



DEPARTMENT OF THE NAVY  
HEADQUARTERS UNITED STATES MARINE CORPS  
2 NAVY ANNEX  
WASHINGTON, DC 20380-1775

IN REPLY REFER TO:  
11240  
LFS-24 038

MEMORANDUM FOR DEPUTY UNDERSECRETARY OF DEFENSE (INSTALLATIONS  
AND ENVIRONMENT)

Subj: UNITED STATES MARINE CORPS FISCAL YEAR 2005 ALTERNATIVE  
FUEL VEHICLE (AFV) REPORT

Encl: 1) Fleet AFV Program Report For FY 2005

1. As required by Executive Order 13149, the enclosure contains the  
United States Marine Corps FY 2005 Alternative Fuel Vehicle Report.

2. The Marine Corps did meet or exceeded the following goals:

- a. Seventy Five percent Alternative Fuel Vehicle (AFV)  
acquisitions per the Energy Policy Act of 1992. We achieved  
194% of the requirement.
- b. Increase Fleet Fuel economy by 3 MPG. We achieved (4.4 MPG)
- c. Reduce petroleum fuel consumption by 20% per Executive Order  
13149. The Marine Corps achieved a 26% reduction compared to  
the 1999 baseline.

3. The Marine Corps used alternative fuels 29.9% of the time in AFVs but  
did not meet the greater than 50% requirement per EO 13149. This  
represents an increased use of alternative fuels over the previous five  
years. The Marine Corps continues to emplace the alternative fuels  
infrastructure at Bases and Installations in order to optimize the use  
of these fuels.

4. Point of contact is Mr. Barry Smallwood, LFS-2, at commercial (703)  
695-7010 or DSN 225-7010.

  
K. M. Nicholas  
By direction

Copy to:  
OASN (I&E)  
DoE Code EE-34, Room 5G086

**UNITED STATE MARINE CORPS**  
**Fleet AFV Program Report for Fiscal Year 2005**  
**February 15, 2006**

This report presents the Marine Corps data on the number of alternative fuel vehicles (AFVs) acquired in fiscal year (FY) 2005, our planned, and projected acquisitions for FY 2006, and FY 2007. This report has been developed in accordance with the Energy Policy Act of 1992 (EPAAct) (42 U.S.C. 13211-13219) as amended by the Energy Conservation Reauthorization Act of 1998 (Public Law 105-388) (ECRA), and Executive Order 13149 (signed by the President in April 2000). As shown in Figure 1, the Marine Corps exceeded the 75 percent AFV-acquisition requirement of 211 credits by acquiring 546 AFV credits in FY 2005. Planning estimates indicate a similar level of compliance for FY 2006 and FY 2007 with acquisitions of 692 and 950 AFV credits, respectively. In addition to the stated AFV credits for FY 2006 and FY 2007, there will be additional AFV credits from the increased use of Biodiesel. Detailed vehicle acquisition tables are shown in attachments (a) thru (c).

**Legislative Requirements**

The Energy Policy Act of 1992 (EPAAct) requires that 75 percent of all covered light-duty vehicles acquired for Federal fleets in FY 1999 and beyond must be AFVs (where the fleets have 20 or more vehicles, are capable of being centrally fueled, and are operated in a metropolitan statistical area with a population of more than 250,000 based on the 1980 census). Certain emergency, law enforcement, and national defense vehicles are exempt from these requirements. EPAAct also sets a goal of using replacement fuels to displace at least 30 percent of the projected consumption of motor fuel in the United States annually by the year 2010. The Energy Conservation and Reauthorization Act of 1998 amended EPAAct to allow one alternative fuel vehicle acquisition credit for every 450 gallons of pure Biodiesel fuel consumed in vehicles over 8,500 pounds gross vehicle weight rating. "Biodiesel credits" may fulfill up to 50 percent of an agency's EPAAct requirements. The head of each Federal agency must also prepare and submit a report to Congress outlining the agency's AFV acquisitions and future plans by February 15th of each year. Executive Order 13149 directs Federal agencies operating a fleet of 20 or more vehicles within the United States to reduce their annual petroleum consumption by at least 20 percent by the end of FY 2005 (compared to FY 1999 levels) by using alternative fuels in AFVs more than 50 percent of the time, improving the average fuel economy of new light-duty

