

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.

Bonnie Raitt Rocks, ETCFC & TSPC Benefit

On December 10, 2005, Bonnie Raitt performed at the recently remodeled Tennessee Theatre in Knoxville. But due to her devotion to spreading the word about helping the environment, and backing that up with action, a connection with the ETCFC was made... much to our benefit!

Working with the National Biodiesel Board and Tom Campbell of the Guacamole Fund (an organization that manages the connection between artists and environmental groups), Raitt set aside 50 premium tickets, we're talking the best seats, and allowed the ETCFC and the Tennessee Soybean Promotion Council (TSPC) to sell those tickets to raise funds to market and share the message about biodiesel regionally. Selling the tickets was easy because the concert sold out about three hours after the tickets originally went on sale, roughly two months before the concert.

The day of the concert, things started off with a press event at the Regal Fuels cardlock where Raitt fueled all four of her tour vehicles, two buses and two heavy-duty trucks, with B20. Raitt, Knoxville Mayor Bill Haslam, the ETCFC's Jonathan Overly and Parks Wells of the TSPC spoke about biodiesel and regional action.

Then, after the concert, 30 of the better-seat benefit-ticket purchasers got to go backstage to a dessert reception to meet Bonnie! She was an absolute pleasure to meet... about as nice and gracious a person as you could ask for. And she not only made great comments about biodiesel at the press event, but also during the concert and at the reception.

Thanks to her kindness, we got some great press out to the public on biodiesel and raised roughly \$4,000!



Top - Bonnie speaks at the press event while Jonathan Overly and Mayor Bill Haslam listen. Bottom - Overly and Parks and Janice Wells join Bonnie for a snapshot.

Thank you National Biodiesel Board, thank you Tom Campbell, but most of all thank you Bonnie Raitt for your support of biodiesel!

And, of course, the concert was awesome!

Introducing... the West Tennessee CC Coalition

Thanks to the efforts of the state energy office and David Pelton, the director for Clean Cities of Middle Tennessee, there has now been a Clean Cities coalition in West Tennessee since mid-summer 2005.

Through a solicitation and interviewing process, Andrew Couch was selected to lead the charge developing a coalition for the western part of the state.

Couch has already started making a big dent in the West Tennessee area from its base in Memphis where he lives. The Memphis Area Transit Authority and FedEx are just two of the stakeholders he's brought to the table to start attending coalition meetings, and to help get a network of involved participants taking action. Altogether, there are about 15 groups that are parti-

pating in activities right now to help this grow.

"I'm having a blast," says Couch, who also owns and operates a company (Deep Fried Rides) that installs systems to allow diesel vehicle owners to run their vehicles on straight or used vegetable oil.

"There's just so much potential here," continues Couch. "We may do some work in the larger tri-state area since there are a lot of undeveloped opportunities in northern Mississippi

and northeastern Arkansas too, but West Tennessee will definitely be the major focus of our work. We're starting our work to catalog alt fuel use in the area so hopefully we'll be up-to-speed on what's currently going on around the region soon."

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American Fuels Checklist:

See www.RunforCleanAir.org and get ready for the 2006 Run for Clean Air on Saturday, April 8!



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



TDOT Region One Leads the Way



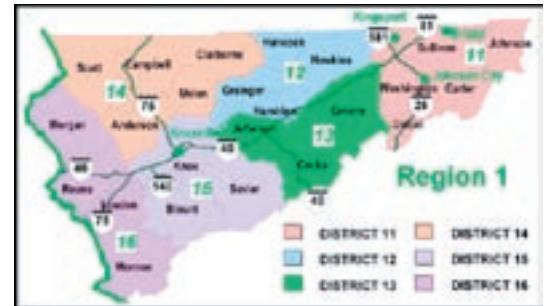
Top - Alan Jones, TDOT's Environmental Policy Office Manager, discusses biodiesel with TDOT Region 1 staff. Bottom - Ed Cole of TDOT (center), along with Commissioner of Agriculture Ken Givens (left) and TDEC Deputy Commissioner for Environment Paul Sloan, kicks off TDOT's biodiesel project at a December 16 media event held in Knoxville.

