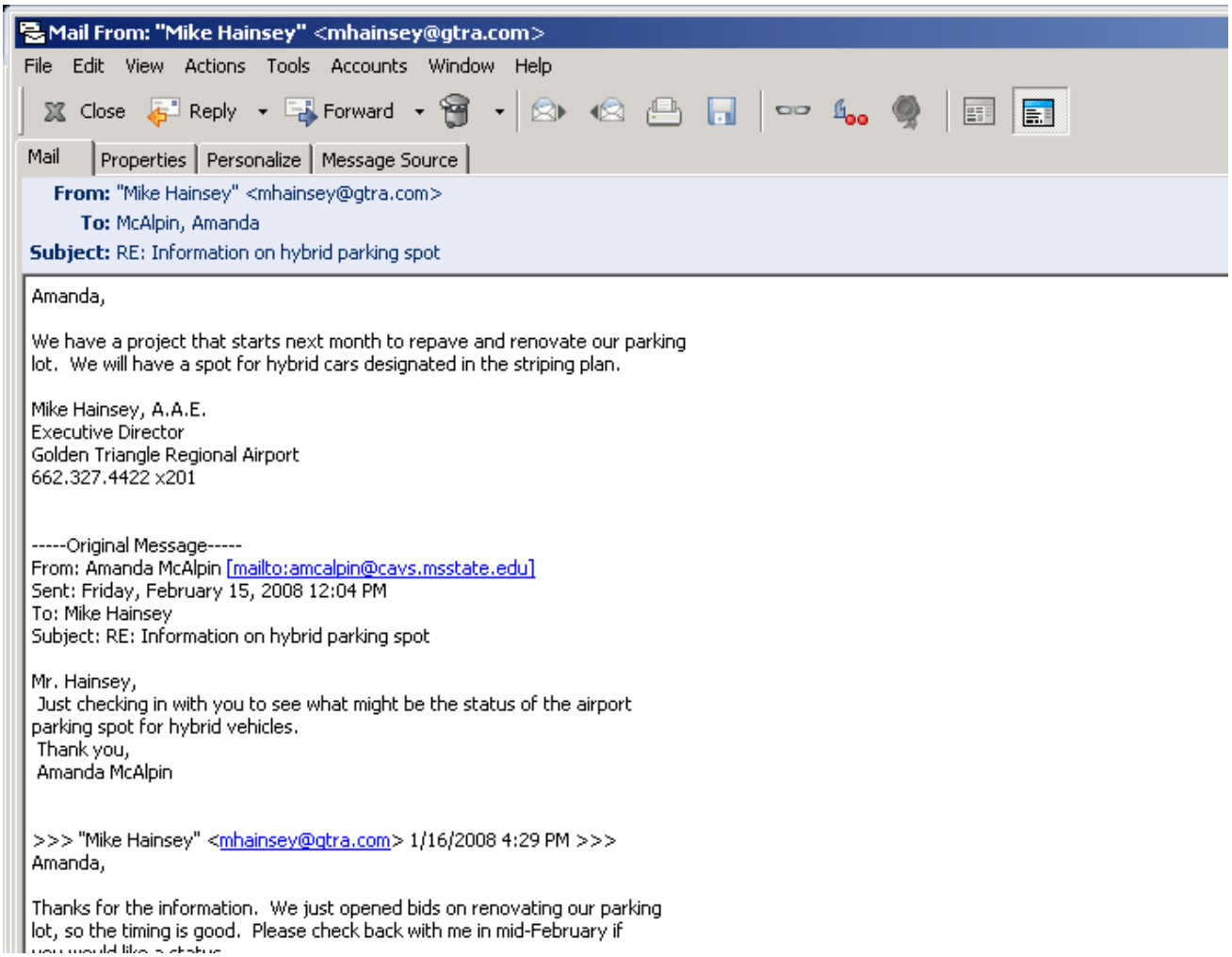
Major: Electrical Engineering
Classification: Graduate Student
Son of: Ricky Young and Frankie Hodges

What does the Spirit of State mean to you? To me the Spirit of State means the Junction in the Fall, a Hump dog and Left Field Lounge during the Spring. But the Spirit of State also means dedication. Dedication to MSU. Dedication to spread the word about MSU. To expose others outside of MSU to the same compassion, desire and dedication that exists in every person that wears the colors Maroon and White!

What do you like most about Mississippi State University? The sense of compassion and camaraderie present at the university. Always knowing that a trip across the Drill Field will never end without a greeting from another student, teacher or faculty member.

