

# Clean Cities Now

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*Clean Cities Now* ([www.eere.energy.gov/cleancities/ccn](http://www.eere.energy.gov/cleancities/ccn)) is the official publication of *Clean Cities*, an initiative of the U.S. Department of Energy designed to reduce petroleum consumption in the transportation sector by advancing the use of alternative fuel vehicles, idle reduction technologies, hybrid electric vehicles, fuel blends, and fuel economy.

## Clean Cities 2006 Petroleum Displacement up 50% from 2005

The results are in: Clean Cities coalitions displaced 375 million gallons of gasoline in 2006—a 50% increase over 250 million gallons in 2005. This statistic is just one of many revealed in the Clean Cities Annual Metrics Report for 2006, which will be published this summer.

Of Clean Cities' five technology areas, alternative fuels and vehicles accounted for the largest share (71%) of the total displacement. Their use reduced consumption by 268 million gallons in 2006—a 64% increase over 165 million gallons displaced in 2005. Coalitions reported an inventory total of 408,000 alternative fuel vehicles (AFVs) in 2006—the majority of them (54%) are E85-capable flexible fuel vehicles.

Compressed natural gas (CNG) topped the list of alternative fuels in 2006, making up 30% of the total displacement from AFVs. As usual, the majority of the CNG was used in heavy-duty vehicles.

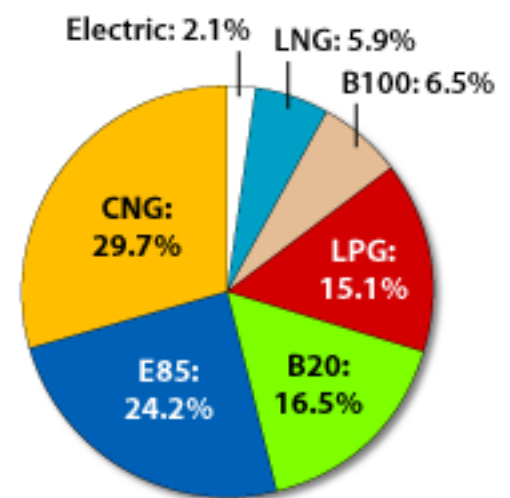
The use of E85 grew substantially in 2006, accounting for 24% of total gasoline displacement from AFVs. The increased usage can be attributed in part to growth in the number of E85 stations, which doubled between 2005 and 2006 (growing from 436 to 995). Use of B20 and liquefied petroleum gas (LPG) accounted for 17% and 15% of the displacement from AFVs, respectively, in 2006.

Fuel economy measures taken by coalitions displaced 7.4 million gallons in 2006. Of that, 1.9 million gallons resulted from reductions in vehicle miles traveled, while the remaining 5.5 million gallons came from five coalition projects that replaced lower fuel economy vehicles with those of higher fuel economy.

Idle reduction efforts displaced 8.4 million gallons in 2006, down from 15 million gallons in 2005. Of this, on-board idle reduction technologies displaced 1.3 million gallons, and truck stop electrification displaced 1.2 million gallons. The remaining 5.9 million gallons were attributed to the implementation of idle reduction policies.

The use of low-level fuel blends, such as E10, B2, and B5, soared in 2006, displacing 10 million gallons, up from 3 million gallons in 2005. The bulk of this displacement (9 million gallons) came from E10. The use of B2 and B5 in diesel vehicles displaced 1 million gallons.

The acquisition of hybrid electric vehicles (HEVs) also increased in 2006. Coalitions reported almost 44,000 HEVs—a 61% increase over the 17,100 HEVs purchased in 2005. HEV use resulted in the displacement of approximately 9 million gallons of gasoline, a 137% increase over the 3.6 million gallons in 2005.



In 2006, coalitions displaced 268 million gallons of gasoline using alternative fuels. This chart shows the breakdown by fuel type.

"Clean Cities made significant progress in 2006," says Dennis Smith, Clean Cities director of technology deployment. "The displacement of 375 million gallons of gasoline shows an impressive level of commitment on the part of our coordinators and stakeholders."