Tennessee Department of Transportation (TDOT) staff in Knoxville and Johnson City are taking a lead role in showing other state agencies how biodiesel will work for Tennessee state fleets.

In November, TDOT began a pilot program using B20 in more than 130 on-road diesel vehicles including dump trucks, snowplows and HELP trucks that are centrally fueled at the Knoxville and Johnson City TDOT garages (the two largest refueling facilities for the Region 1 area). The department plans to include off-road construction equipment in the study early next year.

"We hope to take a giant leap forward in decreasing emissions and reducing our dependency on foreign oil, plus helping out American farmers. If the program works, it will be a win-win situation," said Ed Cole, TDOT Chief of Environment and Planning. "I'm optimistic that when this study is complete, we'll eventually be pumping biodiesel at TDOT facilities across the state."

The Department of Environment and Conservation and the Department of Agriculture teamed up with TDOT to show support for the program at media events held on December 16 in Knoxville and Johnson City.



"Mobile sources of air pollution, especially diesel engines, are major contributors to Tennessee's air quality problems," said Cole. "Using biodiesel is one way TDOT can show leadership in reducing vehicle emissions and in protecting public health and our environment."

TDOT will use an estimated 13,500 gallons of B20 each month during the study. Only vehicles that refuel at the two largest refueling facilities will be using the B20 for the pilot program. If the program meets its goals and biodiesel is expanded to other regions and vehicles, it would move to the Nashville, Chattanooga, Jackson regional offices.

ET's Two Largest Metros on Bio

Chattanooga and Hamilton County got on board; now Knoxville and Knox County are in on it. All four of these major metropolitan area fleets have implemented biodiesel projects during 2005.

Knox County began learning about biodiesel roughly two years ago and utilized several staff including Kaye Thompson to get their usage going. "Once we had obtained all the information we needed to be comfortable with the switch, we just had to find out who regionally could bid on the solicitation and what the additional cost would be," says Thompson.

Knoxville got started last summer and plans to have the entire fleet on B20 before ULSD sets in.

The hope is that in addition to lubricity additives, the biodiesel will stop eliminating any potential lubricity issues. Here's the current summary:

- Chattanooga is using B20 fleet-wide having started at B5 and worked their way up over about 6 months.
- Hamilton County is on B30 and implementing on a piece-wise basis with vehicles randomly refueling with the bioblast; they started in April.
- Knox County started B10 fleet-wide in November and will move to B20 in January '06.
- Knoxville has a little less than 30 vehicles refueling with B10 from one fueling location.

West Wind Farms & Local CNG

Ralph and Kimberlie Cole run West Wind Farms, a Deer Lodge, Tennessee-based 265-acre farm that raises certified-organic, grass-fed lamb, beef, and pork, pastured chicken and turkey, and free-range eggs. They also operate two onsite natural gas wells.

They purchased the property knowing the wells were an untapped resource, and aim to tap it. Cole has already had the gas tested and has found a used FuelMaker (FMQ-8-36) refueling appliance which will operate at about 4.0 gge per hour (gge = gasoline gallon equivalents).

The plan is to install the FuelMaker and then get his '05 GMC Sierra converted to run bi-fuel CNG. He has other farm equipment, including a class 7 International straight truck (currently die-



Kimberlie and Ralph Cole and Ripley (a border collie) join in the picture with Ralph's 2005 GMC 2500HD Sierra 4WD that will be converted to run bi-fuel CNG/gasoline by Alternative Fuel Concepts.

sel running on a biodiesel blend), that he plans to convert to CNG over time as the wells' capacity allows. The Sierra will have four on-board tanks installed to provide a driving range of roughly 550 miles, allowing them to continue selling their products to multiple farmers markets in East and Middle Tennessee.

"The primary motivators include reduced fuel expenses, reduced tailpipe emissions, and reduced foreign oil needs," says Cole. "And using a gaseous fuel will better prepare us for using hydrogen fuels in the future."

Cole continues, "All this is consistent with our philosophy of operating an organic farm: better use of and stewardship of our natural resources. Think globally, act locally...and organically."



