

**SUBMITTAL TO THE BOARD OF SUPERVISORS
COUNTY OF RIVERSIDE, STATE OF CALIFORNIA**

352



FROM: County of Riverside Purchasing and Fleet Services

SUBMITTAL DATE:
November 25, 2008

SUBJECT: Amendment to Board of Supervisors Policy D-2: Use and Purchase of Low or Zero Emissions County Vehicles

RECOMMENDED MOTION: That the Board of Supervisors:

- 1) Approve the proposed amendment (Attachment 1) to Board Policy D-2.
- 2) Receive and file (Attachment 2) the Status Report: Board Policy D-2: Use and Purchase of Low or Zero Emissions County Vehicles from the Director of Purchasing.

BACKGROUND: In 1998 the Board amended Board Policy D-2: Use and Purchase of County Vehicles to require, whenever practical, the use of low or zero emissions vehicles to be the "first choice" of daily, monthly, or long term lease arrangements. Additionally, in order to improve air quality in Riverside County and to meet local and federal air quality regulations, this policy recommends departments/agencies/districts consider the purchase of low or zero emissions vehicles as the "first choice" for fleet vehicle purchases in lieu of gasoline or diesel powered vehicles

ATTACHMENTS


Robert J. Howdyshell, Director
Purchasing and Fleet Services

FINANCIAL DATA	Current F.Y. Total Cost:	\$ -0-	In Current Year Budget:	-0-
	Current F.Y. Net County Cost:	\$ -0-	Budget Adjustment:	N/A
	Annual Net County Cost:	\$ -0-	For Fiscal Year:	2008/2009

SOURCE OF FUNDS: No Additional Funds Necessary.	Positions To Be Deleted Per A-30	<input type="checkbox"/>
	Requires 4/5 Vote	<input type="checkbox"/>

C.E.O. RECOMMENDATION:

APPROVE

BY: Serena Chow
Serena Chow

County Executive Office Signature

Prev. Agn. Ref.: 3.1 12/22/98 | **District:** | **Agenda Number:**

3.30

FORM APPROVED COUNTY COUNSEL
BY: PAMELA J. WALLS 11/12/08 DATE
Departmental Concurrence

Dept't Recomm.: Consent Policy
Per Exec. Ofc.: Consent Policy

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SUBJECT: Amendment to Board of Supervisors Policy D-2: Use and Purchase of Low or Zero Emissions County Vehicles

BACKGROUND CONTINUED:

The attached report describes the impact of the implementation of Board Policy D-2 by the County of Riverside Fleet Services and other departments.

Recent Developments

Since the 1998 amendment, several technological, economic, environmental, health, and legislative developments concerning light duty vehicles and fuel have occurred:

- Improvements to conventional gasoline vehicle efficiency
- Widespread availability of hybrid vehicles
- Ethanol fuel availability
- Dramatic rise in cost of fuel
- Riverside County Air Quality and Public Health
- Riverside County Growth
- California AB-32
- SCAQMD FLEET VEHICLE RULE 1191

Gasoline Improvements

The most recent Fuel Economy report from the EPA, "...confirms that average fuel economy has improved each year beginning in 2005, is now 1.5 miles per gallon higher than in 2004, and is the highest since 1993. This reverses a long term trend of slightly declining fuel economy since its 1987 peak." The EPA estimates that the average "real world" fuel economy for the 2008 model year is 20.8 miles per gallon. Also, due to the unprecedented rise in gasoline prices, the American public has demanded improved mileage for the automobile industry.

Hybrid Vehicles

The first Hybrid Vehicles became available in 2001 with the introduction of the Toyota Prius. The Prius had a combined fuel efficiency rating of 41 MPG and improvement of 20 MPG over the EPA Composite average of all 2001 light duty vehicles. Since that time, the Hybrid market has grown significantly with multiple offerings from all of the major automobile manufacturers.

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Popular vehicles in this category are the Chevrolet Tahoe Hybrid, Toyota Prius, Toyota Camry Hybrid, Ford Escape Hybrid, Saturn Vue, Toyota Highlander Hybrid, and the Honda Civic Hybrid.

Hybrid-electric vehicles (HEVs) combine the benefits of gasoline engines and electric motors and can be configured to obtain different objectives, such as improved fuel economy, increased power, or additional auxiliary power for electronic devices and power tools.

Ethanol Fuel

Ethanol fuel is a blend of ethyl alcohol and gasoline. There are two common blends available in the United States. They are: E-10 and E-85. E-10 contains 10% ethanol and can be used in any vehicle. Flexible fuel vehicles (FFVs) are designed to run on gasoline or a blend of up to 85% ethanol and 15% gasoline (E85). Except for a few engine and fuel system modifications, they are identical to gasoline-only models. FFVs have been produced since the 1980s, and several models are currently available. FFVs experience no loss in performance when operating on E85.

However, since a gallon of ethanol contains less energy than a gallon of gasoline, FFVs typically get about 20-30 percent fewer miles per gallon when fueled with E85. On the other hand, ethanol fueled vehicles leave a smaller carbon footprint. According to the EPA, a 2008 Ford Crown Victoria running on E85 emits 8.5 tons of CO₂ annually compared to 10.2 tons on gasoline. A 2008 GMC Yukon running on E85 emits 9.2 tons of CO₂ annually, and 11.4 tons per year on gasoline. (Based on 15,000 annual miles).

Rise in Fuel Prices

In December of 1998 the price of regular gasoline was \$1.142 per gallon. In September of 2008 the price has reached \$3.804 per gallon, an increase of 233%. The increase in oil prices has been attributed to the weakened American dollar and increasing demand from emerging nations. Although the price of oil has dropped from recent record highs, it remains volatile.

