



SUSTAINABLE ENVIRONMENT for QUALITY of LIFE



CLEAN CITIES PROGRAM

What is it?

Clean Cities is a voluntary program administered by the US Department of Energy that promotes, accelerates, and expands the use of alternative fuels in the transportation sector. Working through locally-based government and industry partnerships, the Clean Cities Program promotes the use of alternatives to traditional gasoline and diesel fuel. Alternative fuels can be produced domestically and include: biodiesel, electricity, ethanol, hydrogen, methanol, natural gas, propane, and solar energy. Virtually all of these fuel sources also have air quality benefits.

Costs

The costs associated with this program include staff time, as well as implementation costs. Assistance with the "incremental" cost of alternative fuels and vehicles may be paid for through currently available federal and state grant money. Additionally, private funding from fuel suppliers and vehicle manufacturers may often be leveraged for specific projects. Funding is typically awarded through a competitive process and is not guaranteed.

Shared Impact and Benefits

- Alternative fuels can help reduce emissions from mobile sources such as particle pollution and/or the precursors to ozone formation. As such, they can help to improve air quality.
- Improving air quality has a direct effect on health. Particle pollution, for example, is a likely carcinogen and ground-level ozone can cause severe coughing, shortness of breath, pain when breathing, lung and eye irritation, and greater susceptibility to respiratory illnesses.
- Use of domestically-produced fuels ensures that the money spent on fuels remains in this country. Additionally, jobs and expenditures related to fuel and vehicle production help to augment investment in the domestic economy.
- Some alternative fuels like ethanol, bio-diesel, and hydrogen come from renewable sources which further support agriculture and other industries.
- The region's shift from foreign to domestically-produced fuels would make the area less vulnerable to fluctuations in global petroleum prices.

How long does this take to implement?

Participation in the local Clean Cities Coalitions in our region can begin immediately by contacting the coordinator of the Palmetto State Clean Fuels Coalition in South Carolina or the Centralina Clean Fuels Coalition in North Carolina. Use of alternative fuel vehicles (AFVs) and alternative fuels will vary depending on availability of fueling infrastructure and fuels. Hybrid gas-electric vehicles are available today and need no special infrastructure for fueling or charging.



This Action Item can be implemented as a

- POLICY
- ORDINANCE
- PROGRAM

The Bottom Line

- Clean Cities will reduce dependence on foreign petroleum used for transportation fuels and can play a role in air quality improvement. Furthermore, a strong local AFV market will help create jobs in fuel production and vehicle manufacturing.
- Joining the coalition is voluntary and can be done at relatively low cost. Designated coalitions are exclusively eligible to apply for the millions of dollars of annual federal funding that support vehicle and infrastructure development. Additional state dollars often are available through the State Energy Offices.

Interested? Read on!



Who needs to be involved in implementation?

- Local governing board (to endorse program and to support policy for AFV use)
- Manager (to assign staff support)
- State and federal legislators
- Private, federal, state, and local fleets and fleet managers, especially those with access to central fueling
- Transit providers
- Fuel providers and distributors
- Vehicle manufacturers, including local dealers
- Chambers of Commerce and other groups representing the fuel, vehicle, and fleet industries
- MPOs and transportation/facility planners
- Interested individuals and citizen groups

Action Steps

1. Read the **Basic Information** section below and become familiar with the program.
2. Once a decision to become a stakeholder in the Clean Cities program is made, join by signing a voluntary and non-binding memorandum of understanding (MOU). See the attachment for copies of the Centralina and Palmetto MOUs.
3. Participate in a variety of working groups or the Core Planning Groups for the Clean Cities coalitions in our region as a means of becoming educated on the types of AFVs available and for assistance in deciding which alternatives make the most sense for your organization.
4. Set local goals outlined as they relate to alternative fuels based on what you hope to accomplish with the program and what fuels are most readily available to you. Some alternative fuels have greater impact on air quality; others have greater impact in supporting the domestic economy. Consensus on goals and purposes will help local organizations achieve their desired ends more quickly--and knowing what is available helps to avoid false starts.
5. Implement the program; most jurisdictions and organizations do this through an incremental approach as their fleets turn over.
6. Track the miles your AFVs log. If you are using a type of fuel that has significantly reduced NOx emissions, then your contribution to air quality can be calculated.

