



Moving Toward Fuel-Efficient and Alternative-Fuel Fleets: 10 Questions Local Officials Should Ask

Increasing fuel prices and tightening budget constraints have many local officials exploring a transition to fuel-efficient and alternative-fuel vehicles. Using alternative-fuel vehicles is also a key element of local agency efforts to reduce greenhouse gas (GHG) emissions and combat climate change in their own operations and throughout the community.

Here are 10 questions that can help local agencies take advantage of these technologies --- and avoid the pitfalls. Need more information? Visit the Institute for Local Government website at www.ca-ilg.org/renewableenergy.

1. Why is it important for local agencies to move toward fuel-efficient and alternative-fuel fleets?

Today's fuel prices put a significant dent in municipal budgets. Over the past few years, cities and counties of all sizes throughout California have continued to face higher budgetary outlays for fuel costs. The City of Huntington Beach, for example, spends more than \$2 million a year on nearly half a million gallons of gasoline, diesel and jet fuel.

Over the past five years, the small City of Arcata in Northern California incurred a 50 percent increase in the cost per mile driven due to rising fuel expenditures.

Minimizing petroleum usage also decreases dependence on foreign oil and reduces GHG emissions from burning fossil fuels. Every gallon of gasoline or diesel burned releases 22 pounds of carbon dioxide (CO₂), the major GHG pollutant. Vehicles that are more fuel efficient or run on alternative fuels have lower GHG emissions and some have none at all.

2. Are there other reasons for turning to fuel-efficient or alternative-fuel vehicles?

Local agencies that invest in fuel-efficient and alternative-fuel vehicles lead by example for the rest of the community. By putting new low-emission vehicles on the road, locals see these vehicles tried and tested, paving the way for more widespread use by the population at large.

As an example, the City of Vacaville has 25 electric vehicles and a growing fleet of compressed natural gas (CNG) vehicles for police administration, construction inspection, maintenance work and buses. To promote residents' use of these vehicles, Vacaville installed 40 electric vehicle

fueling stations located strategically throughout the city and makes use of a public CNG fueling station available through Pacific Gas & Electric. These fueling stations plus buy-down financial incentives for Vacaville residents help create more interest in owning emission-free vehicles.

3. What's the difference between fuel-efficient and alternative-fuel vehicles?

Fuel-efficient vehicles get better than average gas mileage, though they may still run on petroleum-based fuels, such as gasoline and diesel or a combination of petroleum-based fuel and another power source.

Alternative-fuel vehicles run on non-petroleum-based power. Some of these alternative fuels are produced domestically, reducing dependence on imported oil, and some are from renewable sources. Typically, alternative fuels cost less than petroleum-based fuel and produce somewhat less or far less pollution than gasoline or diesel. The most common alternative fuels are:

- Ethanol, produced from corn and other crops;
- Biodiesel, derived from vegetable oils and animal fats;
- Natural gas, a fossil fuel composed mainly of methane and available either as compressed natural gas (CNG) or liquefied natural gas (LNG);
- Propane, a fossil fuel produced from liquefied petroleum gas (LPG);
- Hydrogen, typically produced from pure hydrogen;
- Fuel cell, which uses hydrogen fuel and oxygen from the air to produce electricity; and
- Electricity, for electric or hybrid vehicles powered by rechargeable batteries.

4. What policies can help guide decisions to move toward fuel-efficient and alternative-fuel fleets?

Each community must evaluate what works best for its particular needs. However, cities and counties that choose to migrate to fuel-efficient and/or alternative-fuel vehicles typically:

- Conduct a life-cycle cost analysis of new fuel-efficient and/or alternative-fuel vehicles, taking into account the upfront and annual costs, payback period, rate of return and maintenance costs of existing versus new vehicles;
- Evaluate the availability of alternative-fuel and fuel-efficient vehicles for specific agency needs;

- Evaluate the availability of fueling and maintenance infrastructure;
- Set a goal in a guiding policy decision to reduce polluting GHG emissions and improve air quality (nearly 40 percent of all GHG emissions in California originate from mobile sources, including passenger and other transport vehicles); and
- View the policy as an opportunity to be a leader and role model for the rest of the community.

5. What replacement strategies are right for my fleet?

It varies from community to community, but all local agencies should develop a realistic vehicle replacement plan to gradually upgrade their fleets --- don't expect to overhaul all vehicles in one year.

The City of Santa Monica, a leader in greening its fleet, has been phasing in alternative-fuel vehicles since 1993. Of the 475 vehicles in its municipal fleet, 85 percent now run on alternative fuels, including 236 on CNG, 81 on biodiesel and 40 that are electric.

