Fuel-Efficient and Alternative-Fuel Vehicles Community Stories and Snapshots

These community stories and snapshots were compiled in May and June 2010. They were prepared with generous support from AAA Northern California, Nevada & Utah. Additional information and resources are available at www.ca-ilg.org/greeningfleets.

1) Community: Alameda County
Population: 1,574,857

Summary

Since joining the Cool Counties program in 2002, Alameda County has integrated alternative-fuel and fuel-efficient vehicles into its fleet. The County added over 130 hybrid vehicles and explored a variety of alternative technologies, including bio-diesel, waste vegetable oil, compressed natural gas, and electric vehicles. The County is also developing a Consolidated Vehicle Use policy to provide detailed guidance for use of green vehicles, consistent with its Climate Action Plan.

Program Highlights

- The county's actions include exploring multiple strategies and technologies.
- Fleet includes over 130 hybrid vehicles and four waste vegetable oil vehicles.
- Approaching goal of 80 charging stations at county facilities for electric vehicles.

Lessons Learned

- Developing program includes a bit of "trial and error" in exploring different technologies to see which are a good fit.
- An important part of developing a program to purchase alternative-fuel vehicles includes promoting using alternative-fuel vehicles.

Resources to Learn More

- Draft Consolidated Vehicle Use Policy
- Transportation Services Major Accomplishments for FY 2009-2010
- Alameda County Sustainable Transportation Web page www.acgov.org/sustain/what/transportation/

- Alameda County Climate Action Plan
  www.acgov.org/sustain/what/climate/plan.htm
- Alameda County Strategic Vision
  http://www.acgov.org/strategic.htm

The Rest of the Story…

Alameda County's initial green fleet efforts were guided by several broad policy initiatives. Alameda County joined the Cool Counties program in 2002 and developed a countywide Strategic Vision in 2007. In May of 2010, the county adopted its Climate Action Plan, which includes general "green fleet" guidance. The county's Draft Consolidated Vehicle Use Policy parallels the policies in the Climate Action Plan, including detailed guidance for purchasing alternative-fuel and fuel-efficient vehicles.

The county has explored a variety of different alternative-fuel technologies, including compressed natural gas, bio-diesel, electric vehicles, and hybrids. Its fleet includes over 130 hybrid electric vehicles and four cars with engines converted to run on waste vegetable oil. The county has fueling stations for bio-diesel and regular gasoline and is nearing its goal of 80 charging stations at county facilities for electric vehicles.

Alameda County looks at the costs and benefits associated with the entire life cycle of a vehicle to evaluate potential vehicle purchases. This approach often finds that the greater fuel efficiency of alternative-fuel vehicles, such as hybrids, outweighs the higher initial purchase price. It also allows the benefits of reduced emissions to be included in the analysis.

The county is also working to reduce demand for its alternative-fueled vehicles by providing alternatives to driving for many of its employees. It offers two shuttle buses that run between its main office campuses in Oakland and its offices in San Leandro. The shuttles are open to the public, connect with local transit, and replace two transit lines that had been canceled due to funding cuts.

2) Community: Contra Costa County
Population: 170,310

Summary

Contra Costa County's fleet consists of vehicles that use different alternative fuels, including bio-diesel and compressed natural gas (CNG), as well as hybrids and "flex-fuel" vehicles that can use gasoline and ethanol. The county's fleet includes 112 flex-fuel vehicles, 140 hybrids, and 46 CNG fueled vehicles. Contra Costa County's Alternate Fuel and Vehicle policy provides guidelines for using or buying alternate fuel vehicles and alternative fuels for county agencies. Implemented in 2003, the policy has resulted in the conversion of about 25 percent of the county's fleet. The county has incorporated its alternative fuel vehicle initiative into the Municipal Climate Action Plan it adopted in 2008.

Program Highlights

- Alternative-fuel or hybrid vehicles comprise about 25% of the county fleet.
- Alternative fuels used include bio-diesel, CNG, propane, and electric.
- The county shifted one of its three diesel-fuel stations to bio-diesel in 2006. All diesel vehicles in the fleet use bio-diesel when they refuel at this station.
- County has fueling facilities for bio-diesel and CNG and is planning to add an ethanol facility.

