Challenge X 2007
Outreach Program Report # 1

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

Team: University of Tennessee

Name of Outreach Coordinator: Benjamin Campbell

Phone number and email of Coordinator: (865) 742-8519

Dedicated Outreach Coordinator (Y/N): Yes

Date posted: 11/26/2006

I. Outreach Plan

- *Youth Outreach*
  - *Girl Scout Event –Currently in development for late spring '07*
  - *Earth Day – Youth Education Center – April 21, '07*
  - *Oak Ridge High School – Spring '07*
  - *Webb High School – Spring '07*
- *Community Outreach*
  - *Earth Day– April 21, '07*
  - *Knoxville News Sentinel Autoshow – April 19-22,'07*
  - *Various Local Carshows*
  - *Customer Appreciation Days at West Chevrolet – January, February, March '07*
- *Sponsor Outreach*
  - *East TN Clean Fuels Coalition Monthly Meeting – December 14, '07*
- *Other*
  - *Dean ride along- Spring 2007*

II. Outreach Activity Detail

A. Media Relations (Requirement of 5 media hits)

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

Media Type *(Television, Radio, Print)*	**Media Outlet and Reporter's Name**	**Date**	**Location**	**Coverage Origin** *(List name of News Release or Event)*
1. Television	WATE Channel 6 News Melissa DiPane	November 12, 2006	Knoxville, TN	Challenge X
2. Television	Fox News*	November 12, 2006	Knoxville, TN	Challenge X
3. Print	Tennessee Alumnus Magazine Chuck thomas	Winter 2007 Edition	National (Alumnus)	SAE Bio diesel Project
4. Print	Oak Ridge Observer Courtney Hackworth	Nov 16th 2006	Oak Ridge, TN	SCCA Auto Cross
5. Web article	WATE .com Melissa DiPane	November 12 2006	Knoxville, TN	UT students work on fuel efficient SUV

** A copy of the Fox news story could not be located.*

B. Youth Outreach (Requirement of 3 events)

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

Activity	Date	Location	Audience	Participants *(Briefly describe which team members participated)*
1. Knoxville Catholic High School Presentation	November 10, 2006	Knoxville, TN	High School Physics Class, 30 kids	Shaun Hinds, Courtney Lindwurm, Scott Curran, Sean Peterson
2. Engineers Day	October 24, 2006	Knoxville, TN	Students (700+)	Various, much of the team helped

1. Youth activity name: KCHS Physics Presentation Date/Time:11/10/06
   Location: Knoxville Catholic High School Physics Classes
   Team participants: Shaun Hinds, Courtney Lindwurm, Scott Curran, Sean Peterson
   Audience: Mr. Butler's Physics Classes
   Activity description/details: Presentation on the Physics of HEV's, Equinox Tour
   Key Messages Covered: Physics of vehicle modeling & simulations, how hybrids work, types of hybrids, UT's Challenge X program
   Any measurable results: Yes, lots of questions and an engaged audience.
   Photos: Seen Next Page

2. Youth activity name: Engineers Day Date/Time: 10/24/06
   Location: Engineering Campus
   Team participants: Challenge X Team Members
   Audience: Students (various levels, 100+ students)
   Activity description/details: Equinox Tour, Question and Answer sessions
   Key Messages Covered: How Hybrids Work, Challenge X program
   Any measurable results: Yes, lots of questions, interest in future Challenges.
   Photos: Seen Next Page

KCHS Youth Outreach Tour of the Equinox

Shaun Hinds during the Physics Presentation at KCHS

Students Touring the Equinox during Engineers Day

Equinox Display during Engineers Day

C. Community Outreach (Requirement of 3 events)

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

Activity	Date	Location	Audience	Participants *(Briefly describe which team members participated)*
1. 2006 Alternative Fuels Training Consortium	October 12, 2006	Kingsport, TN	Area high school students, local community & community officials	Shaun Hinds, Scott Curran, Sean Peterson, Jesse Dalton, Courtney Lindwurm
2. Make Orange Green Kickoff	September 9, 2006	Knoxville, TN	Local Media, UT Students and Staff	Shaun Hinds, Scott Curran, Sean Peterson, Benjamin Campbell
3. SCCA Auto-X	November 13,2006	Oak Ride, TN	Local Community & Automotive Enthusiast	Shaun Hinds, Scott Curran, Courtney Lindwurm
4. SCCA Monthly Meeting	November 7, 2006	Knoxville, TN	SCCA Club & General Public	Shaun Hinds, Sean Peterson, Deepak Deean

