

East Tennessee Clean Fuels Advisor



A quarterly publication of the East Tennessee Clean Fuels Coalition

Bringing alternative fuels and hybrids to the forefront. Alt Fuels = biodiesel, electricity, ethanol, hydrogen, natural gas and propane.

Katrina: Winds of Change?

On August 29, 2005 Hurricane Katrina, a category-4 hurricane at first landfall, hit the United States and left a wake of devastation three states wide. In addition to the horrible toll in human life and suffering and the devastation to homes and businesses, Katrina also damaged several off-shore oil-drilling platforms and numerous on-shore refineries (the region hit is responsible for approximately 30% of our domestic oil production and receiving 30% of U.S. oil imports).

Katrina's destruction leaves us wondering: "If one storm can wreak such utter havoc on our transportation sector's main energy supply, isn't it time to diversify away from that one fuel?"

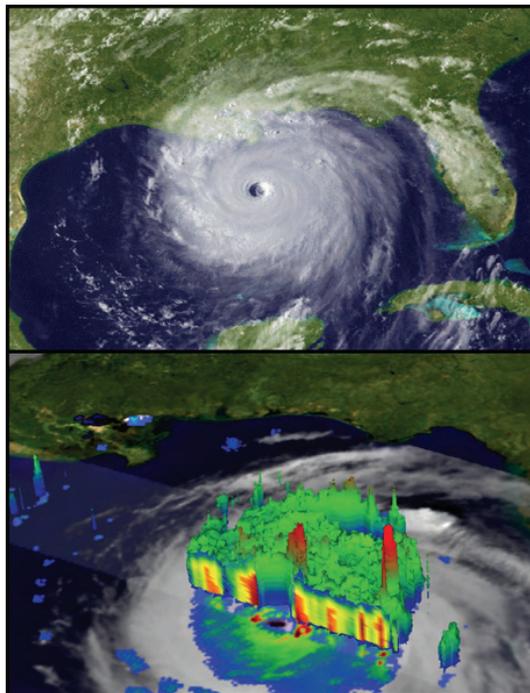
The answer is a resounding yes. The potential to create catastrophic economic and environmental damage is too great if we choose not to act.

With national and international demand for petroleum increasing, we clearly have lost our buffer from the immediate and widespread impacts that result from international disruptions to oil flow. How do we address this? Conserve, increase efficiency and diversify.

Improving vehicle fuel efficiency is the way we can make the biggest change the fastest, but the combination of politics, big oil and vehicle company money and American apathy continue to thwart such efforts. Some automakers, like Toyota, are taking a lead role, but many others lag far behind.

This puts conservation and alternative fuels in a unique position to gain priority as we address supply issues. Ideas like anti-idling, better utilization of mass transit systems and biofuels need to go into use now.

Has Katrina, as a recent example of significant oil



Two different views of Katrina's size: top - cloud coverage. Bottom - an indicator of rainfall in the hurricane.

flow disruption, been powerful and jarring enough to induce Americans to start making smarter choices for their community and country? Time will tell. Indeed, the coming year will determine if this wake-up call has roused America from a deep and dangerous sleep.

KUB - Regional Alt Fuels Leader

Knoxville Utilities Board (KUB) is a regional leader in the use of alternative fuels, and not just one fuel, but three!



KUB's use of alternatives started almost 20 years ago with compressed natural gas (CNG) vehicles and continues today with the addition of onsite biodiesel and ethanol refueling. KUB started its biodiesel program in June by putting B20 (20% biodiesel blended with 80% low-sulfur diesel) in 280 heavy-duty vehicles and another

80 pieces of equipment.

KUB employees Brooke Sinclair and Keri Brill have attended ETCFC meetings for about two years.

Their involvement in the East Tennessee alt-fuels community is helping shape our growth.

"Considering the number of diesel vehicles we have, B20 fits well with our fleet," says David Forster of the transportation department, who has overseen deployment of biodiesel in the KUB fleet. "We have two central refueling stations and work primarily in the Knox County area. This streamlined the implementation and made it much more consistent. Results from our B20 pilot program indicated we would experience few problems, if any. Thus far, it's been a smooth transition for us."

In September, a new ethanol tank was put into service for fueling their 24 flex-fuel vehicles with E85 (85% ethanol blended into 15% gasoline). KUB also leased two Ford Escape Hybrids in February! KUB's actions speak louder than their words.