Jonathan Overly's

Regional Municipal Biodiesel Leadership

2005 has proven to be the year of the East Tennessee municipality for getting started on biodiesel. With nine cities and townships now using biodiesel in some form or fashion, 2006 could be the year when every city in the 33-county area with a population of over 10,000 gets on board. That would be a significant achievement for our region!

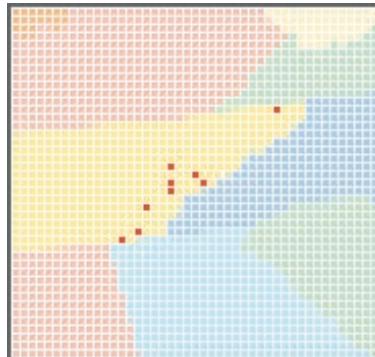
Here's a quick summary as of December 2005 for regional city usage:
Fleet-wide

- Alcoa - All 75 diesels on B10
- Chattanooga - All 385 on B20
- Cleveland - All 47 on B5 (when close to cost equivalent)
- Gatlinburg - All 85 on B20
- Maryville - All 130 on B20
- Sevierville - All 68 on B10

Some Vehicles

- Athens - 4 of 69 on B20
- Bristol - 2 of 30 on B20
- Knoxville - 27 of 235 on B10

Alcoa and Maryville led the way getting started with a few vehicles on B20 in March 2004. Our next leader was Sevierville - the first East Tennessee city to go with a fleet-wide biodiesel blend (B5) in January 2005.



Chattanooga jumped in front as the first fleet to get to fleet-wide B20 and has not had any significant problems since they reached B20 last August. Several fleets have followed suit since, namely Maryville, Alcoa and Gatlinburg going to fleet-wide biodiesel.

Other cities that have already taken an interest in biodiesel: Johnson City, Oak Ridge, Kingsport, Jonesborough, Lenior City. Others that we hope to help gain an

interest in 2006: Morristown, Farragut, Greeneville, LaFollette, Dayton and Elizabethton and East Ridge. With a significant amount of in-state production expected to come online in 2006, this will hopefully make it more attractive through further reductions in the cost of purchasing and blending the fuel.

Some statistics: Of the ten cities that have a population of 20,000 or more in East Tennessee, three are using biodiesel fleet-wide (Chattanooga, Cleveland, Maryville), two are using it in some vehicles (Knoxville and Bristol), and four of the remaining five either have some plan for getting started or are mulling over the idea.

A transformation is taking shape in East Tennessee, and municipalities are helping lead that fight. Hats off to the cities and townships in our area for their proactiveness for our community and our country!

Tennessee Energy Facts (year 2000 data)

Total energy consumed in Tennessee in 2000: 2,025.9 trillion btu

The eight largest individual resources by amount (and percentage):

Coal:	705.1 (34.8%)	Gasoline:	358.8 (17.7%)
Natural gas:	276.2 (13.6%)	Nuclear:	269.3 (13.3%)
Diesel:	168.0 (8.3%)	Jet fuel:	72.9 (3.6%)
Hydroelectric:	57.8 (2.9%)	Wood & Waste:	55.3 (2.7%)

In decreasing contribution, the next four energy sources are: "other" petroleum (consumed in industrial sector), asphalt and road oil, propane and

Our Goals for 2006? Reach for Success

In early 2005, the ETCFC created two fairly simple goals: 1) consume 500,000 gallons of B100 equivalent in 2005 and 2) have biodiesel in use in all 33 counties in our region by the end of 2006. We've passed the first mark by a substantial margin; watch for a coalition press release with more information. The second goal would be difficult to reach even in two years, but we are pushing ourselves because we want to. Obviously both are focused on one fuel, but that seemed fitting considering our regional acceptance of that fuel at the time.