Lessons Learned

- A decision to purchase alternative-fuel vehicles requires consideration of a variety of factors. These include the purchase cost, fuel efficiency, cost and availability of fuel sources, level of emissions produced, and the availability and cost of service and repair facilities.
- Bio-diesel is comparable in cost to standard diesel, but produces lower emissions.
- Public safety "pursuit" vehicles that run on either ethanol or gasoline (known as "flex-fuel" vehicles) meet the same performance standards as pursuit vehicles that use only gasoline. However, flex-fuel vehicles operated on ethanol generally are 20-25 percent less fuel-efficient.

Resources to Learn More

- Contra Costa County Administrative Bulletin 508.2
- Contra Costa County Department of General Services Fleet Management Division (925) 313-7071

- Municipal Climate Action Plan
  www.co.contra-costa.ca.us/DocumentView.aspx?DID=2905

The Rest of the Story…

The Contra Costa County Alternate Fuel and Vehicle policy includes guidelines for consideration of alternate fuel vehicles and fuels for use or purchase by county agencies. The policy considers vehicles using compressed natural gas (CNG), electricity, fuel cells, or hybrids whenever possible. Implemented in 2003, the policy has spurred acquisition of hybrids, bio-diesel, and CNG fueled vehicles for the county fleet. The county has incorporated its alternative-fuel vehicle initiative into the Municipal Climate Action Plan it adopted in 2008.

While the county's policy includes an exemption for emergency vehicles, the Sheriff Department uses many alternative-fuel vehicles, including hybrids for both administrative and undercover work. Additionally, the department uses several patrol and pursuit vehicles that run on either ethanol or gasoline (known as "flex-fuel" vehicles). When it evaluated the difference between regular and flex-fuel vehicles, the county found no difference in performance, but noted a 20-25% decrease in fuel economy while using E-85 ethanol.

In 2006, the county's diesel vehicles began using bio-diesel and now use B-5 bio-diesel, which is diesel with at least 5 percent content from a biological source, such as soybeans. The switch required no modifications to the vehicles or fuel dispensing equipment other than more frequent fuel filter changes and a thorough scrubbing of the fuel storage tank before switching over to bio-diesel.

Contra Costa County has fueling facilities for bio-diesel, compressed natural gas, and plans to add ethanol facilities. To support the use of alternative-fuel vehicles more broadly, the county makes these fueling facilities available to other local public agency fleets.

3) Community: Solano County
Population: 427,837

Summary

The Solano County Low-Emission Vehicle and Fleet Policy requires the county to buy low-emission vehicles whenever practical. The county has bought over 130 green vehicles for its 480 car and light-duty vehicle fleet. It installed a 10,000 gallon above-ground storage tank for E-85 ethanol (which is 85% ethanol) and is emphasizing buying vehicles that use E-85 fuel. The county funds its green fleet program through fees charged for use of vehicles by county departments and some other public agencies.

Program Highlights

- County Board of Supervisors approved policy requiring purchase of green vehicles where practical.
- Emphasis on vehicles that use E-85 ethanol reduces dependence on foreign oil.
- On-site fuel storage creates economies of scale that reduce overall costs.
- Other public agencies, such as cities and schools in Solano County, pay fees to use the county's fleet vehicles.
- Approximately 28 percent of the county's fleet are green vehicles.

Lessons Learned

- Patience is important as implementing new ideas often involves learning to work with new and different partners.
- Policies and procedures for implementing new ideas initially may not be fully developed, and partners and regulatory agencies may need time to adapt.
- Securing planning and regulatory approvals for fuel storage facilities can be a lengthy process, but can provide long-term benefits.

Resources to Learn More

- Solano County Department of General Services (707) 784-7900
- Solano County Low-Emission Vehicle and Fleet Policy

The Rest of the Story…

The Solano County Board of Supervisors approved the county's Low-Emission Vehicle and Fleet Policy in 2005. The policy was adapted from a "model" policy provided by the Yolo-Solano Air Quality Management District. The county's policy requires purchase of low-emission vehicles whenever practical and an annual report on the program's progress. As of May 2010, 146 of the county's 480 vehicle fleet were green vehicles. These include four neighborhood electric vehicles, 24 hybrids, and 110 E-85 ethanol fueled vehicles.