## Coalition News

### **Biodiesel Production Could Help Preserve Virginia Wetlands**

The Hampton Roads Clean Cities Coalition (HRCCC) recently completed a feasibility study that investigates ways biodiesel could help preserve the Dragon Run Watershed, a 140-square-mile, sensitive wetlands area in the Middle Peninsula of Virginia.

HRCCC was contracted by the state's Middle Peninsula Planning District Commission (MPPDC), which is exploring ways to protect the wetlands. The commission's main goal is to keep farmers surrounding the wetlands in business in part by creating a higher-paying market demand for their crops. Building a local biodiesel market could help area farmers earn a higher return and theoretically deter them from eventually selling their land to developers.

In its feasibility study, HRCCC evaluates the market viability of biodiesel in the area and presents recommendations based on survey summaries and stakeholder interest in the alternative fuel.

"We are hoping area fleets will adopt biodiesel as a cleaner alternative to diesel and a domestic product in support of farmers," says Chelsea Jenkins, HRCCC coordinator. "We are also looking at how the Middle Peninsula farmers can benefit from biofuels growth in Virginia and the ways they can become involved in the process."

MPPDC is currently reviewing the study and will work with HRCCC to develop a partnership framework for implementing the primary goal. A path will be selected for short- and long-term implementation of biodiesel use, sales, and production.

### **100 Attend Tri-Coalition Idle Reduction Conference**

Three Midwestern coalitions teamed up in early May to host Idle Less, \$ave More, an idle reduction conference in Willowbrook, Ill. The joint event was organized by Clean Cities' Chicago, South Shore (Indiana), and Wisconsin coalitions. These three coalitions make up the Lake Michigan Clean Cities Consortium, which was started in 1999.

More than 100 attendees participated in the one-day event, which featured seminars on idling laws and voluntary policies, idle reduction equipment options and funding opportunities, and success stories.

The Consortium is pleased with the outcome, says South Shore Clean Cities coordinator Carl Lisek. "All three of our coalitions have hosted our own separate idle reduction conferences in the past, but we feel this collaboration was an excellent way to pool our resources."



Farming biodiesel crops could help preserve a sensitive watershed area in Virginia.

Photo contributed by Bob Allen



Educating truckers and station owners is key to expanding the use of idle reduction technologies in the U.S.

Photo contributed by NREL

According to Lisek, the Consortium marketed this year's event by sending press releases to all three coalition membership lists, getting local radio stations to provide public service announcements, and working with state partners. The group will take a similar approach for its 2008 idle reduction conference.

To view presentations from the conference, visit the [Smart Idle](#) Web site.

## **Tucson Recognized with EPA Award**

In mid April, Arizona's Pima Association of Governments (PAG) received a U.S. Environmental Protection Agency (EPA) award in recognition of its efforts "to protect the Earth" in 2006. PAG is home to the Tucson Clean Cities coalition.

In a press release announcing the award winners, EPA applauded PAG's environmental planning team, which organized and facilitated committees to preserve air quality, watershed and wildlife areas, and those that protect against invasive species. In particular, EPA noted Tucson Clean Cities as being "highly successful in raising awareness of the value of alternative fuels."

Thirty-eight organizations received EPA's Environmental Awards at the Region 9 ceremony in San Francisco. Region 9 includes California, Arizona, Nevada, Hawaii, and the Pacific Islands. Recipients were nominated by citizens living in Region 9. For a complete list of winners, see the [EPA Web site](#).

## **In Other Tucson News ...**

Tucson Clean Cities Coordinator Colleen Crowninshield worked with the local Metropolitan Energy Commission to develop a four-color, 20-page insert that ran in the April 12 issue of the *Arizona Daily Star*.

Titled "New Energy: Opportunities and Solutions for Southern Arizona," the comprehensive supplement educates readers about renewable technologies in the areas of transportation, solar, and wind. Two pages of the supplement are dedicated to Clean Cities and alternative fuels.

"This was a wonderful opportunity to reach a large, diverse audience and drum up enthusiasm for renewable energy," says Crowninshield. "It was also a great way to connect with area environmental groups. Hopefully this experience will lead to other cooperative projects."

## **GM Rewards 52 Coalitions**

General Motors (GM) announced the recipients of its 2007 Clean Cities Rewards at the Alternative Fuels and Vehicles National Conference in April. Fifty-two coalitions received grants, which are awarded based on E85 and compressed natural gas (CNG) vehicle sales and station installation, fleet participation in GM-sponsored functions, and GM Certified AFV Dealer involvement.