Resources

- Staff can expect to contribute 2-3 hours per month when working specifically on projects for their organization. Less time would be needed otherwise.
- Costs for implementation may include the installation of fueling infrastructure, the incremental cost of vehicles and, in some cases, the fuel. These costs will vary depending on the type of fuel used.
- Fuels available on state contract are more affordable for counties and municipalities, who are eligible to participate in state contract purchasing programs.
- Grants from state and federal government may help to pay for incremental costs in vehicles or to install fueling infrastructure.
- Other grant and funding opportunities can originate through court settlements or fuel provider/vehicle manufacturer incentives. Often this funding is channeled through industry associations. Examples include the National Ethanol Vehicle Coalition, original equipment manufacturers (OEM's), and the Propane Education and Research Council.
- In cases where fuels are cheaper than the gasoline gallon equivalent, the fuel provider is often willing to install fueling infrastructure that is paid back through a small increase in the fuel cost while still keeping the cost below that of gasoline.



Who's doing this?

-  Approximately 80 designated coalitions are active nationally (see map Page 5)
-  Centralina Clean Fuels Coalition based at Centralina Council of Governments in Charlotte, NC. Contact Jason Wager, Coordinator, at jwager@centralina.org
-  Palmetto State Clean Fuels Coalition based at Catawba Regional Council of Governments in Rock Hill, SC. Contact Wendy Bell, Program Manager, at wbell@catawbacog.org
-  Triangle Clean Cities Coalition in the Raleigh, NC region. See their web site at: <http://www.tjcog.dst.nc.us/cleancit/>

A listing of stakeholders in the region is included on Page 6. Any local government or organization can participate in the Clean Cities program as a member of a Coalition. Participation makes most sense for those organizations that have large, centrally-fueled fleets, because of the reduced cost of fueling infrastructure.

Basic Information

- The US Department of Energy (DOE) classifies the following as alternative fuels (common abbreviations are in parentheses):
 - ◆ Bio-diesel (b-20; 20% biodiesel/80% diesel),
 - ◆ Compressed Natural Gas (CNG),
 - ◆ electricity,
 - ◆ ethanol (e-85; 85% ethanol/15% unleaded),
 - ◆ Hydrogen,
 - ◆ Liquid Natural Gas (LNG),
 - ◆ Methanol (m-85), Propane (LPG), and
 - ◆ Solar Energy.
- Many AFVs are presently available for purchase from Original Equipment Manufacturers.
- Knowing the number of AFV's that currently exist in your jurisdiction and the alternative fueling stations in your area can facilitate fuel choices and speed implementation.
- Because this region is focusing on NOx and fine particle pollution (PM2.5), selecting fuels that have significantly reduced NOx or PM2.5 emissions will be particularly beneficial. Contact your local Clean Cities coordinator for more information on this topic.
- The Centralina Clean Fuels Coalition in North Carolina and the Palmetto State Clean Fuels Coalition in South Carolina have developed locally-endorsed goals and objectives regarding the promotion of AFVs. It is helpful to be aware of these goals and objectives when deciding if this program complements your local agenda. Contact the Clean Fuels Coalition Coordinators listed in the "For More Information" section for copies of these goals.
- Helpful Hints:
 - ◆ AFVs are not the single cure for ailing air quality. Each fuel can provide specific air quality benefits, so fuels need to be chosen with the local goals for specific pollutants in mind.
 - ◆ Some alternative fuels are available on state contract at a much lower price than retail gas or diesel or are simply cheaper than gas or diesel.
 - ◆ One of only 20 members in the National Alternative Fuels Training Consortium is located at York Technical College in Rock Hill. This provides superior access to AFV training and educational programs geared toward automotive trainers and technicians.