The County of Santa Clara approved a 10-Year Fleet Plan Policy in January 2007 with the goal of incrementally upgrading to alternative-fuel vehicles and low-emission vehicles. The county expects to replace an equal number of its 2,100 service vehicles each year, providing more budget predictability and avoiding fiscally difficult "peak and valley" purchases. Its cost-benefit analysis of vehicle replacement takes into account maintenance costs, fuel costs and residual book value (end-of-life worth), with the goal of purchasing alternative-fuel vehicles whenever practical and financially feasible. In 2009, the county will purchase 46 hybrid and electric vehicles.

It's important to carefully research the availability of fuel-efficient and alternative-fuel vehicles that suit your agency's needs. The market for these vehicles is growing rapidly with new models expected in the next few years. A good source of information on the most fuel-efficient vehicles on the market today is the U.S. Department of Energy (www.fueleconomy.gov) and the companion site (www.eere.energy.gov/afdc/fleets/index.html), which provide details on alternative-fuel vehicles for fleet use.

Until more options become available to meet your agency's specific needs, a good alternative is to purchase traditional but fuel-efficient vehicles. For older vehicles used infrequently, it may make sense to upgrade their engines or nurture them along rather than replace them outright.

6. If alternative-fuel vehicles are more costly, how can we justify the expense?

Often cities and counties adopt a policy to move toward alternative-fuel vehicles when elected officials signal a preference for these vehicles as budget and circumstances permit. While

alternative fuels are generally cheaper than gasoline, the vehicles that use them can be more expensive to purchase. However, when you factor in lower alternative-fuel costs over the lifetime of the vehicle, it can be quite cost effective. Nevertheless, each agency should do its own analysis.

Electric and hybrid vehicles are changing rapidly, and new designs will be coming on the market soon. By converting your fleet in phases, you can take advantage of these new models in the near future. San Jose, for example, has been downsizing its fleet of 2,700 sedans and SUVs and focusing on hybrids; about a third of its fleet now runs on alternative fuels.

"We look closely at whether the alternative-fuel vehicle will fit the vocation we need it for," says Don Beams, San Jose's fleet manager. "If we can justify the slightly higher cost for a hybrid, we are willing to make the sacrifice because we also want to reduce fuel usage and polluting emissions."

7. How can we make our existing fleet more fuel efficient?

Many local agencies are instituting mandatory measures to ensure that conventional-fuel vehicles are operated more efficiently. They do this by setting a no-idling policy, monitoring fuel usage by vehicle or class of vehicle and encouraging employees to use smaller or low-emission cars from the pool whenever possible.

Many of these local agencies are also less likely to purchase new vehicles, especially when certain fleet vehicles are not needed on a daily basis. These communities are reducing the size of their fleets overall and looking at sharing vehicles between departments and even between agencies. Others are leasing vehicles when they are needed for just a few weeks of the year.

In addition, your agency can consider establishing a policy to purchase vehicles that get a minimum mileage per gallon when those vehicles are available to match the job, such as those used for administrative purposes and small to medium-sized trucks.

And don't overlook opportunities to encourage employees to walk, bike or use public transit for work-related duties.

8. We've already bought a couple of hybrid vehicles for our agency. Isn't that enough?

It depends. If your agency is interested in making the transition to fuel-efficient and alternative-fuel vehicles, then a few hybrids are not enough. While emissions from local agency vehicles --- even the most polluting ones --- are a small portion of the aggregate emissions in a community, alternative-fuel vehicles for public agency purposes serve as important role models for the rest of the community.

9. Is grant funding available to help with greening our fleet?

Federal money is available under the Congestion Mitigation and Air Quality (CMAQ) Improvement Program, which is a component of the federal transportation bill. Vacaville has been receiving money from this source since 1999, when it received \$300,000 to help buy down the cost of converting its fleet to electric vehicles and, more recently, to CNG vehicles. In an effort to reduce local air pollution, the city has also used this money to help buy down the cost for local residents purchasing electric vehicles.

Beginning next year, California communities will be eligible to compete for funds from a pot of \$120 million annually under AB 118 (Chapter 750, Statutes of 2007). The funds, disbursed through the California Energy Commission (CEC), will help reduce petroleum dependency and encourage alternative-fuel vehicles. The CEC envisions helping cities and counties write down the cost of vehicles that run on various alternative fuels, including CNG, biodiesel, propane, electric and hybrid vehicles.

To take advantage of this money for fleet replacement, local agencies must submit applications to the CEC beginning in January 2009. Funds will be awarded by March 2009. For more information, send inquiries to AB118@energy.state.ca.us.