Public Health

The American Lung Association figures for 2007 show that, Riverside County has the worst Short Term and Year Round Particle Pollution in the country. *Particle pollution* refers to a mix of

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very tiny solid and liquid particles that are in the air we breathe. Because of their small size, you can't see the individual particles. You can see only the haze that forms when millions of particles blur the spread of sunlight. More new evidence shows that particle pollution—such as that coming from exhaust smoke—can shorten lives, contribute to heart disease, lung cancer and asthma attacks and interfere with the growth and work of the lungs.

Additionally, Riverside County ranks #3 in the Nation in Most Ozone Pollution. Ozone (O₃) is an extremely reactive gas molecule composed of three oxygen atoms. It is the primary ingredient of smog air pollution and is very harmful to breathe. Ozone essentially attacks lung tissue by reacting chemically with it.

Growth

According to the U S Census Bureau, the County of Riverside grew from 1,545,387 residents in the year 2001 to 2,026,803 in 2006, an increase of 7.6%. The additional demand on County services has caused the Fleet to grow from 2,946 vehicles, traveling 34,636,794 miles in calendar year 2001, to 4,412 traveling an estimated 44,100,000 miles in 2007.

Legislation

On 9/27/2006, the Governor signed Assembly Bill 32 into law. AB32 is California's landmark bill that establishes a first-in-the-world comprehensive program of regulatory and market mechanisms to achieve real, quantifiable, cost-effective reductions of greenhouse gases.

Highlights of the bill are:

- Establish a statewide GHG emissions cap for 2020, based on 1990 emissions by January 1, 2008.
- Adopt mandatory reporting rules for significant sources of greenhouse gases by January 1, 2008.
- Adopt a plan by January 1, 2009 indicating how emission reductions will be achieved from significant GHG sources via regulations, market mechanisms and other actions.
- Adopt regulations by January 1, 2011 to achieve the maximum technologically feasible and cost-effective reductions in GHGs, including provisions for using both market mechanisms and alternative compliance mechanisms.

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- Convene an Environmental Justice Advisory Committee and an Economic and Technology Advancement Advisory Committee to advise ARB.
- Ensure public notice and opportunity for comment for all ARB actions.
- Prior to imposing any mandates or authorizing market mechanisms, requires ARB to evaluate several factors, including but not limited to: impacts on California's economy, the environment, and public health; equity between regulated entities; electricity reliability, conformance with other environmental laws, and to ensure that the rules do not disproportionately impact low-income communities.
- Adopt a list of discrete, early action measures by July 1, 2007 that can be implemented before January 1, 2010 and adopt such measures.

SCAQMD Rule 1191. Rule 1191 requires public fleets in the AQMD's jurisdiction operating passenger car, light-duty truck, or medium-duty vehicle fleets to acquire low-emitting gasoline or alternative-fuel vehicles when procuring these vehicles. The rule also requires that the AQMD publish a bi-annual list of approved vehicles.

Summary

Riverside County Fleet Services is responsible for managing the County's light and medium-duty vehicle fleet to provide reliable and safe transportation for a wide range of local government functions. The services to County Departments include: purchasing the best vehicles to meet the operational needs of departments, maintaining and servicing vehicles in a cost effective manner, and monitoring the use of vehicles in accordance with policies established by the Board of Supervisors.

At the conclusion of Fiscal Year 2007-2008, the Riverside County Fleet consisted of 4,160 units. The average EPA MPG estimate for the Riverside County Fleet, Fiscal Year 2007-2008 period was 19.22 miles per gallon. Alternate fuel vehicles accounted for 21.42% of the fleet.

At the present time, Policy D-2 contains no MPG goals or minimum standards. County Purchasing is recommending amending Policy D-2 further to require departments/agencies/districts to purchase hybrid models or other fuel-efficient models that are estimated by the EPA to achieve a minimum average fuel economy of 25 miles per gallon vehicles (medium and heavy duty vehicles excluded). This fuel efficiency standard will be reviewed annually to determine if it should be increased as a result of new advances in technology.

**COUNTY OF RIVERSIDE, CALIFORNIA
BOARD OF SUPERVISORS POLICY**

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Policy:

It is the policy of the Board of Supervisors to provide, equip and maintain essential, safe, presentable and identified transportation equipment to the county officers and employees of Riverside County.

It is also the policy of the Board to encourage the use of low or zero emissions vehicles in order to improve air quality in the county and meet local and federal air quality regulations. ~~Whenever practical, the~~ The Board of Supervisors shall ~~therefore~~ require low or zero emissions vehicles to be the "first choice" of daily, monthly, or long term lease arrangements. Additionally, all vehicle purchases by departments/agencies/districts shall be hybrid models or other fuel-efficient models that are estimated by the EPA to achieve a minimum average fuel economy of 25 miles per gallon* ~~encouraged to consider the purchase of low or zero emissions.~~ This fuel efficiency standard will be reviewed annually to determine if it should be increased as a result of new advances in technology.

The County of Riverside Fleet Services Director shall establish a *Vehicle Review Committee* consisting of one member from each of the following departments:

- Fleet Services
- Transportation
- Waste Management
- Riverside County Flood Control and Water Conservation District
- Regional Parks & Open Space District

The *Vehicle Review Committee* shall be responsible for the following:

- Approval/denial of any requests by County departments to purchase vehicles other than hybrids, low or no-emission vehicles, or vehicles that do not met the EPA minimum average fuel economy of 25 miles per gallon*.
- Prepare a written status report, by designated fleet departments, to the Board of Supervisors annually including recommendations for increasing the fuel efficiency standards

The following shall apply for the use and purchase of fleet vehicles:

**medium and heavy duty vehicles excluded.*

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Daily/Weekly Vehicle Leases:

County employees will be required to drive a hybrid or low or zero emissions vehicle when available. ~~if their round-trip travel plans fall within the driving/fuel range of an alternative fuel vehicle.~~

Vehicles Permanently Assigned to Departments/Agencies/Districts:

County departments/agencies/districts will be assigned a hybrid or low or zero emissions vehicle when available. ~~if:~~

- ~~1. The daily average commute estimated for the vehicle falls within the driving/fuel range of an alternative fuel vehicle, and~~
- ~~2. The location of the department/agency/division leasing the vehicle is within three miles of a fueling station or has access to a secure charging station for electric vehicles.~~

Vehicle Purchase Guidelines:

Departments/agencies/districts shall purchase hybrid models or other fuel-efficient models that are estimated by the EPA to achieve a minimum average fuel economy of 25 miles per gallon*.