Tracking Progress

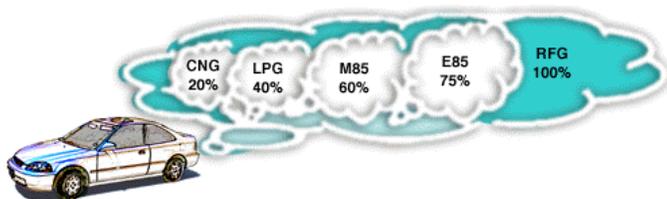
- **Let SEQL staff at the Council of Governments know when you have implemented this action by contacting Carol Lewis at 704-348-2730 or clewis@centralina.org so that we can document your progress.**
- Keep records of any new AFVs that are added to your fleet and report them to your local Clean Cities coordinator (see **For More Information** section). Even if these vehicles are not currently running on an alternative fuel (for example, Flexible Fuel Vehicles that run on unleaded fuel now and not ethanol), they can be considered as part of a potential market. Vehicles should be categorized into light (less than 8,500 lbs.), medium (8,500 to 26,000 lbs), and heavy-duty (greater than 26,000 lbs.) classes.
- Track any new alternative fueling stations in your community and record the quantity of fuel dispensed at existing sites.
- Let us know how many miles your AFVs travel and what type of fuel they use. We can calculate your contribution to emission reductions.



FAQ's

Q: Do alternative fuels offer any emissions benefits?

A: Yes, all the alternative fuels reduce ozone-forming tailpipe emissions. The image below shows the percentage of combined carbon monoxide (CO) and nitrogen oxide (NOx) emissions for each alternative fuel as compared to reformulated gasoline (RFG). For example, the emissions from CNG vehicles are estimated to be 20%, compared to 100% emissions from vehicles using RFG. CNG vehicles demonstrate an 80% reduction in ozone-forming emissions.



Q: What is a GGE?

A: A gasoline gallon equivalent (GGE) is the volume of alternative fuel it takes to equal the energy content of one liquid gallon of gasoline. The GGE is a way of comparing equivalent volumes of fuel based on their energy content in British Thermal Units (Btu). For example, the GGE of CNG is 123 CF and this volume of CNG has the same energy content as one gallon of gasoline (based on 929 BTU/CF of CNG and 114,264 Btu/gallon of gasoline). Since the

other alternative fuels are liquids at room temperature, their Btu is based on the energy in one liquid gallon and there is no need for a conversion or GGE. This is important when you're investigating alternative fuels, because they are not all sold using the same unit of measurement.

Q: What is the average price at the pump?

A: Like gasoline and diesel, the price of alternative fuels fluctuates in accordance with outside factors, such as international economic changes and supply and demand. The accessibility of alternative fuels is regional, and geographic location can greatly affect the price at the pump. Propane, for example, is generally less expensive in southern states that have easy access to the Dixie pipeline; natural gas is more economical in urban areas; and ethanol producers tend to sell their fuel in the Midwest to cut down on fuel transportation costs. Since LPG and CNG are also used outside the transportation sector, it is difficult to isolate the price charged for vehicle refueling. More detailed information on the price of alternative fuels can be obtained through the *Alternative Fuels Price Report*, fuel associations, or the Energy Information Administration. Average prices compared to gasoline:

Gasoline	CNG	LNG	E85	LPG	M85	B-20
\$1.00	Varies	more	more	less	less	more

Note: Often operation and maintenance costs over the life of vehicles using alternative fuels is often less. Reasons for this could include greater lubricity, less frequent oil changes, cleaner running systems, etc.

For More Information

Information on the web:

- The National Clean Cities home page: <http://www.cities.doe.gov/>
- The Alternative Fuels Data Center: <http://www.afdc.doe.gov/>
- The Vehicle Buyer's Guide: <http://www.cities.doe.gov/vbg/>
- The Energy Information Administration: <http://www.eia.doe.gov/fuelalternate.html>

Local contacts:

 Jason Wager
 Coordinator, Centralina
 Clean Fuels Coalition
 PO Box 35008
 Charlotte, NC 28235
 Ph: 704-348-2707,
 fax: 704-347-4710
 Email:
jwager@centralina.org
 Website:
<http://4cleanfuels.org/>