What is the most rewarding experience you've had while at MSU? The most rewarding experience that I've had while attending MSU would have to be my involvement with Challenge X. Not only has Challenge X helped me apply what I've learned in the classroom, it has also given me an opportunity to share the benefits of a great MSU education with others across the United States!

Attachment 45.



Mail From: "Mike Hainsey" <mhainsey@gtra.com>

File Edit View Actions Tools Accounts Window Help

Close Reply Forward

Mail | Properties | Personalize | Message Source

From: "Mike Hainsey" <mhainsey@gtra.com>
To: McAlpin, Amanda
Subject: RE: Information on hybrid parking spot

Amanda,

We have a project that starts next month to repave and renovate our parking lot. We will have a spot for hybrid cars designated in the striping plan.

Mike Hainsey, A.A.E.
Executive Director
Golden Triangle Regional Airport
662.327.4422 x201

-----Original Message-----
From: Amanda McAlpin [mailto:amcalpin@cavs.msstate.edu]
Sent: Friday, February 15, 2008 12:04 PM
To: Mike Hainsey
Subject: RE: Information on hybrid parking spot

Mr. Hainsey,
Just checking in with you to see what might be the status of the airport parking spot for hybrid vehicles.
Thank you,
Amanda McAlpin

>>> "Mike Hainsey" <mhainsey@gtra.com> 1/16/2008 4:29 PM >>>
Amanda,

Thanks for the information. We just opened bids on renovating our parking lot, so the timing is good. Please check back with me in mid-February if

Attachment 46.

Volume 4, Issue 3 Winter 2007/2008

Mississippi State University

X-cited!

MSU are you up to the challenge? CHALLENGE X CROSSOVER TO SUSTAINABLE MOBILITY

Team Travels to California, Gains Insight, Visits Leno

Special points of interest:

- *Team visits Jay Leno's Garage on trip to CA*
- *Team travels to display vehicle at Chevrolet dealership*
- *Upcoming Events for Challenge X*
- *Spotlight: Jenna Grantham*

Members of Mississippi State's Challenge X team are back at the university after completing a road trip to California to help promote fuel-efficient vehicles with reduced environmental impacts.

After winning the national Challenge X competition earlier this year, five members of the team joined with counterparts from 16 other universities to promote more environmentally friendly vehicles.

In addition to taking first in the overall competition and tops in 10 individual categories, MSU's entry boasts a fuel efficiency of about 32 miles per gallon, and close to sports car level acceleration.

While in the Golden State, Matt Young of Meridian and other team members shared with numerous car enthusiasts various details of the 2005 Chevrolet Equinox crossover sports utility vehicle they re-engineered to win the three-year competition.

Young, a graduate student in electrical engineering, said the MSU group spent a few hours with late-night television show host Jay Leno, a well-known motorcycle and car collector and proponent of bio-diesel.

"He asked us what we did different compared to others," Young said. "We also discussed how to make this vehicle technology more mainstream."

Team Member Stephen Phillips speaks with Jay Leno about MSU's vehicle design

MSU Challenge X Team Displays at Dealership

Team members and dealership representatives pose with the Challenge X vehicle

Team members traveled to Lucedale, MS, in March to display the Challenge X Equinox at a Mississippi State University Alumni Association event celebrating the University's 130th birthday. While in town, members of the team stopped at a local Chevrolet dealership. Members of the community had a chance to get a close-up look at the design of the vehicle, as well as hear presentations from the team members themselves.

"We want to show that a vehicle that runs on biodiesel is being created right here in Mississippi," said Amanda McAlpin, the leader of the team's Outreach and Marketing group.

"We are trying to create a vehicle that will lessen the country's dependence on foreign fuel."

"We were excited to have the Challenge X team visit us," said Tom Wilder, promotions director for the dealership.

"We are always interested in learning about the newest vehicle technologies so that we can bring them to our customers."

Mississippi State University

Upcoming Events

- March 26—Vehicle Inspection
- March 27—Visit from General Motors mentor, Bill Beggs
- March 27—Vehicle will be displayed from 3:00-5:00pm at the science fair at the Humphrey Coliseum
- March 28—Visit from fourth-grade journalists

Atta-Dawgs

- Thanks to all who have volunteered recently for outreach events. Your participation is greatly appreciated!

Make sure you check out Mississippi State's Challenge X Website!

www.msuchallengex.org

Students in the Spotlight

This column gives you a behind-the-scenes look at the students who are working on the Challenge X competition at MSU.