- ~~1. A comparable (model/type) alternative fuel vehicle is available;~~
- ~~2. The use of an alternative fuel vehicle will not significantly hinder the operations or efficiency of the organization due to fueling requirements.~~
- ~~3. The intended use of the vehicles is for commutes within the driving/fuel range of an alternative vehicle, and,~~
- ~~4. The normal overnight location of the vehicle is within three miles of a fueling station or secure charging station for electric vehicles.~~

Departments having special vehicle needs that preclude the use of vehicles that meet this standard will provide a justification addressing the following with their vehicle request.

1. Make, model, and quantity of requested vehicle.
2. Reasons why the requested vehicle is required.

**medium and heavy duty vehicles excluded.*

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3. Special equipment and/or performance requirements of requested vehicle.
4. Other pertinent information that justifies the purchase of requested vehicle.

The *Vehicle Review Committee* will review the justification and determine if the needs of the requesting department can be satisfied through the purchase of a hybrid or other fuel-efficient vehicle. If so, the *Vehicle Review Committee* will make a recommendation to the Department for a vehicle which will meet the requirements defined in the justification. If the requesting department feels their justification is valid, a request for a waiver of the policy will be submitted to the Executive Office for review and determination.

Exemptions to Policy Requirements:

The "Vehicle Purchases Request Form" shall be used during the purchasing process to determine if an alternative fuel vehicle can substitute for a gasoline or diesel-powered vehicle.

Public safety vehicles such as, but not limited to: patrol, fire and emergency services vehicles, shall be exempt from the requirements of this policy.

Reference:

- Minute Order dated 01/28/75
- Minute Order 3.1 of 12/22/98
- Minute Order 3.3 of 04/10/07

(FOLLOWING IS THE: "Vehicle Purchases Request Form")

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VEHICLE PURCHASE REQUEST FORM
(Board of Supervisors Policy D-2)

Similar vehicle types may be grouped on one form. Use separate forms for each vehicle type (i.e., cars, trucks, forklifts, loaders).

1. Requested Vehicle:

Model: _____ Make: _____
Quantity: _____ Estimated Unity Cost: _____

Fuel Type (Check one)

- Hybrid
- Gasoline
- Diesel
- CNG
- LNG
- Electric
- Propane
- Other

If the purchase is for a gasoline or diesel powered vehicle, answer question 2 and 3.

2. ~~Is the typical intended use of the vehicle for commutes within the driving/fuel range of an alternative fuel vehicle?~~

_____ Yes _____ No

3. ~~Is the normal overnight location of the vehicle within three miles of a fueling station of secure charging station for electric vehicles?~~

_____ Yes _____ No

**medium and heavy duty vehicles excluded.*

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~~IF THE ANSWERS TO QUESTIONS 2 AND 3 IS YES, PROCEED TO QUESTION 4.~~

3. Provide a brief explanation of the unique circumstances which make purchase of a gasoline or diesel powered vehicle more suitable in this particular instance:

Head Approval: _____ Date: _____

VEHICLE REVIEW COMMITTEE:

Approval: _____ Date: _____

Denied: _____ Date: _____

If denied, please list alternative vehicle recommendation:

**medium and heavy duty vehicles excluded.*

2008 Status Report

LOW-EMISSION VEHICLES AND ALTERNATIVE FUEL USE

**Riverside County Fleet Services
November 25, 2008**

2008 STATUS REPORT
LOW-EMISSION VEHICLES AND ALTERNATIVE FUEL USE

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2008 STATUS REPORT

LOW-EMISSION VEHICLES AND ALTERNATIVE FUEL USE

Background and Overview

An element of the County's mission is to improve the quality of life for its residents. Improving air quality is one component for improving the overall quality of life and reducing vehicle emissions is a critical element in the effort to improve air quality. In 1998 the Board of Supervisors approved an amendment to Board Policy D-2: Use and Purchase of County Vehicles. This amendment directs County departments/agencies/districts to consider alternative fuel vehicles (AFV), whenever possible, as the "first choice" for vehicle leases and purchases. The primary purposes of this amendment is to (1) comply with state and federal legislative requirements, (2) reduce greenhouse gas emissions that are a major cause of global warming and (3) decrease emissions that produce ground level smog and toxic compounds such as benzene, thus improving the County of Riverside's air quality. In order to accomplish these goals, the County of Riverside Fleet Services has taken the following undertakings:

- Meet state, federal and regional legislative requirements
- Change the makeup of the fleet vehicles: as the amendment indicated whenever possible purchase hybrid or alternative fuel vehicles
- Change the fuel type uses: less usage of unleaded fuels, more usage of fuels such as ethanol, bio-diesel, etc.

- Develop an infrastructure that will support the new directions for a cleaner more sustainable environment for Riverside residents.

The statistics and information contained in this report will cover Fiscal Years 2001/02 through 2007/08 of data indicating our progress. This report encompasses light and medium duty vehicles purchased by County Fleet Services.

Legislative Requirements

The Energy Policy Act of 1992 (EPAAct) was passed to reduce our nation's reliance on foreign petroleum, and improve air quality. Officially known as Public Law 102-486, EPAAct includes provisions that address all aspects of energy supply and demand. Several parts of EPAAct were designed to encourage use of alternative fuels — which are not derived from petroleum — that could help reduce dependence on imported oil in transportation. Titles III and V employ regulatory approaches for encouraging the fundamental changes necessary to building a self-sustaining alternative fuel market.