GM named Houston-Galveston Clean Cities as its 2007 top-performing coalition, awarding it with a \$10,000 grant. Chicago Clean Cities received \$5,000, and Clean Fuels Ohio and Virginia Clean Cities each received \$3,000. In addition, 19 coalitions received \$2,000 grants, and 29 coalitions received \$1,000. According to GM, the goal is to reward coalitions that are truly "moving the needle" toward E85 and CNG vehicle sales.

For a complete list of reward recipients, visit the [GM Web site](#).

## Program News

### **Business Case Helps Station Owners Evaluate E85 Profitability Potential**

The National Renewable Energy Laboratory (NREL) is developing a new report to help fueling station owners decide whether to sell E85.

The E85 Retail Business Case will assess the current state of the fueling industry, identify industry challenges, and offer innovative strategies to help station owners better compete in the E85 market.

The report will also compare the profitability of various equipment configurations and the relative effects that costs (e.g., maintenance and operation) and expected return on investment have on an E85 project. In addition, the document will offer guidance on how retailers can assess potential throughput and possible margins to be made on E85. Look for the E85 Retail Business Case on the [Alternative Fuels Data Center](#) (AFDC) Web site this summer.

As a companion to the report, NREL is developing an online tool station owners will use to calculate the margins they need to meet their E85 investment goals. The tool will be available on the AFDC Web site in 2008.

## Industry News

### **Roush Takes Orders for Liquid Propane Ford F-150**

As an alternative fuel, propane has a lot going for it. It is abundant as a by-product of petroleum and has a network of more than 4,000 U.S. dispensing facilities installed at regular gasoline stations to service auxiliary tanks on recreational vehicles. And now, [Roush Industries](#) has developed a high-performance liquid propane gas (LPG) system for the popular Ford F-150 light-duty truck.

Tom Arnold, Roush director of alternative fuel products, explains that keeping the fuel liquid until it is injected into the intake port is what makes the new system so effective. Roush engineered this new system to operate at high pressure to keep the fuel in the liquid phase. There is no degradation in power compared to gasoline, and the liquid injection avoids residue deposits that sometimes form in vapor-phase systems. A flow-limiting solenoid in the fuel-vapor return line allows for easy starting (which is engine-controlled to minimize emissions) even when the vehicle has been in the hot sun.

Roush's LPG F-150 is now undergoing certification review by the California Air Resources Board and the U.S. Environmental Protection Agency. In anticipation of certification, Roush is accepting orders for September delivery. The vehicles can be acquired through a set of approved Ford dealerships throughout the country (about one in 10; call 800-59-ROUSH for locations). Participating dealerships must obtain appropriate state certification or licensing to sell and perform repair work on the LPG trucks.

Based on survey responses from potential purchasers, Roush is offering two fuel-tank options in the LPG F-150s: a 22-usable-gallon tank and a 50-usable-gallon tank. The vehicles are available in all variations of the F-150. Ford provides the vehicles near the end of its assembly line; Roush makes the necessary installations



Roush is taking orders for a September 2007 delivery of the LPG Ford F-150, which comes in two fuel-tank options.

Image contributed by Roush

at its Livonia, Mich., plant and returns them to Ford. Although approved Ford dealerships will sell and service the vehicles, Roush has full responsibility as the manufacturer of record and is doing the marketing.

The LPG vehicles cost about \$6,500 more than their gasoline counterparts, but Arnold says purchasers can take advantage of tax credits that can help them recover the added expense in as little as a year. The vehicles are currently eligible for a \$2,500 alternative fuel vehicle (AFV) tax credit and, if the owner is eligible, a \$0.50/gallon alternative fuel credit.

“The government has quite effectively helped remove the three key barriers to commercialization of AFVs: vehicle cost, fuel cost, and fueling facilities,” Arnold says. In addition to the vehicle and fuel tax credits, there is now a tax credit program for alternative fuel fueling facilities. Arnold also points out that LPG retailers may be willing to provide fleets with a fueling skid without charge for as few as five vehicles with a long-term fuel contract.