The MSU Challenge X team is constantly evolving. Since the last competition, a number of our team members graduated and moved on to successful jobs, and we welcomed many new members to the team. Among them is sophomore Mechanical Engineering major, Jenna Grantham. Jenna comes to us from Brandon, MS, and is thrilled to be a member of the team.
Here, Jenna answers a few of our questions about the competition and about her experiences so far.

Outside of Challenge X and your studies, what are some of your hobbies or interests?
I enjoy singing, sewing and dancing. I also like dragonflies, the color green, painting, pottery, and rain with the sun shining.

That sounds like fun. What do you feel like you are getting out of being a part

Jenna Grantham

What do you think will be the most memorable part of Challenge X for you?
I believe the competition will be the most memorable.

What is the most difficult part of Challenge X?
I have found that coming in on the competition on the fourth/final year trying to learn all the things about the car that have already been done and need to be done was difficult.

What do you most enjoy about being part of the MSU team?
I love the interaction with the other members who have more knowledge, and I enjoy learning all the different aspects of the car.

What do you hope to get out of the experience?
I am hoping that I will leave with a better knowledge of hybrids and the automobile industry. I also hope Challenge X gives me the experience I need to get a great job in the industry.

What do you plan to do after you get your degree?
I am hoping to get a job designing vehicles for a major car corporation.

For newsletter suggestions or corrections, please contact Liza Sisson at lsisson@cavs.msstate.edu.

Attachment 47.

Survey

1. What do you know about hybrid vehicles, what are your opinions on hybrids?

2. Have you ever considered buying a hybrid? Why or why not?

3. IF NOT: What would change your mind about buying a hybrid?

4. Are you aware that some hybrids run on fuels other than gasoline?

5. Did you know that a hybrid vehicle that runs on soybean-based fuel has been developed here in Mississippi?

6. Describe who you think is the typical hybrid owner.

Age:
Gender:
Marital Status:
Number of children living at home:
County and State you live in:

Attachment 48.

Automobile Survey

Please select the appropriate response to each of the following questions.

1. When do you plan to purchase your next car? (*check one*)

_____ In the next 6 months _____ In the next 7 to 12 months _____ In the next 13 to 24 months
_____ In more than 2 years

2. Of the following, with the numbers 1 through 5 (1 being the most important and 5 being the least important) please rank the features that you consider the most important when purchasing a car:

_____ Gas Mileage _____ Power _____ Speed _____ Interior Space _____ Style

3. What sources of information do you intend to **primarily** consult in making your car purchase decision? (*check **all** that apply*)

_____ Friends _____ Family members _____ The Internet _____ Newspapers _____ Magazines
_____ Other (please specify) _____

4. For each of the following word pairs, please *circle* the word that best describes what you find the most compelling in any product commercial?

Long or Short
Informative or Provocative
Serious or Funny

5. How familiar are you with hybrid cars that are available to buy now? (*circle one*)

Very Unfamiliar Somewhat Unfamiliar Somewhat Familiar Very Familiar No Opinion

6. What is your overall attitude towards hybrid cars? (*circle one*)

Favorable Somewhat Favorable Somewhat Unfavorable Unfavorable No Opinion

7a. How willing are you to purchase a hybrid car? (*circle one*)

Very Willing Somewhat Willing Somewhat Unwilling Very Unwilling No Opinion

7b. Why or why not? _____

_____

_____

8. If unwilling, what would change your mind about buying a hybrid car (if anything)?

_____

_____

_____

9. For your next car purchase, would you consider purchasing a hybrid? (*circle one*)

Yes, definitely Yes, maybe No, maybe No, never No Opinion

10. For the following questions, please *circle* the number that best represents your opinion when thinking about a hybrid car in comparison to a non-hybrid car.

Hybrid cars have this feature:

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
a. Power	5	4	3	2	1
b. Speed	5	4	3	2	1
c. Size	5	4	3	2	1
d. Space	5	4	3	2	1
e. Style	5	4	3	2	1
f. Good gas mileage	5	4	3	2	1
g. Basic options	5	4	3	2	1
h. Luxury options	5	4	3	2	1
i. Good value	5	4	3	2	1
j. Expensive	5	4	3	2	1
k. Dependable	5	4	3	2	1
l. SUV (Sport Utility Vehicle)	5	4	3	2	1

11. What issue (if anything) would need to be addressed in a commercial to spark your interest in hybrid cars?

_____

_____

_____

12. Gender: (*check one*) _____ Male _____ Female

13. Age: (*write in*) _____

14. Education: (*check one*)

_____ Less than high school
_____ High school degree
_____ Some college (no degree awarded)
_____ Associate's degree (2-year college degree)
_____ Bachelor's degree (4-year college degree)
_____ Some graduate school (no graduate degree awarded)
_____ Graduate degree or other Professional degree
_____ Prefer not to answer