Congress established several regulatory activities within EPAAct that focus on building an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPAAct requires certain fleets to purchase a percentage of light-duty AFVs, which are capable of running on alternative fuels, each year. Compliance to the policy is required for state, federal, and fuel provider (utilities and alternative fuel suppliers) fleets. Local governments, however, are not required to follow the policies effective 4/1/2008.*

*Federal Register Vol. 73, No. 51, Friday March 14, 2008

The South Coast Air Quality Management District, however, (SCAQMD-with significant jurisdiction in the County of Riverside) requires that public fleets in their jurisdiction acquire low-emitting gasoline or alternative-fuel vehicles. (AQMD Rule 1191) A low-emitting vehicle (LEV), as defined by the AQMD, means a vehicle or engine that emits hydrocarbon, carbon monoxide, or nitrogen oxides, on an individual basis at least equivalent to or lower than a LEV (low-emission vehicle) based on ARB's certification data. The list of certified vehicles is published every six months by the California Air Resource Board (CARB).

Exempted from the requirement are emergency, rescue, and surveillance/undercover vehicles. An emergency vehicle is: "...any vehicle defined in Section 165 of the California Vehicle Code and is equipped with red lights and sirens..."

Eight hundred fifty-four (854) of the 4,164 vehicles in the Riverside County fleet qualify for exemption but meet the requirement for LEV. The remaining 3,310 vehicles meet or exceed the SCAQMD requirements.

On April 20, 2004, the Governor signed Executive Order S-7-04 calling for the development of the California Hydrogen Blueprint Plan (Blueprint Plan). Governor Arnold Schwarzenegger directed the California Environmental Protection Agency (Cal/EPA) to develop a "Blueprint Plan" that will expedite availability of hydrogen fueling stations and products that use hydrogen. The Blueprint Plan was developed through a

collaborative process with input from more than 200 stakeholders from energy, auto and technology companies, environmental organizations and local, State and federal government agencies. The Blueprint Plan was presented to the Governor in May 2005.

The plan mission states:

“Today, as it has been for more than a century, fossil fuels provide a relatively cheap and reliable means to power the vast majority of the world’s vehicles. In the last few decades, however, there has been a growing realization that, for at least two reasons, we cannot continue to rely on fossil fuels. First, the supply of fossil fuels is increasingly insecure. The world is running out of easily accessible petroleum and almost 60 percent of the petroleum imported into the U.S. is from geopolitically unstable areas of the world. Second, the burning of fossil fuels produces pollution that damages human health and generates greenhouse gases that contribute to the unsustainable climate change of the planet.”

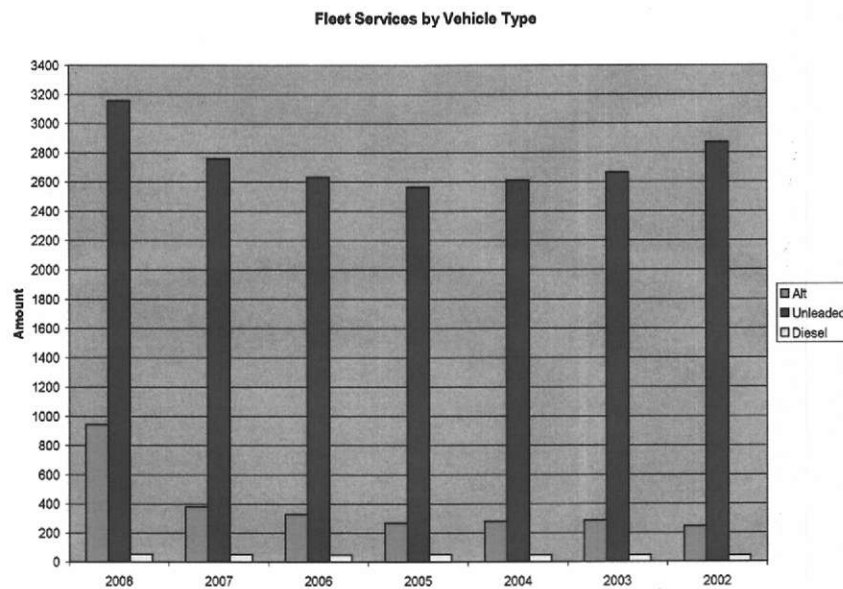
“Hydrogen has the potential to revolutionize the ways we harness the world’s energy resources. Hydrogen is both a fuel and an energy carrier. As an emerging transportation fuel, hydrogen is driving innovative new designs of high-efficiency vehicles that offer important environmental and energy diversification benefits. It can be used in fuel cells that are more than twice as efficient as gasoline engines.

Fuel cell vehicles (FCVs) have no tailpipe or fueling emissions other than pure water vapor. As an energy carrier, hydrogen can provide electricity where and when needed. Hydrogen can be used in high-efficiency, stationary fuel cells to provide electricity, heating, and cooling for homes and businesses—all with very low environmental impacts.”

A key recommendation of the plan is the establishment of 50 to 100 publicly accessible hydrogen fuel stations by 2010. The first commercial hydrogen station was opened in Los Angeles on June 27 of this year.

Fleet Services Count by Vehicle Type

County Fleet Services has focused transforming its fleet vehicle type by increasing the purchases of CNG, hybrid, electric and flex-fuel vehicles (uses ethanol fuel). The table below provides a breakdown of Fleet Services composition from 2001 through 2008. Fleet Services has increased the total number of alternative fuel vehicle types each year. In 2008 the total number was 948 which compose 22.8% of the total fleet.



Hybrid Vehicles. When the term *hybrid vehicle* is used, it most often refers to such vehicles as the Chevrolet Tahoe, Toyota Prius, Toyota Camry Hybrid, Ford Escape Hybrid, Toyota Highlander Hybrid, Honda Civic Hybrid and others. Hybrids contain both a gasoline (or diesel) engine and an electrical motor system. Hybrid-Electric vehicles use electric batteries in combination with the conventional combustion engine. Hybrids run on the same fuel used in gas-powered vehicles which means no extra fueling stations are needed. Vehicle batteries are charged during braking, the result of technology that traps into the kinetic energy naturally released during the braking process.