For 2006, we have expanded our goals to cover more areas of our work. Here's the list:

- 1) Raise at least \$40,000 in membership dues
- 2) Consume 1 million gallons of B100
- 3) Establish at least 6 public E85 stations
- 4) Establish 2 CNG, LPG or H2 stations
- 5) From '05, have biodiesel in use in 33 counties

Additionally, we may develop goals related to B2 and E10 as well as one regarding reaching out to local vehicle dealerships. Thus we've branched out into creating goals not just for one fuel that's based on consumption, but expanding to include four fuels covering consumption and station development, as well as including the all-important fundraising.

For goal 1, we've raised roughly \$25,000 in membership dues for the past two years, but know we've got to do better. We've been blessed to earn \$60,000 last year and this year through two federal grants, and know that we cannot rely on that for too many years, so need to build our regional and state contribution components.

The biodiesel goal simply falls in-line with our growth there, although the 33-county goal will still require some hard-nosed team effort. The E85 goal fits with what we believe will be our break-out year for beginning the expansion of that fuel through fuel distributor interest and state fiscal support for its growth. The CNG/LPG H2 goal was included thanks mostly to Alternative Fuel Concepts coming into the picture. They will be a critical assistor in our growth of those fuels.

A team effort will be required to bring all these goals to fruition, but I am putting my faith in our team, because they have proven themselves.





Knox County CAC Transit Begins Using Propane

Knox County's Community Action Committee (CAC) transportation program has received funding to help move the program to using propane.

Karen Estes, manager of the program, applied for funding from both the CMAQ and Section 5310 programs (5310 provides capital funding to provide transportation for the elderly and disabled). Estes received \$240,000 from each program to purchase a total of eight vehicles that would operate on propane only (dedicated).

The small buses will serve the Knox County area; each seats 17 including space for four wheelchairs. Estes says, "Knox County CAC Transit will be testing the performance and reliability of these vehicles in the non-urbanized area of Knox County."

KAT (Knoxville Area Transit) has been using

propane on different routes within the city of Knoxville for two years. KAT has about 20 propane vans that are similar to the CAC buses and they have not noticed any problems. KAT's vans began with demand response service on the University of Tennessee at Knoxville campus and expanded to route service including expresses.

The vehicles refuel at the main Knox County refueling center off of Baxter Avenue which now offers propane and biodiesel as two fuels that county vehicles can now use to refuel.

As a part of the program, Estes is looking for a full-time vehicle refueling and cleaning staff person who will be in charge of refueling all the propane buses. If you are interested, contact Estes at 865-524-0319.



Karen Estes sits aboard one of the new propane-powered buses that Knox County's CAC Transit program has put into use.

Alt Fuels News & Notes

BIODIESEL @ SCHOOL - Students at two schools in East Tennessee have made a go of producing biodiesel onsite from school cooking grease, and had success. Colton Griffin at Baylor in Chattanooga and a team of students from Scott County High School (William Smith's Biology class) each produced biodiesel and ran it in local equipment. The ETCFC reports an "A" for both efforts!

NEXT NATIONAL AFV DAY ODYSSEY PLANNED FOR OCTOBER 12, 2006 - The National Alternative Fuels Training Consortium (NAFTC) has released that the next national Odyssey will take place on Thursday, October 12, 2006. More information will come from the NAFTC over the next few months. You can expect the ETCFC to organize a large event!

2nd STRAIGHT YEAR - ETCFC WINS CMAQ AND SEP AWARDS

Thanks to a supportive TPO and community, the ETCFC has won a second year's worth of Congestion Mitigation and Air Quality (CMAQ) and Clean Cities Special Energy Projects (SEP) funding. \$60,000 was received from CMAQ and \$20,000 was received from SEP. The first priority with the funding must be to further our ability to maintain fiscals sustainability for the ETCFC, although there is a plethora of projects to work on!

CHANGES FOR ET CLEAN FUELS ADVISOR?

There's some discussion in Tennessee about morphing the newsletter to cover all of Tennessee, not just the eastern portion. Do you have a comment, either way? Email Jonathan Overly at <jgoverly@utk.edu>.



Presentations Aplenty in Late '05

Excluding workshops, between August and December the ETCFC made sixteen presentations to a wide variety of groups and organizations.