15. Annual Household Income: (*check one*)

_____ Below $10,000
_____ $10,000-$19,999
_____ $20,000-$39,999
_____ $40,000-$59,999
_____ $60,000-$79,999
_____ $80,000-$99,999
_____ $100,000-$124,999
_____ $125,000-$149,999
_____ $150,000-$199,999
_____ $200,000 or more
_____ Prefer not to answer

16. Ethnic Origin: (*check one*)

_____ White/Caucasian
_____ Hispanic/Latino
_____ Black/African American
_____ American Indian
_____ Asian
_____ Alaskan Native
_____ Native Hawaiian/Other Pacific Islander
_____ Multi-Cultural
_____ Other (Please Specify)_____
_____ Prefer not to answer

17. Marital Status: (*check one*) _____ Single _____ Married _____ Separated _____ Divorced _____ Other

18. Number of Children living at home: (*write in*) _____

19. City and State you live in: (*write in*) _____

Attachment 49.

Happy Birthday, Mississippi State University!

Mississippi State University will commemorate its 130th birthday in February, and the George-Greene chapter of the MSU Alumni Association is gearing up to celebrate.

The chapter will host a birthday celebration reception Friday, Feb. 29, from 5 to 7 p.m. at [MGCCC Multipurpose]. The event is free and open to the public and will include birthday refreshments. MSU alumni and friends from the area will be on-hand, along with several university representatives.

Greg Byrne, Athletic Director
Michael Richardson, Coordinator in the Alumni Association
George Dunn, Admissions Counselor
Dr. Hart Bailey, College of Veterinary Medicine
Challenge X Team and Car, Automotive Engineering National Champions.
They will also appear and display the car at Walt Massey Chevrolet in Lucedale on Saturday morning 03-01-2008.
Local Extension Personnel and Other University Representatives

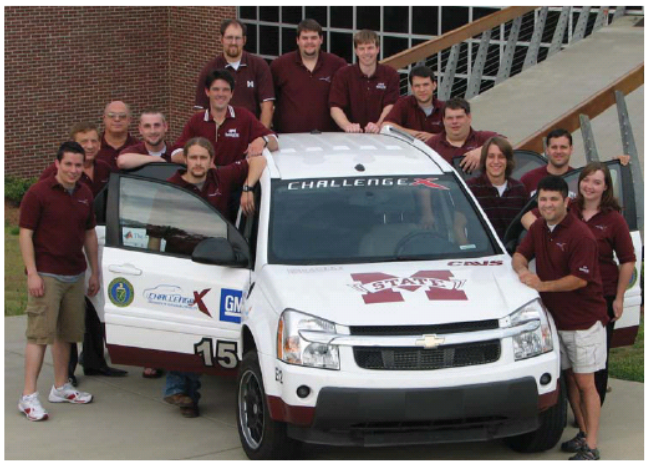
Prospective students and their parents are encouraged to attend, as representatives from the university's Office of Admissions and Scholarships will be available to provide information and answer questions. In addition, those in attendance will be eligible to win a $500 scholarship provided by the George-Greene alumni chapter.

"It's so important to celebrate our university's historic founding," said Jimmy Abraham, executive director of the MSU Alumni Association. "We can think of no better way to commemorate this special occasion than by gathering members of the Bulldog family together for a friendly birthday party."

Mississippi State University, whose main campus is located in Starkville, was founded in 1878 as the state's agricultural and mechanical college. Since then, it has grown to be the state's largest institution of higher learning, enrolling over 17,000 students.

For more information about the 130th birthday reception, and to RSVP by Wednesday February 27, 2008.
Doug McLeod, 601-947-3125
Brenda Smith, 601-394-2847
Mike Steede, 601-947-4223

Attachment 50.



For More Information:

The MSU Challenge X team provides speakers to come to your community group or event to show the vehicle, speak about energy and hybrid vehicle issues, and about the competition and its importance to the state of Mississippi. The group can also visit your K-12 youth or school group with an age-appropriate presentation that fits into your curriculum.

To contact the team about this or any other information:

Amanda McAlpin
amcalpin@cavs.msstate.edu
662-325-5562

Or visit our website at www.msuchallengex.org

Mississippi State University

Brochure design and layout provided by the High Performance Computing Collaboratory.

March 2008

CHALLENGE X 2008
COAST to COAST

A through-the-road, hybrid Equinox that is charge sustaining, consumer acceptable, production feasible, and capable of meeting both the team's and the competition's performance requirements.