Gasoline-fueled hybrid electric vehicles (HEVs) are among a select few vehicle technologies that can provide dramatically increased fuel economy, reduce greenhouse

gas emissions by 90%, no extra fueling stations are needed, use less oil and have a range of 600-700 miles.

These features make a hybrid vehicle particularly efficient for city traffic where there are frequent stops, coasting and idling periods. In addition noise emissions are reduced, particularly at idling and low operating speeds, in comparison to conventional gasoline or diesel powered engine vehicles.

The County of Riverside purchased only 7 hybrid vehicles in Fiscal Year 2002. However, by the end of Fiscal Year 2008 purchases had reached 274. Fleet Services vehicles have driven 38.74% more miles over a six year period. However, due to the increase in Hybrids and the overall improvement in vehicle fuel economy -- the fuel consumption has increased by only 5.72%.

Unleaded only		
Calendar (Cost) Year	Fuel Qty	Miles Driven
2001	2,228,341	33,115,967
2007	2,355,861	45,946,617
Difference	127,520	12,830,650
% Difference	5.72%	38.74%

Plug-In Hybrid. The latest hybrid technology is the Plug-in Hybrid Electric Vehicle or PHEV. The PHEV uses the electrical propulsion system exclusively until the charge is exhausted. The gasoline engine is then used as a back up until the vehicle can be plugged in for recharging. The car can be plugged into any 120 volt outlet.

A slightly different technology is under development at General Motors. The Chevy Volt differs in that the internal combustion engine does not propel the car but recharges the battery. The driving range of the Volt is estimated to be 640 miles. The vehicle also uses a standard 120 volt outlet for charging.

At this time the PHEV is not commercially available although both Toyota and GM have stated that they plan to market a PHEV by 2010.

Electric Vehicles. In an Electric Vehicle (EV), batteries are typically used to store the



electricity that powers the electric motor(s) in the vehicle. The batteries must be recharged by plugging into a power source. Some EVs have on-board chargers. Others need to be plugged into an external charger. An EV

A GEM (Global Electric Motorcar) used for urban commuting.

is a zero-emission vehicle, and its motor produces no tailpipe exhaust emissions.

Well-designed EVs can travel at the same speeds as conventional vehicles and provide the same safety and performance capabilities. In some instances, the EVs have better acceleration because of the characteristics of motors at low speeds.

The range for EVs, however, is more limited than conventional vehicle ranges, and spans from 50 to 130 miles. Variables include the vehicle's weight, engineering, design, type of battery, weather extremes, and the use of heating and air conditioning.

Fleet Services has purchased eighteen (18) golf cart electric vehicles, in the past three years, for parking patrol and installed electric charging stations through out Riverside County. However, Fleet Services have not purchased any full size electric vehicles because of the limited vehicle ranges and the lack of electric charging stations and cost of installing locations for full size electric vehicles.

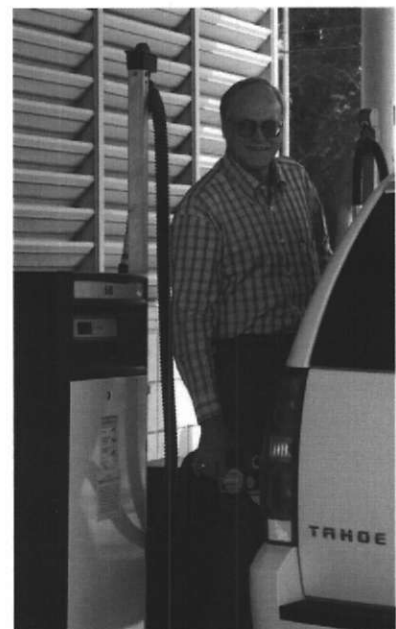
Alternative Energy Fuels

Alternative fuels are non-petroleum based fuels that are generally environmentally preferable to petroleum-derived fuels such as gasoline and diesel. Ethanol, methane, biodiesel and battery-cell generated electricity are the principle fuels government fleets consider as they bring new vehicles online. Each of these fuels present a host of advantages and disadvantages fleet managers must weight as they anticipate the overall costs of sourcing, maintaining and replacing the equipment that operate on any one of these fuel types.

Ethanol Fuel. Ethanol Fuel is a gasoline alternative that is manufactured from the conversion of carbon-based feed stock such as sugar cane, sugar beets, witch grass, corn, and barley. Analysts say it is better for the environment and an economically-friendly alternative to fossil fuels such as diesel and gasoline. Ethanol fuel can be

combined with gasoline at different percentages, or can be used in its pure form E100. Not every non-hybrid vehicle can run on 100 percent ethanol, but most run on small percentages of ethanol blends which are common at most gas stations. Ethanol has become more common because it is currently being used as an oxygenate additive for gasoline. E-85 is a blend of 85 percent denatured ethanol and 15 percent gasoline. E85 cannot be used in a conventional, gasoline-only engine. Vehicles must be specially designed to run on it. The County has made a significant investment in its E-85 program. All of the physical network has been but in place and Fleet Services is presently waiting for approval of the UL (Underwriter's Lab) tanks by the State.

Flex Fuel Vehicles. Flexible fuel vehicles (FFVs) are designed to run on gasoline or a blend of up to E85. Except for a few engine fuel system modifications, they are identical to gasoline-only models. FFVs have been produced since the 1980s, and dozens of models are currently available. FFVs experience no loss in performance when operating on E85. However, since a gallon of ethanol contains less energy than a gallon of gasoline, FFVs typically get about 20-30 percent fewer miles per gallon when fueled with E85.



Director Howdysshell fills up with E85 fuel.

The County has made significant increases in its use of flex vehicles, from 118 in 2001 to 590 in 2008.