In implementing the policy, the county emphasized E-85 ethanol-fueled vehicles. It installed a 10,000 gallon above-ground storage tank for the E-85 fuel. This strategy allows the county to acquire fuel at lower and more stable rates through bulk purchase contracts, while reducing dependence on foreign sources of oil. A key issue for others considering a similar strategy is to recognize that securing the necessary planning and regulatory approvals for such a facility can be a lengthy process. For example, Solano County began developing the above ground storage facility in 2005; it became operational in 2010.

Solano County funds purchase of low-emission vehicles through its regular vehicle replacement program. Funds include fees charged for use of county vehicles by county departments. Also certain other public agencies arrange to use the county's fleet, thus providing revenue to support the program. These "outside" agencies include the Solano Community College District, the Solano Superintendant of Public Instruction, and the cities of Dixon, Suisun, and Rio Vista.

4) Community: Culver City (Los Angeles County) Population: 40,657

Summary

The City of Culver City began converting its fleet from primarily diesel and gasoline to compressed natural gas (CNG) in 1998. In 2010, the city's fleet includes 605 on-road and 15 off-road vehicles used by all city departments. A newly remodeled and expanded CNG fueling station supports the CNG vehicles. Federal grants and regional air quality funding sources provide funding for vehicle purchases and construction of the fueling facilities.

Program Highlights

- Compressed Natural Gas fleet acquisition started in anticipation of the South Coast Air Quality Management District's new fleet rules.
- The city's Equipment Maintenance and Operations facility was completed in 1999. It provides a full service facility with staff trained to maintain the more complicated CNG equipment technology.
- In 2009, Culver City received national recognition for its green fleet accomplishments.

Lessons Learned

- To be successful, conversion to alternative-fueled vehicles needs political support.
- Alternative-fuel vehicles have a higher capital expense, but the long term benefits, especially fuel cost savings, outweigh the costs.
- A full service maintenance facility provides support to the alternative-fueled fleet.
- Outside funding from air quality programs helps reduce the agency's upfront costs to purchase alternative-fuel vehicles and support infrastructure. Planning ahead to apply for these grants and other funds is important to ensure success.

Resources to Learn More

- Culver City Transportation Department (310) 253-6520
- Mobile Source Air Pollution Reduction Committee (MSRC) Info Center www.cleantransportationfunding.org/?fa=info-otherprograms
- "*CNG Fuels 'Green' Victory for Culver City*", Government Fleet Magazine, January 2010. www.government-fleet.com/Article/Story/2010/01/CNG-Fuels-Green-Victory-for-Culver-City.aspx

- "*Natural Gas Vehicles*", Southern California Gas Company, 2009. www.culvercity.org/Government/~/media/Files/Transportation/SCG_CaseStudy_CulverCityBus.ashx

The Rest of the Story…

In 1998, the City of Culver City began the conversion of its fleet vehicles from gasoline and diesel to compressed natural gas (CNG). CNG is the city's fleet fuel of choice because the fuel was determined to be readily available, is cost effective, produces lower emissions, and reduces dependence on foreign oil.

The city currently has 605 on-road and 15 off-road CNG-fueled vehicles including refuse and public works trucks, transit buses, standard autos and other fleet vehicles. In 2004, Culver CityBus became the second 100 percent CNG-fueled transit system in the state. Approximately 80 percent of the city's refuse fleet is CNG-powered; 20 percent runs on diesel fuel. Eighty percent of the city's heavy-duty fleet operates on CNG fuel. All city departments use CNG vehicles, except for some police and fire vehicles used for mutual aide response in areas where CNG fuel stations are not available.

CNG engines work similarly to gasoline and diesel powered engines, but operate at higher temperatures. Additionally, the infrastructure to support the natural gas systems uses a more complex technology. Thus, city staff received additional training to maintain the vehicles and equipment.

To support the conversion to CNG vehicles, the city expanded the administrative oversight of the fleet, including developing self-managed work teams to ensure the sustainability of the equipment. The city fleet division operates as a full-service fleet support service that provides equipment maintenance, repair, welding, and asset replacement. It also monitors and analyzes accidents and incidents involving city CNG vehicles.