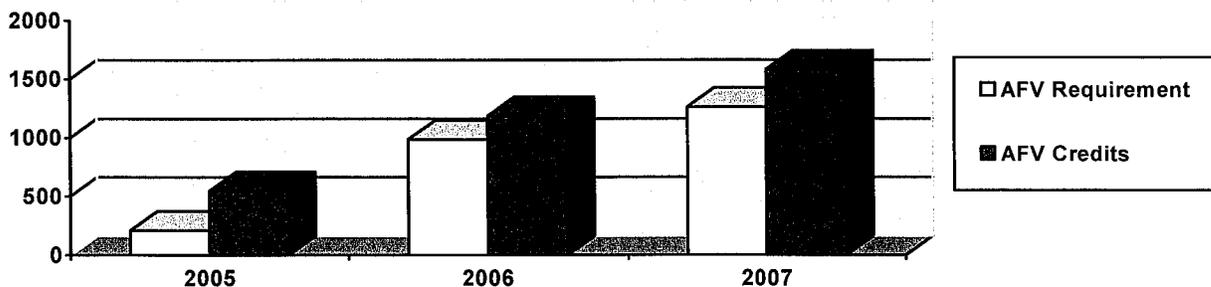
petroleum-fueled vehicle acquisitions 1 mpg by FY 2002 and 3 mpg by FY 2005, and using other fleet efficiency measures.

**United States Marine Corps Approach to Compliance with EAct and E.O. 13149**

To achieve compliance with the legislative mandates of EAct and E.O. 13149, the Marine Corps will acquire 75 percent of new light-duty vehicles as AFVs. The Marine Corps will develop the fueling infrastructure necessary to use alternative fuels a majority of the time. The Marine Corps has established a monthly surcharge with General Services Administration (GSA) to cover AFV incremental costs. We will also acquire light duty vehicles with higher fuel economy: 1 mpg in FY 2002 and 3 mpg in FY 2005.

**United States Marine Corps Fleet Compliance for FY 2005**

Figure 1 is a graphical depiction of AFV acquisitions by the Marine Corps during FY 2005 with projections for FY 2006 and FY 2007. The Marine Corps acquired 2624 light-duty vehicles (LDVs) in fiscal year 2005, of which 438 were AFVs. In accordance with the Energy Policy Act of 1992, the Marine Corps exempted the following FY 2005 acquisitions: 54-law enforcement LDVs and 2289 LDVs assigned to fleets (primarily Recruiting Stations) with less than 20 vehicles and which are not centrally fueled. The adjusted FY 2005 EAct covered acquisitions was 281 vehicles, with a AFV replacement requirement of 211 vehicles. The Marine Corps gained an additional 3 credits by acquiring dedicated light, medium, and heavy-duty AFVs, and 105 credits by utilizing Bio-diesel, giving us a total of 546 AFV credits. This exceeded EAct requirements by 119 percent. Attachment (a) provides detailed information on the number and types of light-duty vehicles leased or purchased by the Marine Corps during FY 2005.



**Figure 1. Summary of Marine Corps FY 2005 AFV Acquisitions**

### ***Special Projects of the Marine Corps Fleet Related to AFV and Infrastructure Acquisitions***

Several significant projects are underway in the Marine Corps. The Marine Corps continues to concentrate our compressed natural gas (CNG) vehicles where existing CNG infrastructure is already established.

Neighborhood Electric Vehicles (NEVs) have been successfully utilized at several locations for light hauling and administrative purposes. All Marine Corps installations are finding unique ways to utilize NEV's and reduce the number of petroleum burning vehicles. In FY 2005 the Marine Corps increased its electric vehicle fleet (NEV's) by 20 for a total of 526.

Throughout the 2005 timeframe, several Bases and Stations were developing the installation of above ground Ethanaol(E-85) tanks. MCB Camp Lejeune opened their E-85 fueling site in FY 2005, and MCAS Cherry Point will open in early FY 2006. This infrastructure will allow the Marine Corps to concentrate not only on CNG, but E-85 vehicles and to increase the amounts of alternative fuels utilized.