CAVS
MISSISSIPPI STATE UNIVERSITY
CENTER FOR ADVANCED VEHICULAR SYSTEMS

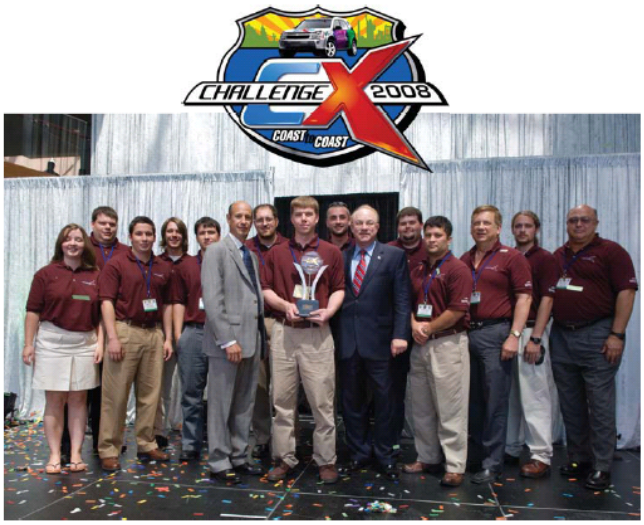
Attachment 51. Cont.

Challenge X is a 4-year, student led competition sponsored by the U.S. Department of Energy and General Motors, and organized by Argonne National Laboratories. The objective of the competition is to redesign a 2005 Chevrolet Equinox to be more fuel efficient and to produce less harmful emissions, while still maintaining stock vehicle performance. The team works on all aspects of the vehicle, such as consumer acceptability, 0-60 mph performance, and driver comfort so that a consumer will be just as comfortable driving this vehicle as any other.

The MSU team's vehicle design is a hybrid vehicle using both a diesel engine and an electric motor. The team's Chevrolet Equinox gets about 35 miles per gallon, about 48% more than the stock Equinox. The vehicle also emits less harmful emissions, and is completely user-friendly and can be easily mass produced. The vehicle uses B20 biodiesel instead of regular diesel, which helps the vehicle produce less harmful emissions, and decreases reliance on foreign fuel.

The students working on this vehicle come from all areas of engineering, as well as marketing, communication, and business majors. Challenge X gives them an opportunity to apply what they have learned in the classroom to a hands-on project. The MSU Challenge X team has about 30 members ranging from freshmen to graduate students.

In June 2007, the MSU Challenge X team competed against 16 other teams across North America and took first place! Being recognized this way is a great accomplishment for Mississippi State University and its students.



Attachment 52.

www.msstate.edu

Mississippi State University

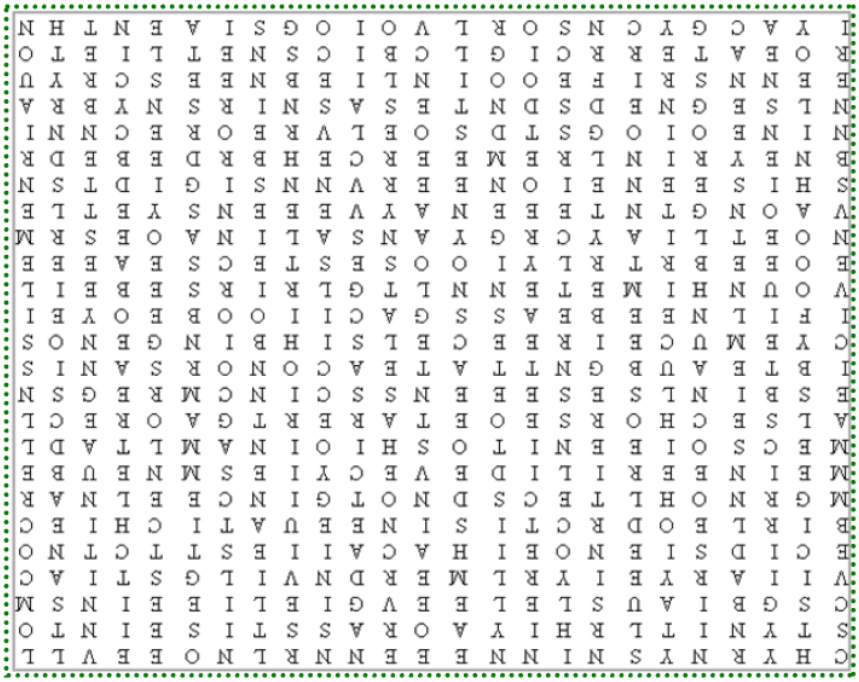
www.msuchallengex.com

CHALLENGE X

CROSSOVER TO SUSTAINABLE MOBILITY

New Generation, New Energy!