Inside this Issue

Katrina: Winds of Change?	1
KUB - Regional Alt Fuels Leader	1
Local LPG & CNG Conversions!	2
Mayfield Dairy Farms Starts B5 in Crossville	2
Regional Biodiesel Workshops Stir Interest	2
Knox County and Knoxville Taking Alt Fuels Action	3
Coordinator's Corner - Invest Now... In Your and Your Children's Future	3
Washington Farmers Co-op Ups the B5 Ante	4
Biodiesel News & Notes	4
Toyota Donates to the Smokies	4
Autotherm Turns On in Tennessee	5
South Carolina Puts E85 on the Fast Track	5
Fairgoers Taste Alt Fuel	5
BAE Systems Second Tri-Cities Industry to Go Bio	5



American Fuels Checklist:

Get active for alt fuels; join the ETCFC (see p. 5)!

Help your country wean itself from foreign oil... use American fuels!



This project is funded (in part) under agreement with the State of Tennessee Dept. of Transportation.





FASTATS:

Natural gas: As of 2004, there were 130,000 light- and heavy-duty CNG and LNG vehicles in the U.S.

Propane: There are more than 200,000 propane vehicles in the U.S.

Local LPG and CNG Conversions!

Gary Peters, a local entrepreneur, took an interest a couple of months ago in siting a propane and CNG conversion facility in Knoxville. If he decided to do it, the repercussions for East Tennessee and nearby states would be fantastic, as it would provide a much closer option for such conversions.

Luckily for us, in late September he made the decision to do it!

"So much is going on right now with attention to our gas and diesel dependence problems that it seems timely to help this region have other options to move toward greater fuel diversification," says Peters. "And I'm looking forward to having a business that helps the community take action!"

Peters, along with a partner, is in the final stages of selecting EPA-certified CNG and LPG conversion kit and component suppliers. They intend to have the ability to offer dedicated and bi-fuel conversions.

Even with the addition of a local conversion system installer, publicly accessible refueling infrastructure is needed to support small fleet and individual conversions. Peters is considering bringing

in partners like Clean Fuel USA (see propane pump at right) to provide refueling sites at various locations.

He's currently taking responses to a short questionnaire to ascertain interest in the southeast region. If you are interested in responding to the questionnaire, simply go to the ETCFC homepage and see the article box on this topic. The link provided there will open the questionnaire; information on where to send responses is listed inside.



Mayfield Dairy Farms Starts B5 in Crossville

Mark Stiles did his homework, and now he's taken action.

Stiles is director of fleet, facilities, equipment and safety for Mayfield Dairy Farms in Athens, Tennessee. Mayfield has been producing dairy products since 1923.

About one year ago, the ETCFC started making in-roads to talk with Mayfield about them using biodiesel (thanks to already having some other partners in the McMinn County area, like the city of Athens). Stiles started learning about it and exchanged information with the ETCFC before deciding on a way to get biodiesel started: move their 17 Crossville trucks to B5.



"Our plan is to closely monitor the effects of B5 on these vehicles, then possibly expand to B20 at that location before we move to using biodiesel elsewhere," says Stiles. "We've always been active in helping out in our community and we see this as another way we can do so that will help us out as well. It's a win-win if we can get a clean implementation."

Mayfield has over 600 diesel trucks that serve the southeast with their range of products that span milk and ice cream to cultured products. The majority of their trucks fuel at one of their eight, bulk fuel locations while the remainder fuel at retail sites.



An example of the type of Mayfield delivery truck that is now running on B5 fueled from their Crossville refueling center.

Regional Biodiesel Workshops Stir Interest

Four regional "Biodiesel Training for Fleets" workshops took place around East Tennessee in August and September. The locations and dates were Knoxville (8/25), Kingsport (9/27), Maryville (9/28) and Chattanooga (9/29).

Each presentation began with information on what biodiesel is and how it is made, continued with presentations on how to additize the fuel based on different additives and different biodiesels, and ended with a discussion of where it is used in the community and why it's use is important for the fleet, the community and the country.

Each workshop partnered representatives from a local biodiesel supplier, their biodiesel producer, the supplier's additive company, the ETCFC and local users to show how biodiesel can be implemented in

any diesel fleet. The critical connection in the chain is the local fuel supplier. They have to know the critical information about the biodiesel so that they can ensure that quality is maintained all the way through onsite storage and use.