1. Community event name: 2006 Alternative Fuels Training Consortium
   Date/Time: 10/12/2006
   Location: Kingsport, Tennessee
   Team participants: Shaun Hinds, Scott Curran, Sean Peterson, Jesse Dalton and Courtney Lindwurm
   Audience: Area high school students, local community & community officials
   Activity description/details: Showcase of Equinox Hybrid as a biodiesel hybrid vehicle during the alternative fuels consortium
   Key Messages Covered: Challenge X, Equinox specific hybrid implementation
   Any measurable results: General interest in the Challenge and GM
   Photos: None Available

2. Community event name: Make Orange Green Kickoff
   Date/Time: 9/9/2006
   Location: Knoxville Tennessee
   Team participants: Shaun Hinds, Scott Curran, Sean Peterson, Benjamin Campbell
   Audience: Local Media, UT Students and Staff
   Activity description/details: Booth w/ question and answer sessions, Equinox Tours, and Challenge X program information during the Universities commitment to environmentally friendly technologies
   Key Messages Covered: Challenge X, Equinox specific hybrid implementation, general hybrid information.
   Any measurable results: General interest in the Challenge and GM
   Photos: See Below

Equinox with Other Hybrids/ Alternative Fuel Vehicles at Make Orange Green

Booth during Make Orange Green

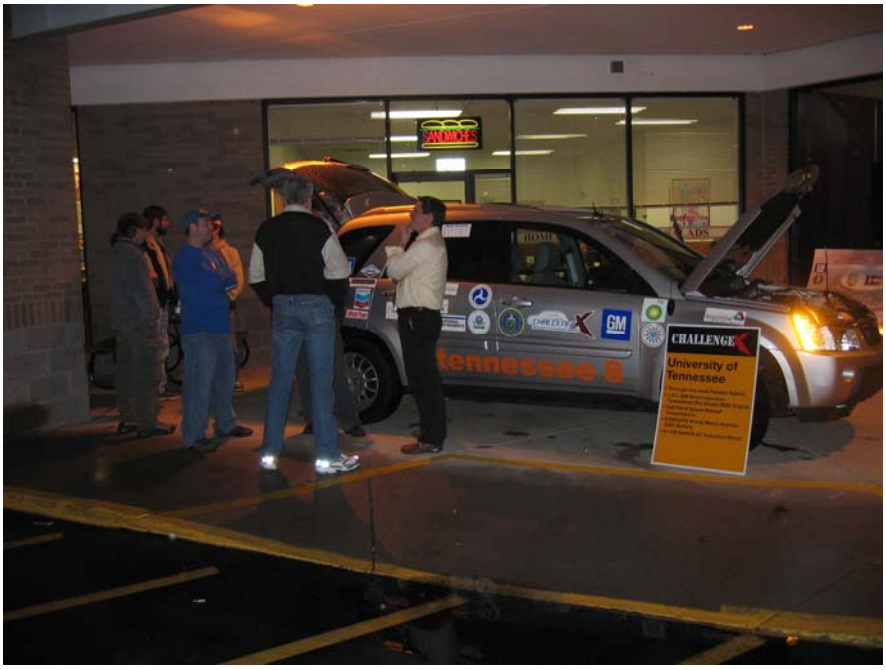
3. Community event name: SCCA Auto-X
   Date/Time: 11/13/2006
   Location: Oak Ridge, Tennessee
   Team participants: Shaun Hinds, Sean Peterson and Courtney Lindwurm
   Audience: Local Media, UT Students, Local Community & Automotive Enthusiast
   Activity description/details: Display w/ question and answer sessions, Equinox Tours, and Challenge X program information, rides
   Key Messages Covered: Challenge X, Equinox specific hybrid implementation, general hybrid information.
   Any measurable results: Interest in Challenge X, GM and Bio Fuels. Large collection of vehicle data, including: lateral and longitudinal accelerations, as well as noise and in car video footage
   Photos: See Below