The city owns and operates its own CNG fueling station to support the city fleet. Although CNG fueling stations are expensive, depending on the size and capacity required, the city takes advantage of grant funding and federal financial incentives that lower CNG fuel costs to make the system economical.

Funding for the vehicles and construction of the CNG fueling station was provided largely by regional and federal grants. In addition, the city saves about $1.2 million annually by using CNG instead of over 850,000 gallons of diesel fuel. Air quality benefits are significant.

The city received national recognition as the number one Government Green Fleet in North America in 2009, in part for its use of compressed natural gas.

5) Community: Lakewood (Los Angeles County) Population: 83,636

Summary

The City of Lakewood concentrates its green fleet purchases on vehicles that use compressed natural gas (CNG). Lakewood maintains a fleet of about 100 light-duty vehicles, 27 of which are CNG fueled vehicles. The CNG vehicles include cars, vans, and pick-up trucks, and Lakewood has two CNG filling stations to serve them. The city pays for new CNG vehicles from its general fund and external funding sources that support air quality improvements.

Program Highlights

- City has two CNG filling stations at maintenance yards.
- About 27 percent of the city's fleet is CNG fueled, including cars, vans, and pick-up trucks.
- Lakewood purchases alternative-fueled vehicles through Los Angeles County's procurement program to gain access to lower prices available through the county's larger purchase contracts.
- Preference for alternative-fuel vehicles is included in the city's bid specifications for purchasing vehicles.

Lessons Learned

- The lack of availability of replacement parts for fueling stations can be challenging.
- When evaluating whether to switch to CNG vehicles, it is important to consider the availability of the vehicles, as well as the costs and benefits of converting vehicles to use CNG, as an alternative.
- External funding sources supporting air quality improvements can assist with the costs of purchasing vehicles and support infrastructure.

Resources to Learn More

- City of Lakewood Public Works Department (562) 866-9771 x 2500
- Mobile Source Air Pollution Reduction Committee (MSRC) Info Center www.cleantransportationfunding.org/?fa=info-otherprograms

The Rest of the Story…

The City of Lakewood explored several options for alternative-fuel vehicles, including electric and propane, before deciding to concentrate on compressed natural gas (CNG). At the time the city decided on CNG vehicles, several manufacturers offered CNG powered cars and other light-

duty vehicles. Since 1999, the city has purchased 27 CNG vehicles, including cars, vans, and pick-up trucks, and installed two CNG filling stations to serve them.

Lakewood pays for new CNG vehicles from its general fund and air quality funding sources when they are available, such as through the Mobile Source Air Pollution Reduction Committee (MSRC). By "piggybacking" on Los Angeles County's procurement program, Lakewood is able to take advantage of the county's larger purchase contracts to gain more favorable pricing than it might otherwise.

Based on Lakewood's experience, a key issue when considering a similar focus on CNG is that vehicle manufacturers do not consistently offer CNG powered vehicles. When evaluating whether to switch to CNG, it is important to consider the availability of the vehicles. As an alternative, cities and counties interested in CNG may wish to explore the costs and benefits of converting gasoline-fueled vehicles to use CNG.

6) Community: Sunnyvale (Santa Clara County)
Population: 140,450

Summary

The City of Sunnyvale installed solar photovoltaic panels on one of its fire-rescue units to power the vehicle's electric system while the vehicle is parked at an emergency scene. The goal is to explore the effectiveness of using solar photovoltaic panels on emergency vehicles to power the vehicles' electric system, instead of leaving the engine idling.

Program Highlights

- The city is testing solar panels on one fire-rescue vehicle.
- Panels installed April 2010 to be evaluated end of summer 2010.
- Cost approximately $400 from fleet operations budget.

Lessons Learned

- Exploring new technologies does not necessarily require large scale efforts or costly investments.

The Rest of the Story…

The City of Sunnyvale is exploring the value of solar photovoltaic panels for reducing idling of its emergency vehicles. The city installed two panels on the roof of a fire-rescue unit. The panels recharge the vehicle's battery while the vehicle is parked at the scene of an emergency. The battery then supports the vehicle's emergency lights and other electrical needs without running the engine.

The experiment will look at what systems the solar panels can realistically support in the field, such as air conditioning, computers, and radio equipment, in addition to the unit's operational lights. If the panels are effective, their use could reduce fuel consumption by emergency vehicles. This would reduce the cost of operating the vehicles, as well as reducing the vehicles' emissions.