The workshops had roughly 25-30 attendees each and helped the ETCFC grow its connections and user base for biodiesel throughout East Tennessee.

Although the Knoxville and Maryville locations were fairly close by, they were chosen because Anderson, Knox, Blount and Sevier counties are such a hotbed of activity for biodiesel right now. A total of about 30 biodiesel projects or programs are underway in those counties.

Look for news from attending fleets in the winter 2006 edition of the ET Clean Fuels Advisor!



Don Irmen of West Central Soy speaks to the attendees at the Knoxville workshop that was held in conjunction with Regal Fuels.



Jonathan Overly's

Coordinator's Corner

Knox County and Knoxville Taking Alt Fuels Action

Both the City of Knoxville and Knox County are making moves to get alternative fuels in use this year.

Knox County, after spending roughly one and half years to learn about biodiesel, is moving to B10 in their entire diesel fleet. That's a total of about 160 vehicles which consume 100,000 gallons of diesel annually.

Discussions started with the Knox County Fleet Service Center GM, Philip May, who participated in multiple meetings to discuss how biodiesel could be implemented in the county's fleet. However, as a National Guard reservist, May was shipped off to Kuwait in June. Larry Fox, the light equipment foreman, picked up the ball and ran with it.

"We began talking with one supplier and made plans to start a project with their assistance, but it seemed to be taking too long to get it going," says Fox. "We changed course and just made the decision to go fleet-wide with a lighter blend to start with and then move up to B20 after an initial period to help with fuel tank clean-out. The first biodiesel blend bid will probably go out mid-October."

Fox and Kaye Thompson worked together on the planning process. Thompson, who wrote the biodiesel bid specifications said, "I got all the help I needed by connecting to the ETCFC which included learning about the 2004 Biodiesel Handling & Use Guidelines and the BQ-9000 process. I learned a lot about biodiesel by reading those guidelines!"

The city of Knoxville also has a biodiesel project in the works, but has already started some other projects, including the purchase of two dedicated electric NEVs (neighborhood electric vehicles) and five hybrid-electric Toyota Prius.

The NEVs are used by the city police for certain special applications like parking lot control and patrolling at the TVA&I Fair and at other restricted area venues. "We had some problems at the start with them but got the problems fixed pretty easily," says Shop Chief Tom Collins, who oversees their maintenance and use at the city's Prosser Road garage.

"They have their limits but in the right applications, they're much better than other options we've had in the past," continues

Collins. "They're less expensive up front than a Cushman, which we are replacing with the GEMs over time, and it helps us reduce gasoline consumption which is a priority right now for the city."

The five Prius are being used by building inspectors.

The city's biodiesel plan is to put B5 in one of their 10,000 gallon tanks by early November (20 vehicles refuel there). If things go well, they'll look to have the entire city diesel fleet, 235 pieces of equipment that use 240,000 gallons per year, to B20 by the time ULSD kicks in next year.

"Right now this is just the easiest way for us to get started and begin to educate some of our drivers about this fuel," notes Mel Cummings, the city's fleet manager. "We'll start slow and see how things go from there."



Top: One of the city's four 2005 Prius.

Bottom: Tom Collins stands next to one of the city's two new NEVs.

Invest Now... in Your and Your Children's Future

Increase efficiency in every aspect of our energy usage, especially in the transportation sector, and begin using alternative--and renewable--sources of energy as fast as possible. These should be the hallmarks of our national energy strategy to take greater control over energy prices.

What's the point, you ask, if the energy legislation that just passed is expected to have little impact on the prices we're now paying for fuel? Because, even if we start modifying our energy-consumption patterns now, it will take years, perhaps decades, for us to significantly reduce our petroleum dependence.

Look at it this way. The federal government has a keen interest in keeping energy prices affordable for the sake of the American economy, that great engine that has driven us to become the world's economic superpower.

For many years, our nation had maintained a balance between the profits of politically connected big oil companies and fuel prices stable and affordable enough to allow the nation to grow economically. Sure the scales have tipped in both directions from time-to-time, but otherwise we've seen quite reasonable fuel prices for most of the last 50 years.

But times are changing, and quickly. Prices have risen so fast that many Americans are already beginning to alter their current lifestyles. This dramatic shift in fuel prices means more money spent on fuel and less spent on purchasing and investing... actions that help us grow our economy.