 Wendy Bell
 Coordinator, Palmetto
 State Clean Fuels Coalition
 P.O. Box 450
 Rock Hill, SC 29731
 Ph: 803-327-9041,
 fax: (803) 327-1912
 Email:
wbell@catawbacog.org
 Website: <http://www.state.sc.us/energy/>

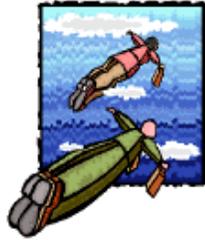


Intersecting Interests



AIR AWARENESS

A fleet of clean burning alternative fuel vehicles provides a highly visible presence that illustrates to the public an organization's commitment to improving air quality.



CLEAN AIR POLICY

Clean air policies are often most successful when supported by a stakeholder group that develops local air quality improvement strategies for implementation. Clean Cities offers a developed program that an organization can join and participate in with relative ease.



ENHANCED OZONE AWARENESS

Some fuels offer NOx reduction benefits. This is important since NOx is a precursor to ozone formation.



EFFICIENT PARKING

Employers may reserve prime parking spaces for those driving alternative fuel vehicles.



Prepared by

Centralina Council of Governments

in collaboration with

Catawba Regional Council of Governments

January, 2004.



* Connecticut Clean Cities Include:
 - New Haven
 - CT Southwestern Area
 - Capitol Clean Cities of CT
 - Norwich

Map Date: 10/01/03



DOE Alternative Fuels Data Center

**Centralina Council of Governments
Clean Fuels Coalition
Stakeholder Organizations**

- Alternative Fuel Solutions
- American Society of Chemical Engineers
(Carolinas Chapter)
- Bank of America
- Blossman Gas
- Cabarrus-Rowan MPO
- Carolinas Clean Air Coalition
- Centralina Council of Governments
- Charlotte Area Transit System
- Charlotte DOT
- City of Charlotte
- City of Concord
- City of Gastonia
- City of Monroe
- Duke Energy
- Gaston County Schools
- Gaston Urban Area MPO
- General Services Administration
- Hendrick Honda
- Mecklenburg County
- Mooresville-South Iredell Chamber of
Commerce
- National Ethanol Vehicle Coalition
- North Carolina Cooperative Extension
- North Carolina DENR-Division of Air Quality/
Mooresville
- North Carolina DENR-Division of Air Quality/
Raleigh
- North Carolina Department of Administration
- North Carolina Division of Air Quality
- North Carolina Motor Fleet Management
- North Carolina State Energy Office
- Parker Media, Inc.
- Piedmont Natural Gas
- Rowan County
- Step-Back Tours
- Town of Marshville
- Town of Mooresville
- Town of Oakboro
- Town of Troutman
- UNC-Charlotte Environmental Sustainability
Task Force
- Union County
- Voices and Choices of the Central Carolinas
- Western Piedmont Council of Governments
- World Energy
- York Technical College

(For the most current list
www.4cleanfuels.org/stakeholderlist.asp)

**Catawba Regional
Council of Governments
Stakeholder Organizations**

- Aiken Electric Cooperative
- Alternative Fuels Solutions, LLC
- Brandi Petroleum
- Catawba Regional Council of Governments
- Central Midlands Council of Governments
- Central Midlands Regional Transit Authority
- City of Lancaster
- City of Rock Hill
- City of Tega Cay
- Culp Petroleum
- Duke Energy
- KC Fuels, LLC
- Lancaster County
- Lower Savannah Council of Governments
- Mark Hall
- Palmetto Propane
- South Carolina Corn & Soybean Association
- South Carolina Energy Office
- South Carolina Department of Agriculture
- South Carolina Department of Health
and Environmental Control
- South Carolina Department of Transportation
- South Carolina Soybean Board
- South Carolina State Fleet Management
- South Carolina State Museum
- Sustainable Universities
- The Public Policy Group
- Town of Fort Mill
- United Energy Distributors
- United States Postal Service
- University of South Carolina
- University of South Carolina—Sustainable
Universities
- York County
- York County Natural Gas Authority
- York Technical College