Just about anytime we have a request, as long as it will fit with the presenter's schedule, we'll make a presentation. Here are the dates and recipients:

- 8/23 - Sevier Peace Alliance
- 8/24 - Knox County CAC/Americorps
- 8/31 - SWANA Quad-state Conference
- 9/1 - Nancy Rickenbach's class at Maryville H.S.
- 9/7 - Knoxville Chamber's Agribusiness Council
- 9/8 - TN Pollution Prevention Roundtable
- 9/8 - East TN Farmers Co-op Managers meeting
- 9/13 - TDOT Biodiesel Meeting
- 10/19 - Int'l Sustainability Dev. Symposium
- 10/20 - TN Chamber of Commerce & Industry annual conference
- 10/25 - Deni Sobek's class at Oak Ridge H.S.
- 10/27 - TN Trucking Association (Couch led)
- 11/3 - Knox County fleet supervisors

11/3 - UTK Environmental Writing class

12/2 - Various Monroe County groups

12/6 - Y-12 National Security Complex

Although Jonathan Overly makes most of the presentations, several others make presentations and have helped out recently, including David Myers and Dan Pursglove. Pursglove already has some Seymour presentations lined up for early '06, too!

Above - Deni Sobek's Science class at Oak Ridge High School. Below - Andrew Couch, the West TN Clean Cities Coalition coordinator, leads the three-member Clean Cities' team in a presentation to the Tennessee Trucking Association; David Pelton assists from the front right.





East Tennessee Hydrogen Initiative Underway

It's possible that hydrogen vehicles and refueling just might get started in East Tennessee in the next year, thanks to the leadership of the University of Tennessee at Knoxville (UTK) and Chattanooga (UTC).

Although originally created as two separate projects, two ideas for the beginning of hydrogen use as a fuel in the Knoxville and Chattanooga areas have merged. Dr. Wayne Davis, associate dean for research in the College of Engineering at UTK, and Ron Bailey, dean of engineering at UTC, were leading their respective efforts and then met and decided that working together would strengthen the overall ideas.

They are similar in their desire to put hydrogen fuel into use, but are dissimilar in a couple of ways. The Chattanooga work will focus on converting electric buses to use fuel cells and batteries to power the buses and will use a recently deeded test track to perform research on their performance, reliability and operability. The UTK work will focus on converting internal combustion engines (ICE) that operate on gasoline to run on compressed hydrogen, and work to simply put those vehicles into service in the community (less research and more of an applied

focus). The vehicles will be bi-fuel and the team will utilize local conversion companies as is possible.

The project that UTK is working on will likely have several partners from Blount County (e.g., airport, Alcoa, Inc.) and thus will have the hydrogen generation and storage in the Alcoa, Tennessee area to refuel hydrogen ICE AFVs. It is hoped that the hydrogen will be generated by hydroelectrically generated electricity that will power an electrolyzer (splits water into hydrogen and oxygen).

The UTC project will partner with several entities including TVA and the Advanced Transportation Technology Institute (ATTI). They will focus on generating hydrogen via electrolysis as well and use grid electricity to power the system.

Davis says of the effort, "We can't build anything here hydrogen wise until we have a basic set of resources and starting pieces to build on to, so our idea is to create a partnership that helps put those starting pieces into place. Once that is working, we can look at different ways that UT research or other partnerships can help further expand the capabilities of this region to be a player in helping hydrogen grow as a fuel."



A beautiful winter sunset in East Tennessee. Taken by J. Overly on 11/7/05.

IdleAire Completes Financing to Expand

Knoxville, Tennessee-based IdleAire has completed the financing necessary to fund the company's next major growth phase, announcing on January 4 the sale of \$320 million in discount notes and warrants.

IdleAire's Advanced Truckstop Electrification (ATE) technology allows long-haul drivers to turn off their diesel engines (think anti-idling!) and use their patented cab-fed devise with LCD screen to provide conditioned air along with a bevy of other services for a fee to reduce energy demand and overall cost.

IdleAire currently has 24 sites with anywhere from 20 to 200 of their ATE units over parking spaces that truckers will use for their eight-plus hour stay. The financing will enable them to immediately begin work on adding another 210 locations that

reach into 35 states. Key truckstop partners thus far include TravelCenters of America, Petro Stopping Centers and Pilot Travel Centers.