So, what does this all boil down to? Get involved and *do something*. That is, take action in your daily life whether you choose to begin using an alternative fuel, purchase or trade-up to a more fuel efficient vehicle, look carefully at improving energy efficiency in your house or business or find some other way to reduce your family's or company's energy and environmental footprint.

No matter what action you choose, you do get a payback and return on your investment, it just isn't always immediate or something you recognize in your pocketbook. At the very least look at increasing energy efficiency and using American-made fuels as your way of investing... in your, your children's and your fellow American's future.



Want to Help the ETCFC? We Sincerely Need Your Assistance

The ETCFC works hard to move alternative fuels forward in our community and needs your help to be successful. We utilize your funding in a several ways, but the main two are 1) keeping a full-time coordinator to organize meetings, develop relationships with fuel distributors and marketers and move them to action, respond to information requests and

expand our information network; and 2) for outreach and marketing.

If you'd like to help, first become a member! (See membership information on page 5.) In addition, we've become a member of Active Giving online. You can go to this address to donate online to the ETCFC- http://www.active.com/donations/campaign_public.cfm?key=etcfc



Washington Farmers Co-op Ups the B5 Ante

After starting to offer B5 to their retail station on-road diesel customers in July this year, Tom Bible, the Co-op's general manager, decided it was time to offer it to more customers.

"We've made our key pump on-road diesel B5 and can now deliver on-road B5 to any of our delivery customers as well," notes Bible. "All our feedback on the B5 at the retail pump has 'fueled' our decision to move it to our key pump and delivery customers" (pun intended).

Bible continues, "we've seen an increase in our sales as compared to last year and have had multiple individuals tell us they are coming specifically (to Jonesborough) to use the B5."

With the addition of the Washington Co-op, East Tennessee is now up to three county co-ops that are offering biodiesel at their facilities (Washington, Sevier and Hawkins).

It just makes sense," says Bible. "It seems logical that we should start using more American fuels, especially when we can do things like we can with biodiesel where we start with small blends and no modifications and work our way up if we so choose."



In growing this market, the ETCFC recently had the opportunity to speak with all the East Tennessee regional co-op

managers, and did so. On September 8, the ETCFC made a presentation at their monthly meeting to try and provide more insight on biodiesel and its benefits. Those in attendance were receptive and are considering changes at their stations.



A gentleman refuels with B5 at the public station at the Washington Farmers Co-op.

Biodiesel News & Notes

AFFINITY BIOFUELS OF AMERICA - Marc Cardoso is getting ready to "Git-R-Done" by completing his journey to producing and selling ASTM biodiesel. He's done a lot lately to prepare his equipment and site like installing new tanks and getting his site ready to receive and ship products. He is working to nail down meeting the spec and getting a consistent supply of raw material. Go Marc!



WANT TO LEARN ABOUT BIODIESEL?

READ THE MANUAL! - The 2004 Biodiesel Handling and Use Guidelines is the best single place to learn the most about biodiesel. It covers literally everything you need to know in becoming a biodiesel genius! (Well, almost.) A soft copy is available on the ETCFC Web site homepage.

HAMILTON COUNTY OFFERS B30

- The county's Director of Purchasing, Ken Blankenship, noted at the Chattanooga biodiesel workshop that they now offer a B30 blend. They started their biodiesel program by placing B5 in one of their tanks in April and have ramped that blend up about every six weeks so far. Blankenship said "with our air quality problems, leadership is necessary here and we are taking a lead role on biodiesel for our community."



Top to bottom, the four Prius designs: teaching and a view from Clingman's Dome; a river eotter at Abrams Falls; a waterfall and White Trillium near the Townsend "Y;" and volunteering in Cades Cove.

Toyota Donates to the Smokies

September 24 combined two celebrations for the Smokies this year: National Public Lands Day and receipt of four hybrid-electric Prius that were donated by Toyota.

Ernie Oakes, the Clean Cities program manager for the DOE's central regional office (based in Denver), and Toyota collaborated on the project. Oakes runs the Green Energy Parks program through Clean Cities, which has paired partners with national parks over the last 10 years to get alternative fuel and advanced technology vehicles in use in the parks.

"We've put on the order of 150 vehicles in parks through about 70 projects," says Oakes, "and it just continues to get better. In every case the parks win so it's very rewarding."