Natural Gas Vehicles. Of cars with internal-combustion engines, those that run on compressed natural gas are among the greenest on earth. Natural gas is a mixture of hydrocarbons, mainly methane. Methane is extracted from gas wells and can also be captured from landfills. Currently 100% of the natural gas we use is found in North America. Methane burns very cleanly and efficiently. Therefore, natural gas emissions are much lower than those from gasoline-powered vehicles. The latest factory-built NGVs (Natural Gas Vehicle) meet the lowest level emissions classifications set by the California Air Resources Board. Overall emissions average 80% less than reformulated gasoline.

There are drawbacks, however, for CNG vehicles; vehicle cost, fuel economy and fuel availability. The increased vehicle cost of \$3,500 to \$6,000 is primarily due to the higher cost of fuel cylinders. Additionally, more frequent fueling of CNG vehicles is required due to the lower energy content of CNG. Finally, other than the County of Riverside CNG stations, fewer than 15 commercial CNG fueling stations exist in the County. Fleet Services installed two slow fill CNG stations in Blythe and in Riverside on Washington Street. The two new facilities in Rubidoux and Cabazon have the infrastructure in place to install CNG. In 2007, the County of Riverside applied for and was awarded by

SCAQMD \$70,188.32 to assist with the funding of CNG Fueling Stations in Rubidoux and Indio.

Bi-Fuel Vehicles. A Bi-Fuel vehicle is capable of running on either gasoline and CNG or gasoline and propane (LPG). At this time there are no LPG automobiles for sale by the original equipment manufacturers. The cost of converting a vehicle to LPG, range from \$4,000 to \$12,000. Conversions in the United States require EPA approval and a licensed propane conversion technician.

Fleet Services has 29 CNG and 32 Bi-Fuel vehicles (can use gasoline or compressed natural gas).

Ultralow-Sulfur Diesel and Biodiesel. Like gasoline, the fuel that powers diesel engines is mostly made from crude oil. A new wrinkle is "clean" diesel fuel, with significantly reduced sulfur content. Many diesel engines can also run on B20, a blend of 20 percent biodiesel fuel and 80 percent crude oil-base diesel fuel. Diesel engines generally use less fuel, produce more torque (pickup), and may last longer than equivalent gasoline engines. Ultralow-sulfur diesel reduces emissions blamed for acid rain and enables automakers to use advanced emission-control systems that would be poisoned by high-sulfur fuel. These advanced systems greatly reduce two common diesel pollutants: oxides or nitrogen and particulates (soot). Biodiesel also reduces most diesel engine emissions, is domestically produced, and is renewable. Biodiesel is made from animal fats, plant oil, and even recycled restaurant cooking oils.

The U.S. Environmental Protection Agency required the rollout of ultralow-sulfur diesel in 2006, and it's available almost anywhere that diesel is sold. There are 15 biodiesel stations in Southern California.

County Fleet Services changed to ultralow-sulfur diesel in 2002, well in advance of the 2006 mandate. The County Fleet has 54 diesel heavy/medium duty trucks and buses. All of them run on ultra-low sulfur which is the only diesel available in California. Fleet Services is in the process of investigating the feasibility of including biodiesel fuels. Last year, December 10, 2007, Fleet Services sponsored and hosted an informational presentation entitled, "Bio-Diesel: Usage in Fleet Programs". The guest speaker was Joe Gershen, Vice President, Sales & Marketing of Tellurian Biodiesel. Tellurian Biodiesel, Inc. is a California based biodiesel production, marketing and distribution company, with offices in San Francisco and Los Angeles, Tellurian is one of California's leading independent marketer and distributor of biodiesel. This presentation generated widespread interest and was attended by over 35 participants from public and private fleet facilities in Southern California.

Alternative Fuel Infrastructure

The County of Riverside Fleet Services has built three above ground fuel sites, located in Moreno Valley, Rubidoux, Perris and Cabazon.



New Rubidoux Fleet Facility opened June 2007.

Alternative fuels are available at the below County Fleet fueling stations:

FLEET SERVICES FUELING FACILITIES

County Circle Fleet Services
 (Fuel Island Open 24 hrs.)
 4066 County Circle
 Riverside, CA 92503
 (951) 358-5555
 *(U/CW)

Banning Fleet Services
 (Fuel Island Open 24 Hrs.)
 1628 S. Hargrave
 Banning, CA 92220
 (951) 922-7370
 *(U/D/CW)

Riverside Fleet Services
 (Fuel Island Open 24 hrs.)
 4293 Orange Street
 Riverside, CA 92501
 (951) 955-4660
 *(U/E/CW)

Indio Fleet Services
 (Fuel Island Open 7 a.m. to 4:30 p.m.)
 82-775 Plaza Ave.
 Indio, CA 92201
 (760) 775-0337
 *(U/CW)

Hemet Fleet Services
 (Fuel Island Open 7 a.m. to 4:30 p.m.)
 824 N. State Street
 Hemet, CA 92543
 (951) 766-2510
 *(U)

Rubidoux Fleet Services
 (Fuel Island Open 7 a.m. to 4:30 p.m.)
 5293 Mission Blvd
 Riverside, CA 92509
 (951) 955-4650
 *(U/CW/EP)

S.W.J.C. Fleet Services
 (Fuel Island Open 24 hrs.)
 30755-V Auld Rd
 Murrieta, CA 92563
 (951) 600-6590
 *(U/CW)

Cabazon Fleet Services
 (Fuel Island Open 7 a.m. to 4:30 p.m.)
 50208 Main St
 Cabazon, CA 92230
 (951) 922-7370
 *(U/CW/EP)

Moreno Valley Fleet Services
 (Fuel Island Open 24 hrs.)
 25241 Cottonwood
 Moreno Valley, CA 92555
 (951) 485-4605
 *(U/D/EP)

Perris Fleet Services (Fuel Island Open 24 hrs.)
 308 San Jacinto Avenue
 Perris, CA 92570
 *(U/CW/EP)

Blythe Fleet Services
 (Scheduled Opening 12/09)
 200 N. Main St.
 Blythe, CA 92225
 *(U/CW/EP)

***Fueling Codes:**

E – Ethanol
EP – Ethanol Pending UL Approval
P – Propane
D – Diesel

CW – Car Wash
U – Unleaded

Future Goals

Compelling ecological and political issues all but guarantee that in coming years, we will all rely less on gasoline as a fuel. The consensus in the auto industry is that hydrogen is the ultimate solution—though even hydrogen-car pioneers admit that it will probably be a decade or more before hydrogen-powered cars, and the infrastructure to support them, are widely available. With some modifications, vehicles with a gasoline internal combustion engine (ICE) can use hydrogen as a fuel. Hydrogen burns much cleaner than gasoline which makes hydrogen ICEs a possible near-term transition technology. However, hydrogen ICE vehicles still have some emissions. Ford Motors is planning on testing a hydrogen ICE vehicle in the near future and Riverside County plans to participate as a testing site. In the meantime, the other alternative fuels will serve as steps to a hydrogen-fuel future.

