

**FORT BRAGG DIRECTORATE OF LOGISTICS
GREEN REFUELING STATION
B20 BIODIESEL, E85 ETHANOL, ULTRA LOW SULFUR DIESEL**



Fort Bragg E85

The Sustainable Transportation Team and AAFES are in the process of retrofitting the Fort Bragg East Shoppette (Old COSCOM Shoppette) with E85 storage and dispensing capability. Even non-military card-holders will be able to purchase E85 at this location. Anticipated grand opening is late summer, early fall 2007. Check back regularly to this page for updates.

Fort Bragg B20

Sustainable Transportation is partnering with Fort Bragg Directorate of Logistics, Directorate of Public Works, GSA and Defense Energy Supply Command to deliver lower emission Ultra Low Sulphur Diesel (ULSD) for use in non-tactical vehicles on post. EPA requires use of ULSD in all vehicles to reduce emissions and manufacturers of diesel engines built in the 2007 model year and beyond. These 2007 and above engines MUST use ULSD. Utilizing JP-8 or Low Sulfur Diesel (LSD) will foul the emissions equipment and void engine warranties.

Next steps are to introduce a blend of twenty percent bio-diesel to ULSD (B20) for a superior fuel with even fewer emissions.

National

Bio-mass can be converted directly into liquid fuels - biofuels - for use in our vehicles. The two most common types of bio-fuels are ethanol and bio-diesel.

Ethanol

Ethanol—an alcohol—is currently made primarily from the starch in corn grain. It's most commonly used as an additive for petroleum-based fuels to reduce toxic air emissions and increase octane. Today, roughly half of the gasoline sold in the United States includes 5%–10% ethanol.

Ethanol is also available as an alternative fuel. E-85 is an alternative fuel blend containing 83% ethanol in the summer and 70% ethanol in the winter. Flexible fuel vehicles (FFVs) have corrosion-resistant fuel systems and other modest modifications to accommodate either E-85 or regular gasoline. The largest U.S. automobile manufacturers

each offer several models as flexible fuel vehicles at little or no additional cost. Currently, there are more than 200 E-85 fueling stations in 30 states for flexible fuel vehicles.

Biodiesel

Biodiesel is made primarily from soybean oil. Its use is currently relatively small, but its benefits to air quality are quite dramatic. A recently enacted subsidy should greatly stimulate use.

Biodiesel is typically blended at 20% with petroleum diesel. This fuel blend is called B-20. B-20 is used chiefly by vehicle fleets, which get credit for using alternative fuel vehicles without having to purchase new vehicles. B-20 is also available to individual consumers with diesel vehicles. There are nearly 180 B-20 fueling stations in about two-thirds of the states.

Source: <http://www.eere.energy.gov> 

State

The State Energy Office supports a number of alternative transportation programs designed to reduce dependence upon fossil fuels and improve air quality. Alternative fuels encompass several different technologies including electric and hybrid vehicles to those using compressed natural gas, bio-diesel, ethanol and propane as fuel.

Alternative Fuel and Vehicle Incentive Program for North Carolina has a program designed to promote the use of alternative fuel vehicles (AFVs) in North Carolina through outreach education, training technical support, policy analysis and research demonstration. The ultimate goal is to reduce U.S. dependence on foreign oil and improve air quality through alternative fuels use. Working with the North Carolina Solar Center, a statewide program is being developed to: (1) provide partial rebates of the cost differential between AFVs and their conventional counterparts, (2) provide limited rebates on the difference in fuel costs between alternative fuels and their conventional counterpart, and (3) provide grants for alternative fuel refueling. During 2003, the Solar Center completed the Alternative Fuels Education Center which provides solar powered charging units for electrical vehicles and educates the public about alternative fuels. [Learn more...](#) 

Carolina Electric Vehicle Coalition

A nonprofit education program that provides unique opportunities for students to learn and test their knowledge and skills, the Coalition sponsors the annual  [EV Challenge](#). Over the school year, high school students convert a gasoline vehicle to electric power and use it as the centerpiece of a school and community-based educational program. Students complete activities such as building web pages, performing oral presentations for community groups, conducting environmental research, writing articles for their local newspapers, and reinforcing math and science concepts. As part of this competition, middle school students participate in the Junior Solar Sprints. The State Energy Office has funded curriculum development, teacher development, an educational video, a mobile classroom, and an implementation manual to support the program. In an average year, 30 high schools and 3500 students participate in the program.