At the presentation ceremony, which was held at Clingman's Dome, Jonathan Overly spoke about Pinnacles. "We are at the top of the Smokies, which has the worst air pollution in the U.S.; it's the peak of hurricane season, which is reminding us of our

all-time high foreign oil dependence. These two things bring us to today's pinnacle: Toyota leading all auto manufacturers with the most advanced technology hybrid that is the top hybrid seller. Today's event is a major achievement, thanks to this team's leadership."

The vehicles will be used for transportation and educational purposes, including assisting volunteers.



Left to right: Smokies' Superintendent Dale Ditmanson, Toyota's Jaycie Chitman, Smokies' Air Quality Specialist Jim Renfro, Friends of the Smokies' Jim Hart and the ETCFC's Jonathan Overly all spoke at the event where four Toyota Prius were donated to the park.



Autotherm Turns On in Tennessee

Autotherm, an Illinois-based manufacturer of small, low-cost, anti-idling systems, has begun working with several East Tennessee companies. Autotherm's unit allows almost any vehicle's on-board heating system to operate without running the engine.

The city of Chattanooga, TVA and Knoxville Utilities Board have all taken receipt of several Autotherm T-2500 systems, the second generation of the company's product line, marking the first use of these systems in Tennessee. The systems should be installed and working by early October.

The T-2500 replaces the first-generation T-2100 unit and reduces the central control system's size by 80% while increasing its capabilities. "Improvements to the control system's connections are significant," says Don Boyer, Autotherm senior vice president. "We now call it the 'goof-proof' harness system."



Top: Autotherm's system size (note the Sharpie). Bottom: Two system interfaces.

How long the system can operate depends on several factors including the cooling capacity of the engine and the outside temperature and wind velocity. When used under typical winter conditions in Chicago, the unit can operate for ~4 hours on a heavy-duty tractor trailer or 1-2 hours on a medium-duty truck.

"By simply circulating the cooling fluid in a vehicle and putting the warmed air into a vehicle's cabin, the system can effectively do what a 300-HP engine had been doing while using only a 1/100th-HP motor," says Boyer. Although the unit is powered by the SLI battery, it

draws less than 1 amp and contains several sensors that tell it when to shut down so that it doesn't leave the user with a dead battery.

For less than \$500, a 4-6 month payback can typically be realized based on fuel cost savings only.

For more info see www.autothermusa.com.



A view of a ridge in the Smokies from the Laurel Falls Trail.

Join the ETCFC

The ETCFC works hard to simultaneously reduce foreign oil dependence and improve regional air quality by putting alternative fuels to use in the transportation sector.

This work is vital to our country as there will be a world oil peak in the coming century, perhaps within the decade, and renewable-sourced hydrogen as oil's replacement is no where near ready for prime time. Additionally, this work is vital to Tennessee, as our air quality problems are serious and we have to start creating more local action to make a difference.

And we can.

If you'd like to get involved, come to one of our monthly meetings and hear straight from the users' themselves how local fleets and individuals are making the switch. Go to our Web site, www.etcfc.org to see when and where monthly meetings are held.

Also, consider supporting our effort by becoming a member! Membership has many benefits, and includes receiving the ETCFC newsletter, Clean Fuels Advisor, free! More membership information can be found on our Web site as well.

PARTNERSHIP LEVELS (annual dues)

Founding Partner	-	\$4,000
Platinum Partner	-	\$2,000
Gold Partner	-	\$1,000
Silver Partner	-	\$500
Associate Partner	-	\$200
Supporting Partner	-	\$25

The Supporting Partnership level is reserved for nonprofits and individuals.

South Carolina Puts E85 on the Fast Track

Since September 2004, the Palmetto State Clean Fuels Coalition (PSCFC) and its partners have installed 18 publicly accessible E85 stations in South Carolina. Now there are a total of 20 public stations across the state where anyone can refuel with E85.

Most of the stations are in the Columbia, Greenville and Aiken areas. The most recent addition was at a Spinx Oil station in Greenville. Spinx owns and operates 12 of the 20 public stations in South Carolina.

"We've just had great partners and great support from our state government. That is what has made our E85 effort really take off," says Wendy Bell, Director at the PSCFC.

Fairgoers Taste Alt Fuel

The ETCFC spent 10 days in September at the TVA&I Fair in Knoxville showing fairgoers alt fuels.