Development of the LPG F-150 was initiated by a \$1.1 million grant from the Propane Education Research Council. Eight vehicles will be available to fleet managers for “extended test drives.” Two of them have already been assigned to fleets in California and Georgia. If you are interested in testing one of the remaining six trucks, contact [Arnold](#) or [Greg Zilberfarb](#).

For more information on the propane F-150, visit the [Roush](#) Web site.

## Success Story

### Garbage Fumes Fuel LNG Transit Buses

Washington-based Prometheus Energy and Bowerman Landfill in Orange County, Calif., are turning landfill gas (LFG) into liquefied natural gas (LNG) that will soon be used power local transit buses and garbage trucks.

Completed in December 2006, the new plant—the first of its kind—is currently producing about 1,000 gallons of LNG per day and expects to increase daily production to 5,000 gallons during its first phase. At this production level, the plant will reduce carbon dioxide output by the equivalent of 10,000 tons per year.



OCTA transit buses will use all the LNG produced by Bowerman Landfill in Orange County, Calif.

Photo contributed by Prometheus Energy

As landfill materials decompose, methane is generated. If allowed to escape, methane is 23 times as potent a greenhouse gas as carbon dioxide. Therefore, air quality regulations require landfills to flare the methane if not put to use. Flaring options include burning methane to generate electricity or purifying it to add to natural gas pipelines. However, if landfills are in areas where electricity is inexpensive or far from electric transmission lines and gas pipelines, landfill gas can economically be converted to liquid transportation fuel.

Such is the case for Bowerman Landfill, which is located just five miles from the Orange County Transit Authority (OCTA). The two organizations formed a partnership—Bowerman will produce the fuel and OCTA, which is already running its buses on LNG, will use it.

All told, OCTA now uses about 13,000 gallons of LNG per day. It will soon use all the LNG produced at the Bowerman plant. The rest of OCTA’s LNG will continue to be supplied by other manufacturers.

Although Bowerman currently produces only 1,000 gallons of LNG per day, it generates enough LFG to make about 50,000 gallons of LNG per day. Prometheus is actively seeking grants to eventually increase production

to 40,000 gallons per day in subsequent phases (it is already permitted to do so). The company hopes to take on other fuel customers as the project continues.

Prometheus is approved to proceed with another LFG-to-LNG project in Sacramento. In this case, the fuel produced will be used in garbage trucks hauling waste to the landfill and by other municipal and private fleets. The project is being made possible by a \$549,000 Clean Cities grant. Prometheus is an active member of the Puget Sound coalition and a member of its steering committee.

For more information, contact Prometheus Energy at 206-267-0800.

## EPAct Update

### **Federal Fleets Face New Executive Order, EPAct Requirements**

A new executive order and recent legislation now require federal agencies covered under the Energy Policy Act ([EPAct](#)) of 1992 to further increase the use of alternative fuels and decrease petroleum in their fleet vehicles.

Signed by President Bush in January 2007, Executive Order (E.O.) 13423 requires agencies with 20 or more vehicles in the U.S. to decrease petroleum consumption by 2% per year (relative to their fiscal year [FY] 2005 baseline) through FY 2015. In addition, the mandate requires agencies to increase alternative fuel use by 10%, compounded annually based on their FY 2005 baseline use.

E.O. 13423 revokes E.O. 13149, which was signed by former President Clinton in 2000 and required agencies to reduce their petroleum consumption by 20% relative to their FY 1999 baseline. E.O. 13149 also required agencies to increase fuel economy by 3 miles per gallon. Only one federal agency, NASA, met the 20% reduction goal. However, as a result of the Order, federal agencies used a total of 36.6 million gasoline gallon equivalents (GGE) of alternative fuel between FY 2000 and FY 2006.

In addition to E.O. 13423, federal agencies must comply with Section 701 of EPAct 2005, which requires the use of alternative fuels in all dual-fuel vehicles the majority of the time. Applicable fuels include E85 in flexible fuel vehicles and compressed and liquefied natural gas or propane in bi-fuel vehicles.

Under Section 701, fleets can apply for a waiver from this requirement if alternative fuel is not reasonably available (within a 15-minute drive or five miles) or is unreasonably expensive (costs 15% more than gasoline on GGE basis). Only one waiver is granted per agency and the waiver is applicable for one year.