Hybrid
Automobile
Vehicle
Electricity
Fuel
Biodiesel
Gasoline
Soybeans
Corn
Grass
Energy
Conservation
Mathematics
Science
Engineering

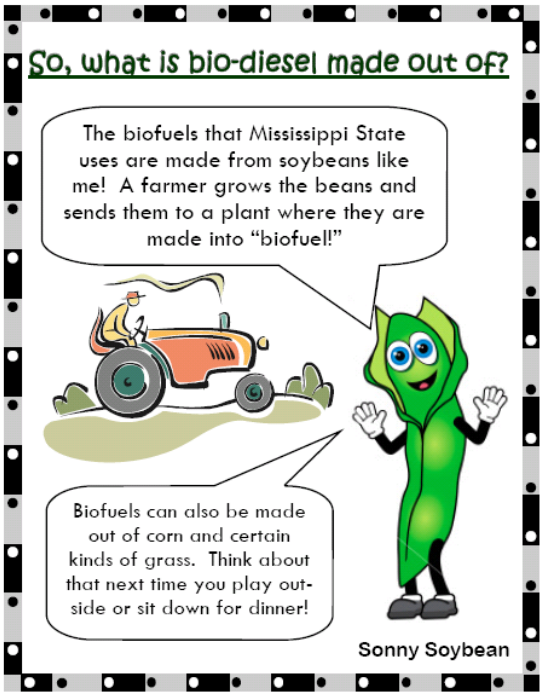


Flip over for a fun hybrid car word search!

At Mississippi State University, students are making their own hybrid car!

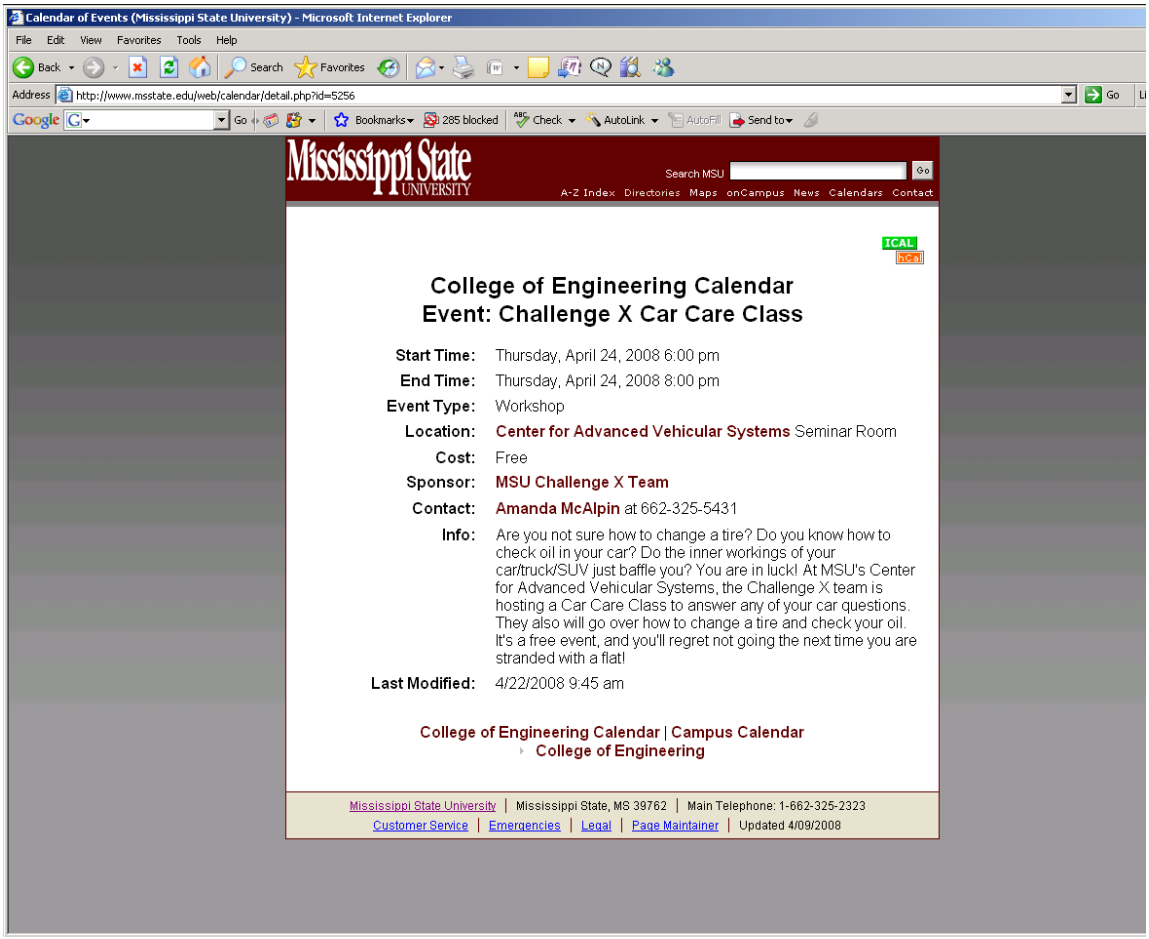
Using bio-diesel, their car can get up to 38mpg (miles per gallon).