Equinox cornering fast with 5 people

Showing off the electric drive

4. Community event name: SCCA Monthly Meeting
   Date/Time: 11/7/2006
   Location: Knoxville, Tennessee
   Team participants: Shaun Hinds, Sean Peterson and Deepak Deean
   Audience: SCCA Club and General Public
   Activity description/details: Display w/ question and answer sessions, Equinox Tours, and Challenge X program information
   Key Messages Covered: Challenge X, Equinox specific hybrid implementation, general hybrid information, Bio-Fuels.
   Any measurable results: General interest in the Challenge, GM, and hybrid technology
   Photos: See Below

SCCA Club members show a lot of interest



Club members & general public tour the Equinox

D. Sponsor Outreach (Requirement of 1 event)

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

Activity	Date	Location	Audience	Participants *(Briefly describe which team members participated)*
1. 2006 Alternative Fuels Training Consortium	October 12, 2006	Kingsport, TN	Area high school students, local community & community officials	Shaun Hinds, Scott Curran, Sean Peterson, Jesse Dalton, Courtney Lindwurm

1. Community event name: 2006 Alternative Fuels Training Consortium
   Date/Time: 10/12/2006
   Location: Kingsport, Tennessee
   Team participants: Shaun Hinds, Scott Curran, Sean Peterson, Jesse Dalton and Courtney Lindwurm
   Audience: Area high school students, local community & community officials
   Activity description/details: Showcase of Equinox Hybrid as a biodiesel hybrid vehicle during the alternative fuels consortium
   Key Messages Covered: Challenge X, Equinox specific hybrid implementation
   Any measurable results: General interest in the Challenge and GM measured by the number of questions answered and number of brochures given away.
   Photos: None Available

E. Website

Please list any updates or modifications to your team's website since your last outreach report, including:

- *Continual Outreach Updates*
- *In car video of Auto-X on main page*
- *New Structure*
- *Removal of out of date information*
- *Please include at least one screen grab of your team website below*
- *Added Pictures*
- *Added Autocross section*

Outreach Page Screen Grab

F. Other

Development of Vehicle Name

The name of UT's Equinox is now the Revolution X, the logo can be seen below.

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

Reported by: Benjamin Campbell Date: 11/27/2006

Appendix: Copies of Media Clips

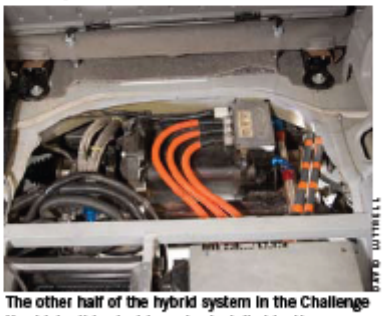
Please scan in or otherwise paste any clips of media coverage here.

Link to Google Video of Channel 6 News Clip
http://video.google.com/videoplay?docid=6110513577842701704

UT Engineering Students Compete in Challenge X

Members of the University of Tennessee student chapter of the Society of Automotive Engineers, along with faculty advisor Dr. Butch Irick (left), gathered around their Challenge X Vehicle. Challenge X is an annual contest sponsored by General Motors that pits engineering students from colleges and universities around the country in a contest to rebuild a stock vehicle. This year's contest involves rebuilding a Chevrolet Equinox to run as a hybrid vehicle powered by biodiesel and electricity, while still maintaining normal safety and comfort standards.