During FY 2005, the Marine Corps conducted a fleet study of all Bases and Stations. This study focused on all aspects of fleet management to include fleet size and utilization. In FY 2006, the Marine Corps fleet management software, Fleet Focus, will be consolidated into a single server and become Internet accessible. The anticipated outcome from this study is to right size the Marine Corps fleet to meet today's mission requirements.

During FY 2005, approximately 85% of the Marine Corps installations continued the use of Biodiesel (B20). As a result for the year (FY 2005), the Marine Corps earned 105 Biodiesel fuel use credits. It is the Marine Corps' goal to utilize Biodiesel in all Garrison Mobile Equipment (GME) diesel powered vehicles in FY 2006.

Marine Corps Base Camp Pendleton has been selected by the Naval Facilities Engineering Service Center for an Environmental Security Technology Certification Program project to test the hydrogen fuel cell vehicles and infrastructure in a real world environment. During Oct. 2005, the Marine Corps began testing the GMT-800 Fuel Cell pickup truck from General Motors.

During the third quarter of FY 2006, the permanent fuel cell vehicle facility as well as a natural gas reformer will be in place.

**Alternative Fuel Use by Marine Corps Fleets in FY 2005**

Table 1 presents fuel use data for the Marine Corps in FY 2005. The majority of the alternative fuel used by the Marine Corps comes from central fueling points located on Marine Corps installations. Approximately one third of the Marine Corps' GSA leased fleet are recruiting vehicles that are located in sparsely populated areas throughout the United States and rely exclusively on the commercial market for refueling. The small number of vehicles (less than five) at each location does not support a central fueling location, nor does it encourage commercial companies to invest in alternative fueling infrastructure. For this reason it is extremely difficult for the Marine Corps to meet EAct requirements in these locations.

**Table 1. Marine Corps Fuel Use in FY 2004**

<b>Fuel Type</b>	<b>Quantity</b>	<b>Unit</b>
Biodiesel - B100	283,965	GGE (Gas Gallon Equivalent)
CNG	316,990	GGE
E-85	5,020	GGE
Propane	1,154	GGE
Gas	6,276,812	GGE
Diesel	1,511,536	GGE
Electric	0	GGE

**Marine Corps Fleet AFV Acquisitions for FY 2006 and FY 2007**

Attachments (b) and (c) provide detailed information on projected vehicle acquisitions and inventory for the Marine Corps during FY 2006 and FY 2007. In FY 2006, the Marine Corps' planned EAct Covered Acquisitions is 1318 light-duty vehicles. The Marine Corps' FY 2006 planned AFV credits of 1186 will meet and exceed the EAct requirement of 989 AFVs. In FY 2007, the Marine Corps' projected EAct Covered Acquisitions is 1682 light-duty vehicles. The Marine Corps' FY 2007 projected AFV credits of 1581 will meet and exceed the EAct requirement of 1262 AFVs. It is the intent of the Marine Corps to be good stewards of the environment. While the FY06 and FY07 percentages of planned and projected acquisitions seem high, AFV's will be placed in areas that are supported by the fuel infrastructure. That said, the percentages will probably change to a lower number to allow the Marine Corps to continue with its AFV strategy.

## Petroleum Savings

Attachment (d) provides baseline and fuel consumption data. In FY 1999, the Marine Corps baseline petroleum consumption was estimated at 10,527,804 GGE. FY 2000 petroleum consumption total usage could not be compiled due to the unavailability of the GSA wet lease fuel usage data. In lieu of this GSA data, we estimate our FY 2000 total petroleum fuel usage to be 9,687,458 GGE. This represents a decrease in fuel consumption of 840,346 GGE, for a reduction of 8.7 percent. FY 2001 total petroleum fuel usage was 8,850,882 GGE, representing an additional decrease in fuel consumption of 852,163 GGE for a reduction of 9.6 percent from the FY 2000 estimated fuel usage. FY 2002 total petroleum fuel usage was 7,948,855 GGE, representing an additional decrease in fuel consumption of 886,440 GGE for a reduction of 10 percent from the FY 2001 estimated fuel usage. FY 2003 total petroleum fuel consumption was 7,677,021 GGE, representing an additional decrease in fuel consumption of 271,834 GGE for a reduction of 2.5 percent from the FY 2002 estimated fuel usage. FY 2004 total petroleum fuel consumption was 7,636,997 GGE, representing an additional decrease in fuel consumption of 40,024 GGE for a reduction of .4 percent from the FY 2003 estimated fuel usage. FY 2005 total petroleum fuel consumption was 7,788,348 GGE, representing an additional 151,351 GGE in fuel consumption this is an increase of 1.5% from the FY 2004 estimated fuel usage. FY 2005 fuel consumption represents a 26% decrease as compared to the FY 1999 baseline. Figure (2) graphically illustrates the Marine Corps fuel reduction achieved based on the FY 1999 baseline.