Riverside County Fleet Services has a long standing commitment to the use of alternative fuel vehicles. Beginning with the introduction of CNG, Bi-Fuel, Propane, Electric, and Methanol fueled vehicles to the Hybrid Electric and Flex Fuel vehicles of today, Fleet Services has consistently leveraged emerging technologies in an effort to reduce criteria pollutants, Green House Gas emissions and improve fuel economy. Additionally, Fleet Services is actively engaged in building the fuel and maintenance infrastructure to support alternative fuel vehicles and provide technical support excellence. To this end, Fleet Services has recently entered into a professional service

agreement with Chaffey Community College District to provide Alternative Fuels Technical/Mechanical training to our mechanics.

It is estimated that the light duty fleet will consist of 25% Alternative Fuel Vehicles by the year 2010, and that ethanol will be readily available at strategically located fuel sites. The rapid development of new fuel technologies, in particular Plug in Hybrids and Hydrogen Fuel Cells, holds great promise for us of achieving our long term goal of a 100% Alternative Fuel Fleet by the year 2020.”

Fleet Services has and will continue to set the example for reducing our dependence on petroleum based fuels and to a cleaner tomorrow.

2008 Status Report

LOW-EMISSION VEHICLES AND ALTERNATIVE FUEL USE

**Riverside County Fleet Services
November 25, 2008**

Riverside County Vehicle Fleet Highlights

- **Total Fleet Size = 4,164**
- **One of the Largest Public Fleets in California**
- **22.8% of Riverside County's Fleet Powered by Alternative Fuel**

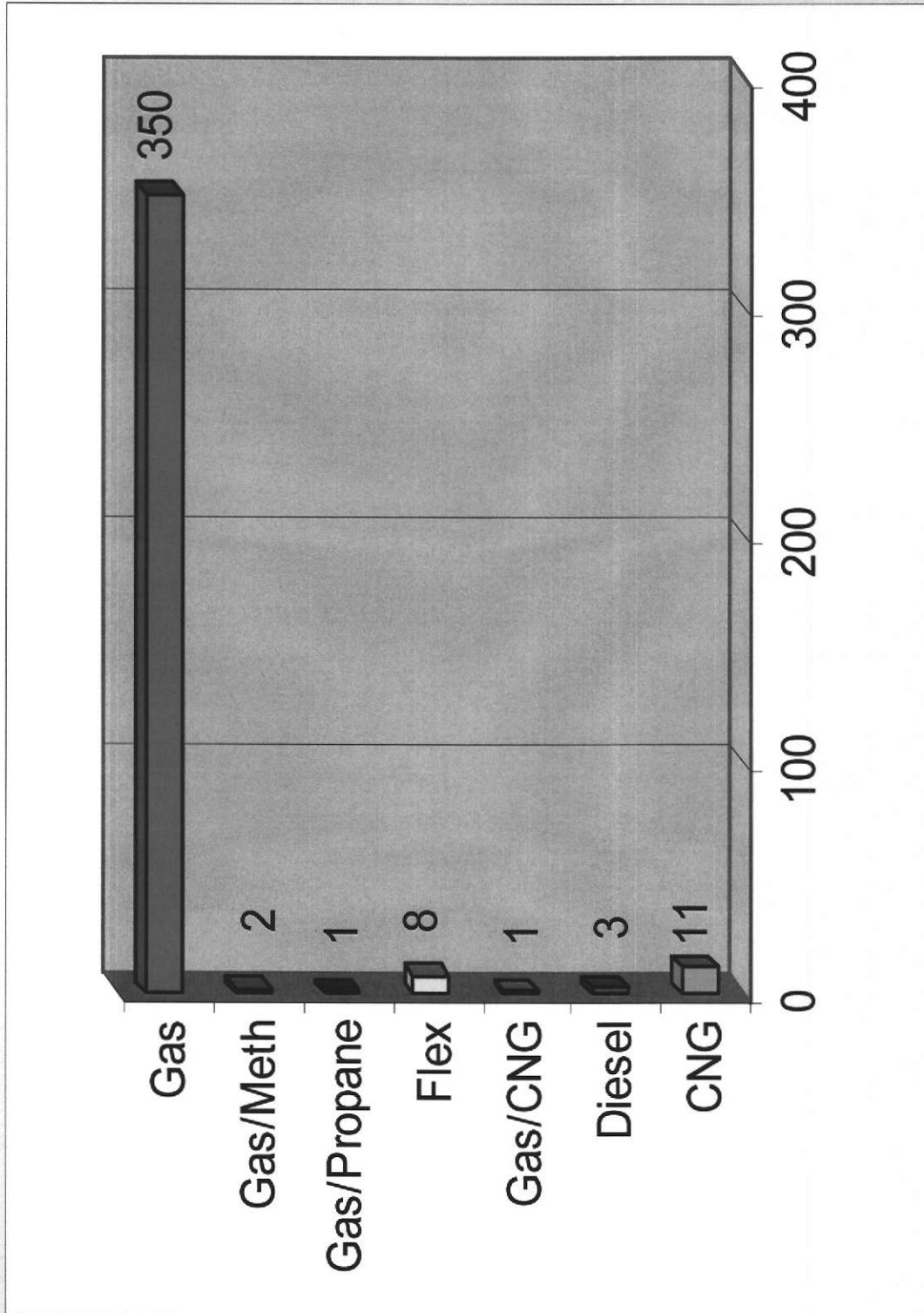
Current Fleet Breakdown

Fuel Type	# Of Vehicles
Diesel	54
Electric	13
Gasoline / CNG (BiFuel)	33
Gasoline / E85 Ethanol (Flex Fuel)	590
Hybrid	276
Gasoline / Propane	4
Gasoline / Methanol	1
Propane	2
Gasoline	3,162
Compressed Natural Gas (CNG)	29
TOTAL	4,164