This turbo-diesel engine was installed in a Chevy Equinox by the SAE members. The engine is built to run on biodiesel fuel, as part of the hybrid system used to power the vehicle.



The other half of the hybrid system in the Challenge X vehicle, this electric motor installed by the students underneath the storage space in the back also helps move the vehicle.

TENNESSEE ALUMNUS WINTER 2007 27

The University of Tennessee Alumnus Magazine – Winter 2007 issue

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WATE.com KNOXVILLE, TENNESSEE

UT students work on fuel efficient SUV

November 12, 2006

By MELISSA DiPANE
6 News Anchor/Reporter

OAK RIDGE (WATE) -- With gas prices rising again, you might be considering a switch to a more affordable kind of fuel. A group of students at UT is perfecting a vehicle that could be right up your alley.

On the outside, it looks like any other SUV. But on the inside, it's a fuel efficient, clean emission work of art.

"We switched the engine from gas six cylinder to a four cylinder diesel engine. We are actually running it on biodiesel," says UT student Courtney Lindwurm.

The Chevy Equinox is part of UT automotive research.

Students are working with General Motors in a project called Challenge X, a national competition for engineering students to improve the vehicle by decreasing total energy consumption and emissions while maintaining vehicle performance. It's a three year program.

Seventeen teams from across the country, including UT, are working with the program.

"This project taught me a lot about machinery and how you have to take something with problems fix them and go through it. It doesn't always work the first time," Lindwurm says.

On Sunday, the team captains took their project to an autocross in Oak Ridge. Lindwurm says it's the best way to work out the kinks before the project is completed. "We can see what's wrong and make it the best it can be."

UT's car will go up against 17 others next summer. The competition will be judged by General Motors.

Besides getting a lot of research from the students, General Motors sometimes hires the most talented students.

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Local News WATE article on autocross.

http://wate.com/global/story.asp?s=5668466&ClientType=Printable

THE OAK RIDGE OBSERVER AROUND

UT students design energy saving car, run test in Oak Ridge

By Courtney Hackworth

Engineering students from 17 different universities competed in Oak Ridge on Sunday, Nov. 12, as part of a competition to look for innovative ways to make cars more economically efficient.

The competition, known as Challenge X, forces engineering students to think of new ways to produce a more energy-efficient car that can reduce emissions of greenhouse gases and save money on gasoline prices.

Competitors used a vehicle called the GM Equinox. The Equinox is a crossover sport utility vehicle and is a hybrid that can run on biodiesel fuel.

Students work on the car throughout the year in their courses, designing it and tweaking it here and there in order to get the best performance out of the car.

General Motors sponsors the competition and it usually lasts through a three-year phase.

"Year one deals with wheel to wheel evaluation and how much energy was used," said University of Tennessee graduate student Shaun Hinds.

"Year two is the start of the test phase where we compete in vehicles going 0-60 mph for a quarter of a mile. The drive quality, emission and fuel consumption is measured during this stage," said Hinds.

In the third stage, finalized vehicles are presented to General Motors, and the company decides if they are ready to sell and if users would actually buy the vehicle from a car lot.

In the competition Sunday, the team from the University of Tennessee competed in a race to measure the emissions and performance of the car.

The team performed well, having a 0.550 second lead after the time trials were finished.

The vehicle also produced no smoke from the tailpipe and was viewed as a success in its ability to reduce the emission of harmful pollutants.

There were two people who rode in the car, Hinds and undergraduate student Sean Peterson. The whole team is composed of five group members, consisting of graduate and undergraduate students in the engineering department at UT.

Along with General Motors, other sponsors of the competition include the U.S. Department of Energy, Argonne National Laboratory and a number of others.

In a time with increasing gas prices and a drop in the sales of SUVs, this program is a good research tool to help encourage new ways of finding different resources to power cars.

"This is an opportunity to improve on designs and get exposure for new cars," said Hinds.

For more information on the Challenge X program, visit the UT group's Web site at apcsi.tennessee.edu/challengex.

Oak Ridge Observer Article for Nov 16 2006