The new stations will add an estimated total of 13,200 parking spaces. Emissions reductions from even minimum use of the new systems could top one-half million metric tons of diesel emissions and save over 11 million gallons of diesel each year. Now that's substantial!



Cellulosic Ethanol Production in East TN?

A U.S. company is in the planning stages of siting and building a facility that would utilize several different waste streams to co-produce ethanol and electricity as green power.

BRI Energy is currently working out the details to try and become not only the state's first waste-to-ethanol facility, but the first commercial bioethanol facility in the country, and would likely start production at the 30-40 million gallon per year level.

The decision on which raw materials to utilize would most likely be focused on municipal solid waste.



BRI Energy holds exclusive licenses to mar-

ket and commercialize the gasification/biocatalytic technology developed by Dr. James L. Gaddy and his research and development organization, Bioengineering Resources, Inc. of Fayetteville, Arkansas.

Information from the company's Web site (www.brienergy.com) notes that the technology involves three main steps: gasification, fermentation and distillation. It is in the second step of fermentation where the patented microorganisms convert the carbon monoxide (produced during gasification) into ethanol. Steam, created from the waste heat produced by cooling the gases before fermentation, is used to power turbines which generates the green electricity.

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.

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Partners' Winter Update

Bristol Virginia Utilities - BVU gets the "Speedy Gonzales" award this year! A new attendee at our December Tri-Cities meeting on December 2, Craig Blevins of BVU took the company to B5 in the ground in less than two weeks. They plan to move to B20 by summer.

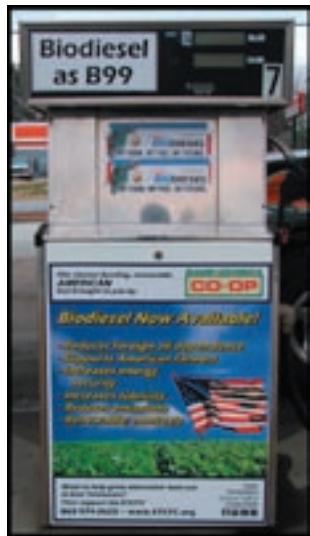
Blount Farmers Co-op - In December, the Blount Co-op opened a B99 pump (shown at right) at their main fueling facility in Maryville on U.S. Highway 411. They now offer B99 at the station as well as any blend for delivery (mixed with on- or off-road diesel). They are the fourth Co-op in East Tennessee to get started on biodiesel, and now have the fourth pump for biodiesel in Blount County.

Idle Reduction Begins in Knox County - On October 6, Knox County issued a statement implementing an anti-idling program for county vehicles. The statement specifically noted, No person shall cause, allow, or permit the unnecessary operation of the engine of a motor vehicle while said vehicle is stopped

for a foreseeable period of time in excess of three minutes. It does not apply in some cases like when vehicles are serviced.

Y-12 National Security Complex - After seeing two ETCFC presentations, Y-12 is making plans to be the first Department of Energy - Oak Ridge Operations facility to move to biodiesel. With over 70 vehicles and another 100 plus pieces of diesel equipment, there move will be a substantial one for Anderson County.

Billie Wayne Brown & Monroe County - As one of our most proactive supporters that is working to put an East Tennessee county on the map with biodiesel, Billie Wayne is working hard for us! He has spoken about biodiesel with probably 30 different people in Monroe County including representatives of schools, city and county governments, local industry and public stations. He even put together a county ETCFC presentation in December that hopefully put a little bit more zing in the work he's doing. Go Billie Wayne!



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TAKE ACTION TODAY!
TALK TO YOUR FUEL PROVIDER ABOUT
THEM BECOMING A LOCAL ACTOR
FOR CHANGE THROUGH ADVANCING
CLEANER, AMERICAN FUELS BY
SELLING BIODIESEL, ETHANOL,
NATURAL GAS OR PROPANE.
THEY WON'T UNLESS YOU ASK!!