The following volunteers assisted: Mike Reedy, John Fultz, Crystal Longdon and Mike Whedbee.

"Collectively, we probably spoke with about 150 people about our effort," says Reedy, who spearheaded getting the ETCFC at the event.



ETCFCer John Fultz talks alt fuels.

biodiesel with several folks in the plant," says Taylor, "our plan was to start with a low blend then increase it over time once everyone was comfortable with the results. Thus far it's been a seamless transition from petro-diesel to the B5. We anticipate moving to B20 once our vehicles and equipment have had a chance to use a few tankfuls of B5."

BAE Systems is the second Tri-Cities area industry to begin using biodiesel and is looking forward to seeing others in the community reap the the air quality and lubricity benefits of biodiesel use.

"It just seems like the time to act with all that is going on around us," notes Taylor. "It's a simple step for us... it allows us to take action for local change."

BAE Systems 2nd Tri-Cities Industry to Go Bio

BAE Systems Ordnance Systems Inc., operating contractor for Holston Army Ammunition Plant in Kingsport, moved all of their 70+ diesel-powered vehicles and equipment to a B5 blend in late May.

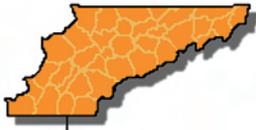
Steve Taylor, an environmental affairs specialist with BAE Systems, helped bring the fuel on-board. He followed ETCFC activities in and around the Tri-Cities area and watched and listened as Eastman implemented their biodiesel program.

Once Tri-Cities Petroleum was setup to take care of Eastman and Taylor was comfortable with what he was learning about biodiesel, he called Tri-Cities about them supplying a bio-blend for BAE.

"After discussing how we could get started on

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Alternative Fuels to the Rescue

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Be part of the solution, not the pollution.

Partners' Fall Update

Water Taxis in Chattanooga? Jim Frierson and company at ATTI are working to bring a Water Taxi (www.watertaxi.com) to the Tennessee River in Chattanooga. The version they want to put in service is a hybrid boat that can operate on biodiesel, as has already been tested in another city--Ft. Lauderdale--with great results. Bob Bekoff of Water Taxi says "since switching to biodiesel three years ago in all our water taxis, we have found less engine wear and tear because of biodiesel's increased lubricity and easier boat cleanup because there is less soot."

Strong Stock Farm - Stuart Cassell of Strong Stock Farms notes that they started on biodiesel in early summer. "We love it! It doesn't smell bad like typical off-road diesel and runs great." They run six tractors and a farm truck on B20.

Metro Wrecker Service - As perhaps the first wrecker service in East Tennessee to begin using B20, Gerald Henry is proud to do so. He started in July when realized McNutt Oil was offering it, and hasn't looked back. "With fuel prices getting a little crazy, I felt like I needed to do something, and B20 was it. It also doesn't hurt that I get to show people what I'm doing through the magnet (Biodiesel Brigade)."

Blalock Companies - One of the largest regional heavy highway construction companies is looking into possibly beginning a biodiesel program. Several Blalock employees, including Doug, Dan and Wesley Blalock, have connected with the ETCFC to begin a discussion on starting perhaps B5. The ETCFC plans to help them ramp up their know-how on biodiesel so that they can prepare to begin with a low blend in some of their on-road or stationary equipment in the near future.

Eastman - Their diesel fleet and equipment, all 350 pieces in total, have been on B20 since April 1 this year. As of September 19, they moved to B30. Things had gone pretty smoothly prior to the switch, and the option allowed them to build their emissions reductions while using more American-made resources. The company has an effort to reduce foreign oil dependence.

City of Bristol - Although most of their vehicles refuel at local stations, Bristol recently tried a B20 program in a couple of vehicles that refuel from one small tank they own. Two vehicles were trying the B20 and they both had fuel filter issues that necessitated changing them. The ETCFC is hoping to help them find a local partner to offer B5 or B20 at a public station they use.



ETCFC 2005 Partners

Founding Partners
University of Tenn., Knoxville
Oak Ridge National Laboratory
Sevier Transportation Board

Platinum Partners
Knoxville Utilities Board
Eastman
AAA of East Tennessee

Gold Partners
Tennessee Valley Authority
Tennessee Koyo Steering Systems Co.
Knoxville Area Transit
McNutt Oil Company

Take Action Today!
See p. 5 on how you can
become a partner in fighting
foreign oil dependence.