The city plans to evaluate the effectiveness of the panels after three or four months of operation.

7) Community: Vacaville (Solano County) Population: 96,450

Summary

The City of Vacaville's "green fleet" includes approximately 20 leased electric-powered vehicles and two compressed natural gas (CNG) vehicles. The city also purchased two CNG non-emergency vehicles for the police department and10 buses, with five more on order. While the city recognizes the benefits of using alternative fuels, it discontinued purchase of replacement vehicles due to budget constraints.

Program Highlights

- Vacaville currently leases 20 electric vehicles as part of the city's fleet.
- The city bought ten CNG buses in September 2009 and another five are on order for 2010.
- In 2001, the city constructed an on-site CNG refueling system.

Lessons Learned

- Local agencies are waiting for electric vehicle technology to advance and become standardized.
- Financial incentives for CNG fuels are helpful.

Resources to Learn More

- City of Vacaville Department of Public Works Contact Information http://www.cityofvacaville.com/departments/public_works/contactus.php
- City of Vacaville's Electric Vehicle (EV) Incentive Program http://www.ci.vacaville.ca.us/departments/public_works/__documents/EV%20Program.pdf
- State Incentives for Alternative-Fuel Vehicles and Fueling Infrastructure http://www.consenseus.org/downloads/policy/StateIncentives.pdf

The Rest of the Story…

In 2003, the City of Vacaville leased 24 electric vehicles, providing an opportunity to reduce fuel costs and air pollution emissions. Unfortunately, because of the high cost of battery replacement and lower than anticipated sales, the manufacturer is no longer producing the vehicles. Thus, the city will eventually discontinue leasing the electric vehicles it now has.

Vacaville made a commitment to compressed natural gas (CNG) fuels with the construction of a fueling system in 2001 and the purchase of two non-emergency police vehicles, as well as transit

vehicles. Funds for the new buses were from federal and state sources. Although the city is committed to CNG vehicles, budget constraints limit opportunities to purchase new alternative-fuel fleet vehicles.

Fuel-Efficient and Alternative-Fuel Vehicles Snapshots

Ventura County
Population: 844,713

Snapshot

Ventura County's fuel-efficient and alternative-fuel vehicles program includes a broad range of hybrid and partial zero emissions vehicles. The county adopted a no-idle policy for all diesel and gas vehicles that requires operators to turn off vehicle engines after one minute. It also conducts smog testing on its vehicles every two years, which is more frequently than required by state law.

More Information: Ventura County Administrative Policy Manual, Chapter III, Procedure #26

Kern County
Population: 839,597

Snapshot

Kern County's standards for vehicle purchases promote alternative-fuels and low-emission vehicles. Any purchase not meeting the U.S. Environmental Protection Agency's Certified SmartWay designation requires justification and approval from the County Administration Officer's Office. The standards also require consideration of employee safety as well as vehicle durability and reliability.

More Information: Kern County Policy and Procedures Manual Chapter 5 – Purchasing Procedures, Appendix C, (1.5) www.co.kern.ca.us/cao/policy/05.pdf

City of Tulare (Tulare County)
Population: 59,535

Snapshot

The City of Tulare's "green fleet" consists of 48 light vehicles, including seven police vehicles that use E-85 ethanol, 17 refuse vehicles, 36 buses that use liquefied natural gas, and street sweepers and other light vehicles powered by compressed natural gas. (E-85 ethanol is a fuel which is 85 percent ethanol.)

More Information: Extreme Area Ozone Plan, City of Tulare Control Measures http://www.ci.tulare.ca.us/pdfs/AirControlMeasuresRev.pdf

Los Angeles County
Population: 10.4 Million

Snapshot

Los Angeles County created a Clean Fuels Program Policy in 2007 to move the county forward in greening its fleet and improving air quality. The policy promotes the purchase of hybrid vehicles as the county's standard light vehicle. In 2009, the county updated its Clean Fuels Program Policy to include other alternative-fuel vehicles, including compressed natural gas vehicles.

More Information: County of Los Angeles Clean Fuels Board Policy Revision, February 3, 2009; http://file.lacounty.gov/bos/supdocs/47141.pdf