Clean Cities Program

Working with various councils of governments, the State Energy Office actively supports the  [U.S. Department of Energy's Clean Cities Program](#) in North Carolina whose mission is to advance the nation's economic, environmental, and energy security by supporting local decisions to adopt practices that contribute to the reduction of petroleum consumption.

Asheville Clean Cities is working to establish Clean Cities designation for the Asheville area with the  [Land of Sky Regional Council](#).

The  [Centralina Clean Fuels Coalition](#) guides the Clean Cities Program in Charlotte and surrounding counties and received designation in April, 2004. The State Energy Office is working with  [Centralina Council of Governments](#) to facilitate this program.

 [Triangle J Clean Cities Coalition](#), guided by  [Triangle J Council of Governments](#) provided nearly \$300,000 in incentive grants to local governments and large private fleets to use bio-diesel in buses, trucks and other vehicles, with area-wide participation and success. Triangle J Clean Cities is involved in several activities including working to develop a bio-fuels rebate program, researching the feasibility of locating a bio-fuels processing plant in North Carolina, promoting a statewide alternative fuel corridor and participating in AFV Odyssey Day.

Ethanol Infrastructure Project

Wake Technical Community College will establish an E-85 (85% ethanol blend) fuel facility on the main campus in Raleigh. Through a grant from the N.C. Department of Transportation, fuel prices will be slightly subsidized by the Triangle Clean Cities Coalition to compete with 89 octane grade gasoline price. This project will include an aggressive awareness and education campaign targeted at Wake Tech, N.C. State University, Meredith College, St. Augustine University and Shaw University, and all Wake county schools for use in their fleets. The long-term goal of this project is to establish an I-85 corridor of fueling stations that stretch from the coast to the mountains.

Hybrid Electric Bus

This two phase project will initially model conventional and hybrid bus types to determine their respective energy and environmental impacts and in the second phase, in conjunction with other partners, build a prototype hybrid bus and evaluate its performance. This project is relevant because in April, 2004, North Carolina's three major metropolitan areas, the Triangle, the Triad, and the Charlotte area, were all designated "non-attainment" for ozone by the Environmental Protection Agency (EPA). With more than 50% of the ozone producing emissions coming from the transportation sector, this project takes aim at reducing that which is generated by the states 13,000 school buses. In North Carolina, school buses represent 78% of the bus miles driven. If all of these buses could be converted to hybrid electric buses, nitrogen oxides could be reduced by approximately 4,000 tons/year. The State Energy Office works with Advanced Energy on this project.  [Learn more...](#)

Mobile Bio-diesel Production and Education Central Carolina Community College will construct a mobile bio-diesel production and education facility to tour across the state, pulling up to most commercial locations that toss vegetable oil as waste and converting it onsite to bio-diesel to be used as fuel. The bio-diesel processing technology includes a storage vessel for waste vegetable oil, another for methanol or other alcohol, and another for lye or potassium hydroxide. On board will be appropriate mixing technologies to combine the catalyst with methanol to form methoxide, and a simple reactor to combine the methoxide with the used vegetable oil. The energy required for mixing the mixing of these reactions will be provided by an onboard bio-diesel powered generator. The creation of bio-diesel on the mobile processor will demonstrate recycling and renewable energy. Collateral educational materials that explain the benefits of bio-diesel will be developed and distributed.

Model Solar Fuel Cell Cars

The State Energy Office supports the North Carolina Solar Center efforts in the development and implementation of a program to provide middle school students across North Carolina with a hands-on opportunity to learn about transportation challenges facing us today. This program will be based on science, math, and chemistry skills combined with learning resources about renewable and sustainable energy while building a model fuel cell car with solar panel to compete in a statewide competition. This is a pilot program that will be developed for North Carolina students, implemented, evaluated, revised if necessary, and ready to be duplicated for future growth and expansion.

Petroleum Displacement Plans for State Agencies All State agencies, universities, and community colleges that have State-owned vehicle fleets must develop and implement plans to improve the State's use of alternative fuels, synthetic lubricants, and efficient vehicles. The plans will achieve a twenty percent (20%) reduction or displacement of the current petroleum products consumed by January 1, 2010.

 [Session Law 2005-276, Section 19.5](#)

Bio-fuels Links:

Renewable Transportation Fuels

 <http://www.nearbio.com>

 <http://www.fueleconomy.gov/feg/byfueltype.htm>

 <http://www.ethanolretailer.com/flex-fuel-station-finder/index.php>

 <http://www.biodiesel.org>

Alternative Energy Transportation Fuels

 <http://www.eere.energy.gov/afdc/fuels/>