FY 2007-2008 Vehicle Buy

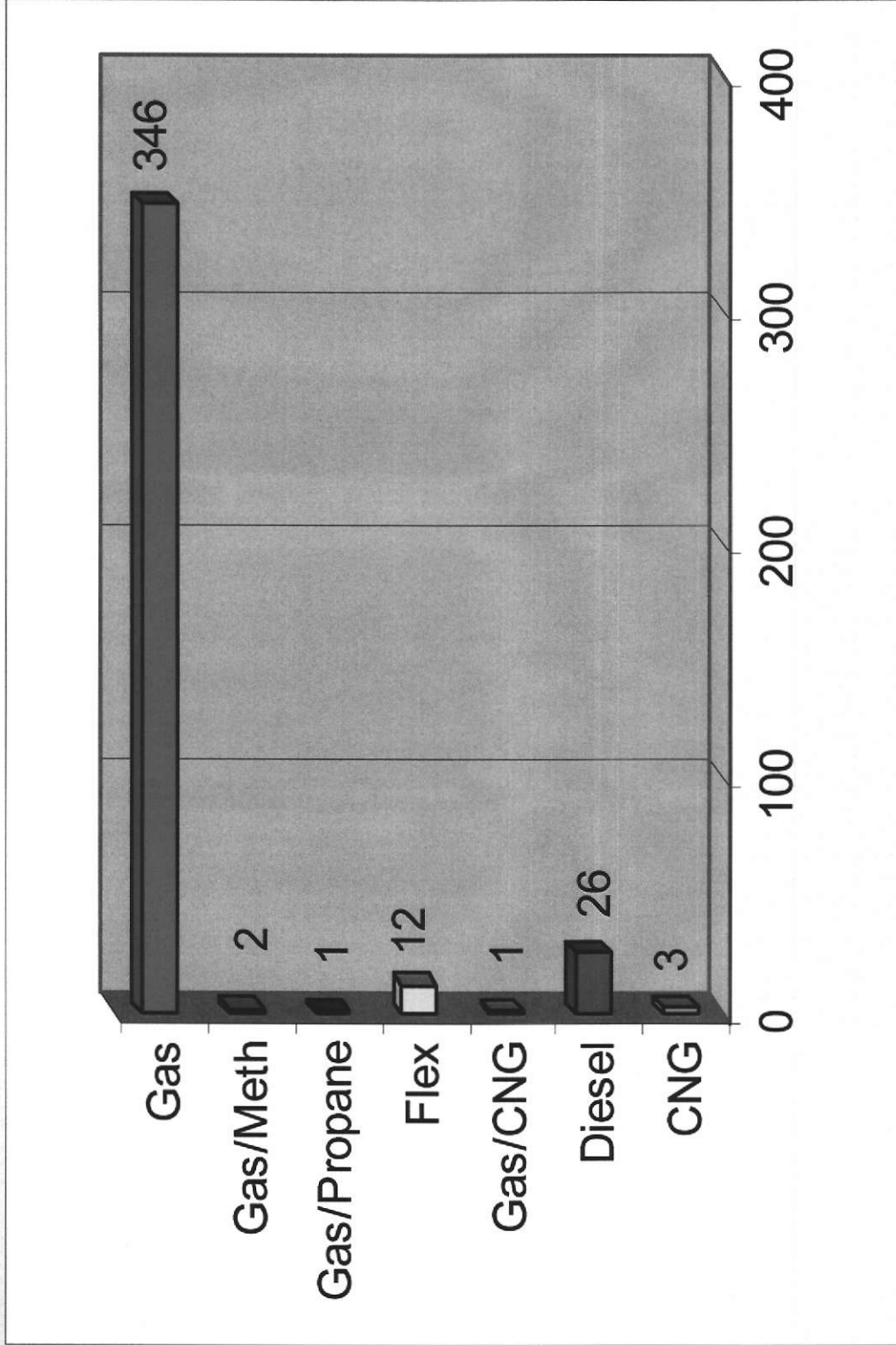
Fuel Type	# Of Vehicles
Compressed Natural Gas (CNG)	2
Diesel	5
Electric	1
Gasoline / E85 Ethanol (Flex Fuel)	353
Hybrid	42
Gasoline	301
TOTAL	704

FY 2007-2008 Vehicles Retirement



TOTAL = 376

FY 2008-2009 Projected Retirements



TOTAL = 391

2007 Fuel Usage and Expense

- Total County Miles Driven Per Year: 45,946,617
- Gallons of Gasoline Used Per Year: 2,355,861
- 2007 Dollars Spend: \$6,812,196
- Actual Average MPG = 19.50
- EPA Estimate of Overall Fleet MPG = 19

Future Fleet Services Plans

- **Majority of Future Purchases will be Hybrid or Other Fuel Efficient Models that are Estimated by the EPA to Achieve a Minimum of 25 Miles Per Gallon (medium and heavy duty vehicles excluded)**
- **Riverside County Expanding Ethanol Fueling Stations**

Future Fleet Services Plans

- **Partnership with Chaffey College to provide Technical/Mechanical Training for Alternative Fuel Vehicles**
- **Green Star Program : A recognition program for departments or individuals that demonstrate efficient driving techniques**