This means that for every gallon of diesel they put into the car, it can drive for 38 miles!



Attachment 53.

Attachment 54.



Attachment 55.

Appendix C: Letters of Thanks and Support

Attachment 56.

STATE OF MISSISSIPPI
HALEY BARBOUR, GOVERNOR
MISSISSIPPI DEVELOPMENT AUTHORITY
GRAY SWOOPE
EXECUTIVE DIRECTOR

October 15, 2007

Amanda McAlipin
Challenge X Program
Mississippi State University
Center for Advanced Vehicular Systems
Mailstop 9618 Box 5405
Mississippi State, Mississippi 39762-5405

Dear Amanda:

The staff of Mississippi Development Authority's Energy Division would like to express its appreciation of your support during our recent event. Renewable Energy Day 2007 was a huge success, due in large to the support and contributions of our friends and volunteers. We could not have planned an event of this magnitude without the cooperation and assistance of your organization.

Your commitment of time, funds and/or materials is appreciated. We received positive feedback from everyone involved, especially the students. They shared that they had a wonderful time.

We look forward to working with you in the future as we reach out to reach everyone about energy. Please do not hesitate to contact us with any suggestions or advice on how we can make this event better in the future. If you have any questions or comments, please contact Lisa Campbell or Gail Sims at 601-359-6600.