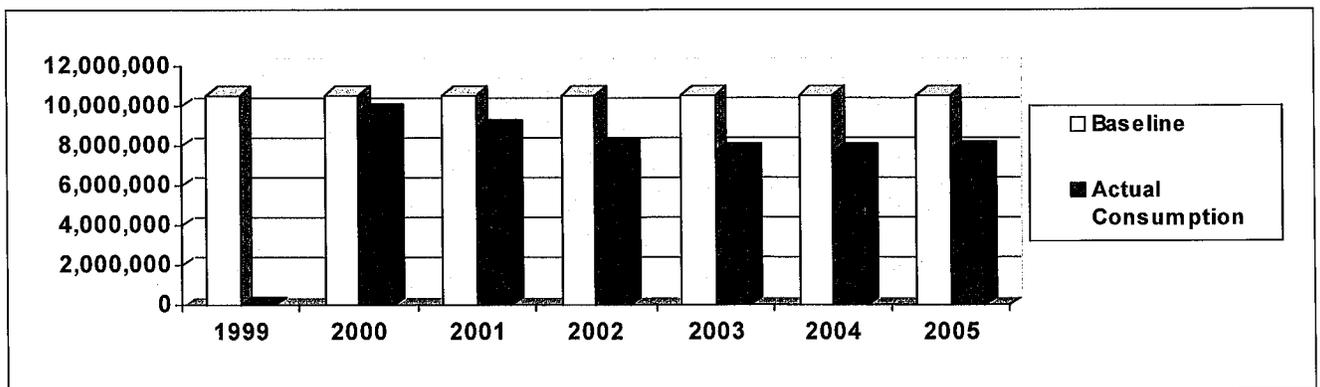


Figure 2. Summary of Marine Corps Fuel Consumption

## **Summary**

As detailed in this report and the attached appendices, the Marine Corps exceeded the AFV acquisition requirements of EPAct in FY 2005 and expects to repeat this accomplishment in FY 2006 and 2007. The Marine Corps reduction in petroleum consumption is 26 percent from the FY 1999 baseline. We will continue to implement our strategy that achieved more than a 20 percent petroleum fuel reduction in FY 2002, three years earlier than mandated by the Executive Order. The Marine Corps will aggressively continue to implement its strategy that will result in continued reduction in our annual petroleum consumption.

## Actual United States Marine Corps FY 2005 Vehicle Acquisitions

<b>Actual FY 2005 Light-Duty Vehicle Acquisitions</b>					
		<b>Leased</b>	<b>Purchased</b>	<b>Total</b>	<b>Total Vehicle Inventory</b>
Total number of Light-Duty (8,500 GVWR) - Vehicle Acquisitions		2,619	5	2,624	7,245
	Fleet Size	861	0	861	3,413
	Geographic	0	1	1	1,435
	Law Enforcement	54	0	54	125
	Non-MSA Operation (fleet)	2	2	4	222
Exemptions	Non-MSA Operation (vehicles)	1,423	0	1,423	(n/a)
<b>EPACT Covered Acquisitions</b>		<b>279</b>	<b>2</b>	<b>281</b>	<b>2,050</b>
<b>Actual FY 2005 AFV Acquisitions</b>					
<b>Vehicle</b>		<b>Leased</b>	<b>Purchased</b>	<b>Total</b>	<b>Total Vehicle Inventory</b>
Sedan	CNG Bi-Fuel Subcompact	1	0	1	43
Sedan	CNG Dedicated Subcompact	0	0	0	10
Sedan	CNG Bi-Fuel Compact	0	0	0	14
Sedan	E-85 Flex-Fuel Compact	119	0	119	427
Sedan	E-85 Flex-Fuel Midsize	15	0	15	29
Sedan	CNG Bi-Fuel Large	0	0	0	3
Sedan	CNG Dedicated Large	0	0	0	28
Pickup 4x2	CNG Bi-Fuel	5	0	5	158
Pickup 4x2	CNG Dedicated	3	0	3	86
Pickup 4x2	E-85 Flex-Fuel	48	0	48	448
Pickup 4x2	LPG Bi-Fuel	0	0	0	14
Pickup 4x4	CNG Bi-Fuel	5	0	5	73
Pickup 4x4	CNG Dedicated	0	0	0	2

