

# Red River Valley Clean Cities Coalition Presents the: **GREEN CARAVAN AWARDS**

The *North American Solar Challenge* is a great opportunity for college and university students from across North America and the world to learn about alternative energy technologies for vehicles and to educate the public about clean, renewable energy sources for transportation. These goals are shared by over 4,500 public and private sector stakeholders from the more than 80 regional coalitions under the U.S. Department of Energy's Clean Cities program, including the *Red River Valley Clean Cities Coalition*, a partnership of Canadian and U.S. stakeholders.

In view of this, the Red River Valley Clean Cities Coalition has developed two awards for teams racing in the Solar Challenge – *The Alternative Fuel Award* and *The Fuel-Efficiency Award* – collectively known as the *Green Caravan Awards*. For every solar car racing in the Solar Challenge, there are a number of conventional support vehicles. The Green Caravan Awards are designed to reward teams that optimize fuel economy and minimize environmental impact by driving race support vehicles that use alternative fuels or demonstrate exceptional fuel economy.

It is possible for one team to win both awards if their caravan uses the most alternative fuels and has the greatest fuel efficiency. The winning team(s) will receive funds to be used in the development of their next advanced, environmentally friendly vehicle, as well as a plaque commemorating their achievement. The amount of the awards is yet to be confirmed, but each award will be a minimum of \$ 2,000. The successful team(s) will also be featured on the American Solar Challenge and Red River Valley Clean Cities websites, as well as the National Clean Cities website and publications. The winner(s) will be announced at the end of the race in Calgary.

## **The Fuel Efficiency Award**

The purpose of the Fuel Efficiency Award is to encourage teams to engage in activities that enhance fuel economy and to select support vehicles that demonstrate good fuel efficiency. The team with the most fuel-efficient support caravan will be awarded the 2005 Fuel Efficiency Award.

### **Efficiency Points**

Efficiency Points will be calculated on the basis of your support vehicle's gas mileage. For each mile per gallon (mpg) your vehicles obtain, you receive 1 Efficiency Point. In order to avoid teams with larger caravans gaining more Efficiency Points than teams with smaller caravans, and to discourage large caravans, the sum of your support vehicles' gas mileage rates will be divided by the square of the number of vehicles in your caravan. The team with the most Efficiency Points will receive the 2005 Fuel Efficiency Award. In the case of a tie, the award will be divided amongst the winners.

**Example:**

Team A had 4 support vehicles in their caravan - a lead, a chase, a scout, and the vehicle hauling the trailer. The gas mileage ratings (miles per gallon) for these support vehicles are: 27, 43, 16 and 10 (see below for how to calculate gas mileage).

Team A's total Efficiency Points would be 6.00. The steps below describe how this is calculated:

**Step 1:** Add the gas mileage rates for each of the support vehicles [ $27 + 43 + 16 + 10 = 96$ ].

**Step 2:** Divide the total gas mileage rates by the square of the total number of vehicles in the team's caravan. Team A had a total of 4 support vehicles [ $96 \div (4^2) = 6.00$ ]. (Note: Step 2 ensures that teams with smaller caravans have an advantage over teams with larger caravans.)

## Applying for Award

### Application Form

In order to be eligible for this award, you must fill out the *Application Form* found in this package and return to RRVCCC by Friday, July 8, 2005.

### Fuel Logs

To calculate gas mileage for individual vehicles, the quantity of fuel used throughout the race and the total distance traveled is required:

$$\frac{\text{Starting Odometer Reading (miles)} - \text{Ending Odometer Reading (miles)}}{\text{Number of Gallons of Fuel Used throughout the Race}}$$

To collect this information, teams participating in the Green Caravan Awards must use the Fuel Log (Excel Spreadsheet) provided by RRVCCC.

**Quantity of Fuel Used:** To obtain the quantity of fuel used throughout the race each team must maintain a *Fuel Log* for each of their support vehicles. Each time a vehicle refuels, the fill up must be recorded in the Fuel Log.

At the stage stop in Winnipeg on July 23<sup>rd</sup>, a RRVCCC representative will be collecting your Fuel Logs and fuel receipts for the Austin to Winnipeg leg of the race. At the finish of the race in Calgary on July 27<sup>th</sup>, a RRVCCC representative will be collecting your Fuel Logs and fuel receipts for the Winnipeg to Calgary leg of the race. Please have all your information ready for them to collect. Note: All fuel receipts will be returned to the teams once they have been verified.

**Distance Traveled:** To obtain the total distance traveled for each of your support vehicles, your team must record the odometer reading for each vehicle at the starting line in Austin, Texas and the ending odometer reading at the finish line in Calgary, Alberta. A representative from the RRVCCC will be verifying odometer readings at both the start and finish lines.

For teams with access to a laptop, please record all your data directly in the Fuel Log. For teams without access to a laptop, please fill the Fuel Log out by hand.