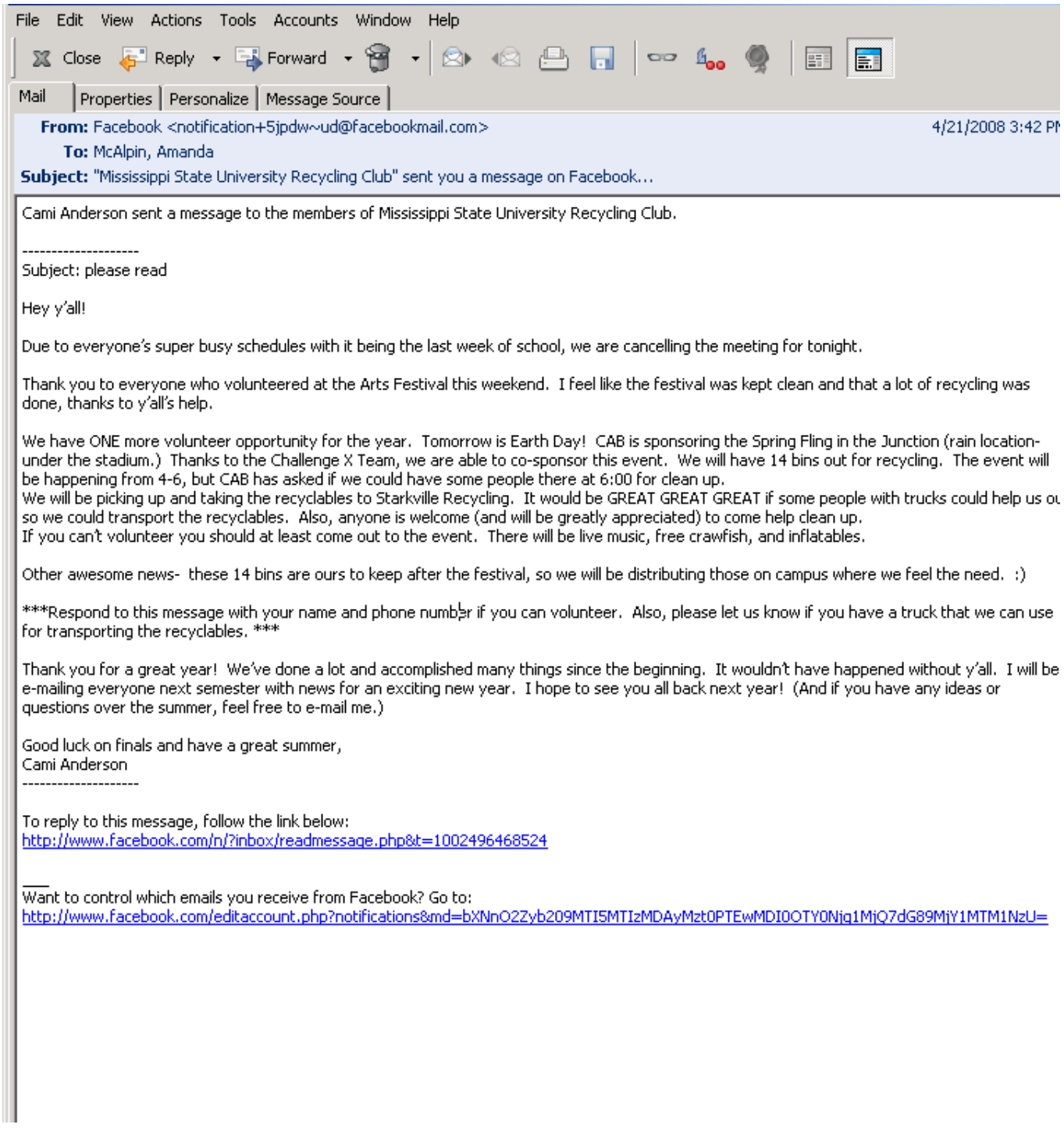
Sincerely,

Motice Bruce
Interim Director
Energy Division

MB:GS:pm

POST OFFICE BOX 849 · JACKSON, MISSISSIPPI 39205-0849
TELEPHONE (601) 359-3449 · FAX (601) 359-2832 · www.mississippi.org

Attachment 57.



File Edit View Actions Tools Accounts Window Help

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Mail | Properties | Personalize | Message Source

From: Facebook <notification+5jpdw~ud@facebookmail.com> 4/21/2008 3:42 PM
To: McAlpin, Amanda
Subject: "Mississippi State University Recycling Club" sent you a message on Facebook...

Cami Anderson sent a message to the members of Mississippi State University Recycling Club.

Subject: please read

Hey y'all!

Due to everyone's super busy schedules with it being the last week of school, we are cancelling the meeting for tonight.

Thank you to everyone who volunteered at the Arts Festival this weekend. I feel like the festival was kept clean and that a lot of recycling was done, thanks to y'all's help.

We have ONE more volunteer opportunity for the year. Tomorrow is Earth Day! CAB is sponsoring the Spring Fling in the Junction (rain location- under the stadium.) Thanks to the Challenge X Team, we are able to co-sponsor this event. We will have 14 bins out for recycling. The event will be happening from 4-6, but CAB has asked if we could have some people there at 6:00 for clean up.
We will be picking up and taking the recyclables to Starkville Recycling. It would be GREAT GREAT GREAT if some people with trucks could help us ou so we could transport the recyclables. Also, anyone is welcome (and will be greatly appreciated) to come help clean up.
If you can't volunteer you should at least come out to the event. There will be live music, free crawfish, and inflatables.

Other awesome news- these 14 bins are ours to keep after the festival, so we will be distributing those on campus where we feel the need. :)

***Respond to this message with your name and phone number if you can volunteer. Also, please let us know if you have a truck that we can use for transporting the recyclables. ***

Thank you for a great year! We've done a lot and accomplished many things since the beginning. It wouldn't have happened without y'all. I will be e-mailing everyone next semester with news for an exciting new year. I hope to see you all back next year! (And if you have any ideas or questions over the summer, feel free to e-mail me.)

Good luck on finals and have a great summer,
Cami Anderson

To reply to this message, follow the link below:
http://www.facebook.com/n/?inbox/readmessage.php&t=1002496468524

Want to control which emails you receive from Facebook? Go to:
http://www.facebook.com/editaccount.php?notifications&md=bXNnO2Zyb209MTI5MTIzMDAyMzt0PTEwMDI0OTY0Njg1MjQ7dG89MjY1MTM1NzU=

Attachment 58.

Dear Challenge X Team -

Congratulations! I must tell you I sent a copy of your article to our CFO when he made a snide comment about MSU people parking buggies + horses. That shut him up!

Thanks for bringing the car to Memphis for our 2007 Send off Party. We would love to have you back for the recruiting event.

Congrats again + thanks!

Sincerely,

Carol Triggs, President
Memphis Manor Club

Attachment 59.