Pickup 4x4	E-85 Flex-Fuel	22	0	22	29
SUV 4x2	E-85 Flex-Fuel	15	0	15	22
SUV 4x4	E-85 Flex-Fuel	60	0	60	79
Minivan 4x2 (Passenger)	CNG Bi-Fuel	0	0	0	7
Minivan 4x2 (Passenger)	E-85 Flex-Fuel	140	0	140	502
Minivan 4x2 (Cargo)	E-85 Flex-Fuel	1	0	1	1
Van 4x2 (Passenger)	CNG Bi-Fuel	0	0	0	1
Van 4x2 (Passenger)	CNG Dedicated	0	0	0	1
Van 4x2 (Passenger)	E-85 Flex-Fuel	0	0	0	16
Van 4x2 (Cargo)	CNG Dedicated	0	0	0	2
Other 4x2	CNG Dedicated	0	0	0	6
Bus	CNG Dedicated	0	0	0	15
Pickup MD	CNG Bi-Fuel	1	0	1	46
Pickup MD	E-85 Flex-Fuel	1	0	1	0
Van MD (Passenger)	CNG Bi-Fuel	0	0	0	68
Van MD (Passenger)	CNG Dedicated	0	0	0	85
Van MD (Cargo)	CNG Bi-Fuel	0	0	0	9
Van MD (Cargo)	CNG Dedicated	0	0	0	54
MD 8,501- 16,000 GVWR	CNG Bi-Fuel	0	0	0	6
MD 8,501- 16,000 GVWR	E-85 Flex-Fuel	2	0	2	0
HD 16,001 + GVWR	CNG Bi-Fuel	0	0	0	3
HD 16,001 + GVWR	CNG Dedicated	0	0	0	5
<b>Total Number of AFV Acquisitions</b>		<b>438</b>	<b>0</b>	<b>438</b>	<b>2,292</b>
Zero Emission Vehicle Credits		0	0	0	
Dedicated Light-Duty AFV Credits		3	0	3	
Dedicated Medium-Duty AFV Credits		0	0	0	
Dedicated Heavy-Duty AFV Credits		0	0	0	
Biodiesel Fuel Usage Credits - Actual				105	
<b>Total AFV Acquisitions with Credits</b>		<b>441</b>	<b>0</b>	<b>546</b>	

AFV Percentage of Covered Light-Duty Vehicle Acquisition

194%

ATTACHMENT B :

## Planned United States Marine Corps FY 2006 Vehicle Acquisitions

### Planned FY 2006 Light-Duty Vehicle Acquisitions

		Leased	Purchased	Total
Total number of Light-Duty (8,500 GVWR) - Vehicle Acquisitions		1,903	27	1,930
	Fleet Size	40	1	41
	Geographic	1	20	21
	Law Enforcement	50	0	50
	Non-MSA Operation (fleet)	0	2	2
Exemptions	Non-MSA Operation (vehicles)	498	0	498
<b>EPACT Covered Acquisitions</b>		<b>1,314</b>	<b>4</b>	<b>1,318</b>