How Alternative Fuels Compare In Cost

Here's a look at typical alternative fuel prices and the cost per mile to operate an alternative fuel vehicle compared with a traditional petroleum vehicle.

Fuel Type	Cost Per Gallon	MPG Assumption	Cost Per Mile
Petroleum	\$3.62	25 mpg	14.5 cents
E85 (85% Ethenol blended with petroleum)	\$2.89	25 mpg	11.5 cents
Propane	\$3.39	25 mpg	13.5 cents
B20 (20% Bio-fuel blended with petroleum)	\$3.93	25 mpg	15.7 cents
Hybrid (gas & electric)	\$3.62	45 mpg	8.0 cents
CNG	\$2.09	36 mpg	5.8 cents
Electric	10 cents/KWH	432 watt hours/mile	4 cents

Notes:

1. Fuel costs based on retail prices during October, 2008.
2. CNG mileage assumption based on 2008 Honda Civic GX (sedan); CNG price/gallon based on PG & E rates in Northern California.
3. Electric mileage based on 1998 Toyota RAV4 EV (mini SUV)
4. Hybrid mileage based on 2008 Toyota Prius (sedan).
5. Cost per mile is based on fuel cost only; does not include maintenance.

Sample Climate-Friendly Purchasing Policy

Wondering how to establish a policy to purchase green vehicles or other products and services that help reduce harmful greenhouse gas emissions? The Institute for Local Government, through generous support provided by Bank of America Foundation, has developed a sample Climate-Friendly Purchasing Policy.

Climate-friendly purchasing is the procurement of goods and services that helps reduce greenhouse gas emissions as compared with competing goods and services for the same purpose. Typically, climate-friendly purchasing practices include the procurement of products that are durable, contain recycled content, and promote waste reduction and re-use. It also means contracting with service providers who engage in climate-friendly purchasing.

While climate-friendly purchasing can apply to a range of agency acquisitions and services, the practice applied to fuel-efficient vehicles generally favors purchase of:

- Fuel efficient and alternative fuel vehicles
- Photovoltaic systems or other renewable sources of energy
- Requiring alternative fuel vehicles for agency service contracts (ie. public transportation, waste hauling and recycling, and construction)

To establish a climate-friendly purchasing policy, local agencies generally analyze their current purchasing patterns, prioritize product categories in terms of greenhouse gas emissions, and develop a multi-year implementation schedule based on the new priorities.

Resources for Fuel-efficient and Alternative Fuel Fleets

- Institute for Local Government, California Climate Action Network: www.ca-ilg.org/climateaction
- Institute for Local Government, California Climate Action Network: www.ca-ilg.org/greeningfleets
- American Council for an Energy Efficient Economy, Green Book: The Environmental Guide to Cars & Trucks: <http://www.greencars.org/>
- California Air Resources Board, Cleaner Car Buyer's Guide: <http://www.driveclean.ca.gov/>

- California Consumer and Fleet Manager Reactions to Clean Vehicle Technologies:
<http://www.arb.ca.gov/msprog/zevprog/fg/cleantechfg.pdf>
- California Energy Commission, Full Fuel Cycle Assessment:
<http://www.energy.ca.gov/2007publications/CEC-600-2007-003/CEC-600-2007-003-D.PDF>
- GreenCar.com: <http://www.greencar.com/>
- Green Ratings on Yahoo! Autos: http://autos.yahoo.com/green_center/
- Green Vehicle Purchasing Specifications:
http://www.informinc.org/fact_P3vehicles.php
- Hybrid Vehicles Tax Incentives:
<http://www.cleancarcampaign.org/hybridstate.shtml>
- ICLEI Green Fleets Site: <http://www.greenfleets.org>
- League of California Cities, Priority Focus, Vacaville CNG Program:
http://www.cacities.org/resource_files/26887.june6.pdf
- U.S. Department of Energy: www.fueleconomy.gov
- U.S. Department of Energy, Alternative Fuels and Advanced Vehicles Data Center:
<http://www.eere.energy.gov/afdc/fleets/index.html>

10. Some local agencies are requiring *all* their new vehicles to be low emission. Should we be doing the same?

Every local agency should carefully assess its fleet and research whether the alternative-fuel and fuel-efficient vehicles meet its needs. If not, it's probably best to wait until the right car or truck hits the market, and until then it might make sense to adapt or hold onto what you have.

This resource is a service of the Institute for Local Government (ILG) whose mission is to promote good government at the local level with practical, impartial, and easy-to-use resources for California communities.

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The Institute welcomes feedback on this resource:

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