## Improving Fuel Efficiency

Improved fuel efficiency can be achieved in a number of ways, including selecting a fuel-efficient vehicle, driving 'smart', and carefully planning your route. RRVCCC will be providing teams with information on how to select a fuel-efficient vehicle and tips on how to improve fuel-economy. In the interim, to find data on which vehicles are most fuel efficiency check out the Fuel Economy Guide (U.S.) available at [www.fueleconomy.gov](http://www.fueleconomy.gov) and the Fuel Consumption Guide (Canada) available at [www.oee.nrcan.gc.ca/vehicles](http://www.oee.nrcan.gc.ca/vehicles).

## The Alternative Fuel Award

The purpose of the Alternative Fuel Award is to encourage teams to use fuels other than gasoline and diesel to fill their support vehicles. Alternative fuels include: ethanol blends, biodiesel blends, propane and natural gas. These fuels are typically cleaner burning, and in the case of ethanol and biodiesel, produced from renewable resources. Teams using alternative fuels as much as possible throughout the race will receive Alt Fuel Points towards the 2005 Alternative Fuel Award.

### Alt Fuel Points

For every 10 gallons (or fuel gallon equivalents in the case of propane or natural gas) of alternative fuels you use to fill your support vehicles, your team receives 1 Alt Fuel Point. To avoid teams with larger caravans gaining more Alt Fuel Points than teams with smaller caravans, and to discourage large caravans, the Alt Fuel Points your team collects will be divided by the square of number of vehicles in your caravan. The team with the most Alt Fuel Points will receive the 2005 Alternative Fuel Award. In the case of a tie, the award will be divided amongst the winners.

#### **Example:**

Team A used a total of 320 gallons of alternative fuels during the race and had a total of 4 vehicles in their caravan. Team A's total Alt Fuel Points would be 2.00. The steps below describe how this is calculated:

**Step 1:** Calculate the number of Alt Fuel Points based on the gallons of alternative fuel the team used throughout the race (10 gallons = 1 Alt Fuel Points). Team A gained 32 Alt Fuel Points for their 320 gallons of alternative fuels [320 ÷ 10 = 32.0].

**Step 2:** Divide the Alt Fuel Points gained by the square of number of vehicles in the team's caravan. Team A had 4 support vehicles [32.0 ÷ (4<sup>2</sup>) = 2.00]. (Note: Step 2 ensures that teams with smaller caravans have an advantage over teams with larger caravans.)

## Applying for Award

### Application Form

In order to be eligible for this award, you must fill out the *Application Form* found in this package and return to RRVCCC by Friday, July 8, 2005.

## Fuel Logs

During the race, each time your team fills up with an ethanol blend, biodiesel blend, natural gas or propane, you must record the type of alternative fuel used in the Fuel Log. The Fuel Logs and fuel receipts from the Austin, TX to Winnipeg, MB leg of the race will be collected by a RRVCCC representative at the stage stop in Winnipeg on July 23<sup>rd</sup>. The Fuel Logs and fuel receipts for the Winnipeg, MB to Calgary, AB leg of the race will be collected by a RRVCCC representative at the finish of the race in Calgary on July 27<sup>th</sup>.

## Finding Alternative Fuels Along the Route

RRVCCC will be providing teams with a list of fuelling stations along the NASC route that supply alternative fuels. Be sure to record the name of the city/town and address of the fuelling station in your Fuel Logs, so the use of alternative fuels at that site can be verified. In the case of fuelling station not included in the information provided by RRVCCC, in addition to providing the location of the station, please also include a telephone number. RRVCCC will be inspecting receipts, and if the fuelling station or their use of alternative fuel cannot be verified, the points cannot be awarded.

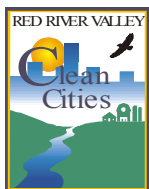
For teams planning to select their vehicles before receiving the RRVCCC Fueling Station Location List, please note there is currently no Canadian retail fueling stations for E85, biodiesel or natural gas.

## Award Sponsors



### Red River Valley Clean Cities Coalition

The Red River Valley Coalition was formally designated by the U.S. Department of Energy Clean Cities program in 1998. Clean Cities works through over 4,500 stakeholders in more than 80 local coalitions to build markets for alternative fuels and vehicles by providing access to funding, information systems, and technical support. The Red River Valley Coalition encompasses portions of North Dakota, Minnesota and Manitoba. To ensure the different needs of the U.S. and Canadian stakeholders are met, RRVCCC is divided into two chapters, the Winnipeg Chapter (Canada) and the MinnDak Chapter (U.S.). Both chapters work at the local level to:



- Advance the use of cleaner burning transportation fuels, such as ethanol, biodiesel, hydrogen, natural gas and propane.
- Develop markets for advance vehicle technologies, including gas-electric hybrids, hydrogen fuel cells and E85 vehicles.
- Promote idle reduction and encourage fuel-efficient activities
- Educate the public and fleet operators about the economic and environmental benefits of alternative fuels and advanced vehicle technologies.