Agencies that receive waivers are required to spend their waiver year finding ways to make alternative fuel readily available. This includes building on-site infrastructure, partnering with local Clean Cities coalitions or state or federal fleets to install fueling sites, or encouraging local station owners to sell alternative fuels.

For more information on E.O. 13423 or Section 701, visit the [Federal Fleet](#) Web site.

## International News

### **Sweden's BEST Program Ramps up Ethanol Use in Cars and Buses**

Brazil and the United States are widely known for ethanol production. However, Sweden is giving these countries a run for their money. Thanks to strong leadership in the city of Stockholm and funding from the European Union, Sweden is doing its "best" to use ethanol to help meet transportation fuel needs.

In this case, "best" stands for the Bioethanol for Sustainable Transportation (BEST) project, which seeks to put 10,000 ethanol cars and 160 ethanol buses into operation in four years. The program, which is now in its second year, is sponsored by the European Commission.

For years, Northern Sweden has been producing ethanol from a sugar-and-water solution generated as a residual by paper mills. The City of Stockholm has been using that ethanol (and some made from wheat and Brazilian imports) to power its fleet of more than 300 diesel transit buses.

That's right, sugar from paper mills and ethanol in diesel engines—two things unheard of in the United States. Stockholm bus engines have minor modifications and an ignition enhancer is added to the ethanol to increase compression, but the nearly pure ethanol-powered buses get efficiency close to those that run on diesel.

Wanting to share its success with ethanol, the City of Stockholm approached the European Commission, and the BEST program was born. Jonas Ericson, who works for the City of Stockholm and is the driving force for the program, credits BEST with changing the whole discussion in Europe. "Two years ago, ethanol was barely known in Europe," he says. "Biodiesel was the only biofuel. Now ethanol will be a major part of the energy strategy in Europe."

Participating cities and regions now include Northern Sweden, Somerset in the United Kingdom, Rotterdam in the Netherlands, the Basque Country and Madrid in Spain, La Spezia in Italy, Nanyang in China, and Sao Paulo in Brazil. Saab, Volvo, Renault, Peugeot, Citroen, Volkswagen, and Ford are all producing vehicles similar to U.S. E85-capable flexible fuel vehicles for the European market. Brazil is testing ethanol-fueled Toyota Prius hybrids and Scania buses, which are now in their second generation. Ericson says the goal is to make the market big enough to draw even more manufacturers.

E10 is also being tested in the region. Although this is a step in the right direction, "Europe cannot reach its targets with low-blends only," Ericson says. "It will also need people using their alcohol neat."

In the interest of peer-to-peer information exchange, Ericson attended the Alternative Fuels and Vehicles Conference and Expo in April and invites coordinators and stakeholders to attend Stockholm's [Clean Vehicles and Fuels Symposium and Expo](#) in November.

## **New Resources**

### **[Alternative Compliance: Guidelines for Preparing and Submitting a Waiver Request](#)**

This comprehensive document offers guidance on how to participate in the U.S. Department of Energy's (DOE) new Alternative Compliance option, which is available to state and alternative fuel provider fleets covered under the Energy Policy Act of 1992's Alternative Fuel Transportation Program. A companion [tutorial](#) is also available. The five-module training series breaks the guidance into easy-to-understand, bite-sized pieces.

### **[Compare Old and New MPG Ratings](#)**

Use this new section on the FuelEconomy.gov Web site to see how the current fuel economy standards compare with new standards that go into effect in 2008. Compare vehicles by inputting the model and the year it was made.

### **[Understanding and Implementing BQ-9000 Training Seminars](#)**

The National Biodiesel Board is hosting training sessions to teach biodiesel producers and marketers how to implement the BQ-9000 quality management system requirements. Three sessions are still available in 2007: Winnipeg, Canada, in July; Boston in August; and Las Vegas in October.

## **Freedom Fuels**

This documentary about renewable fuels is available to download for free. Shown at the Sundance Film Festival and featuring celebrities such as Daryl Hannah and Willie Nelson, the film was downloaded 15,000 times within two weeks of being posted.

### **A Strong Energy Portfolio for a Strong America**

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**U.S. Department of Energy**

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