### Planned FY 2006 AFV Acquisitions

Vehicle		Leased	Purchased	Total
Sedan	CNG Bi-Fuel Subcompact	32	0	32
Sedan	CNG Dedicated Subcompact	10	0	10
Sedan	CNG Bi-Fuel Compact	14	0	14
Sedan	E-85 Flex-Fuel Compact	161	0	161
Sedan	E-85 Flex-Fuel Midsize	16	0	16
Sedan	CNG Dedicated Large	14	0	14
Pickup 4x2	CNG Bi-Fuel	20	0	20
Pickup 4x2	CNG Dedicated	24	0	24

Pickup 4x2	E-85 Flex-Fuel	84	0	84
Pickup 4x2	LPG Bi-Fuel	4	0	4
Pickup 4x4	CNG Bi-Fuel	12	0	12
SUV 4x2	E-85 Flex-Fuel	3	0	3
SUV 4x4	E-85 Flex-Fuel	15	0	15
Minivan 4x2 (Passenger)	CNG Bi-Fuel	8	0	8
Minivan 4x2 (Passenger)	E-85 Flex-Fuel	130	0	130
Pickup MD	CNG Bi-Fuel	4	0	4
Van MD (Passenger)	CNG Bi-Fuel	28	0	28
Van MD (Passenger)	CNG Dedicated	15	0	15
Van MD (Cargo)	CNG Bi-Fuel	2	0	2
Van MD (Cargo)	CNG Dedicated	2	0	2
MD 8,501- 16,000 GVWR	CNG Bi-Fuel	0	6	6
MD 8,501- 16,000 GVWR	CNG Dedicated	0	2	2
<b>Total Number of AFV Acquisitions</b>		<b>598</b>	<b>8</b>	<b>606</b>
Zero Emission Vehicle Credits		0	0	0
Dedicated Light-Duty AFV Credits		48	0	48
Dedicated Medium-Duty AFV Credits		34	4	38
Dedicated Heavy-Duty AFV Credits		0	0	0
Biodiesel Fuel Usage Credits - Planned				494
<b>Total AFV Acquisitions with Credits</b>		<b>680</b>	<b>12</b>	<b>1,186</b>
<b>AFV Percentage of Covered Light-Duty Vehicle Acquisition</b>				<b>90%</b>

## Projected United States Marine Corps FY 2007 Vehicle Acquisitions

### Projected FY 2007 Light-Duty Vehicle Acquisitions

		Leased	Purchased	Total
Total number of Light-Duty (8,500 GVWR) - Vehicle Acquisitions		2,178	22	2,200
	Fleet Size	74	0	74
	Geographic	0	15	15
	Law Enforcement	44	0	44
	Non-MSA Operation (fleet)	0	2	2
Exemptions	Non-MSA Operation (vehicles)	383	0	383
<b>EPACT Covered Acquisitions</b>		<b>1,677</b>	<b>5</b>	<b>1,682</b>

### Projected FY 2007 AFV Acquisitions

Vehicle		Leased	Purchased	Total
Sedan	CNG Bi-Fuel Subcompact	11	0	11
Sedan	CNG Bi-Fuel Compact	11	0	11
Sedan	E-85 Flex-Fuel Compact	331	0	331
Sedan	E-85 Flex-Fuel Midsize	8	0	8
Sedan	CNG Dedicated Large	9	0	9
Pickup 4x2	CNG Bi-Fuel	93	0	93
Pickup 4x2	CNG Dedicated	21	0	21
Pickup 4x2	E-85 Flex-Fuel	152	0	152
Pickup 4x2	LPG Bi-Fuel	6	0	6
Pickup 4x4	CNG Bi-Fuel	12	0	12
Pickup 4x4	E-85 Flex-Fuel	1	0	1
SUV 4x2	E-85 Flex-Fuel	2	0	2
SUV 4x4	E-85 Flex-Fuel	17	0	17

Minivan 4x2 (Passenger)	CNG Bi-Fuel	11	0	11
Minivan 4x2 (Passenger)	E-85 Flex-Fuel	149	0	149
Pickup MD	CNG Bi-Fuel	21	0	21
Van MD (Passenger)	CNG Bi-Fuel	10	0	10
Van MD (Passenger)	CNG Dedicated	5	0	5
Van MD (Cargo)	CNG Bi-Fuel	1	0	1
Van MD (Cargo)	CNG Dedicated	13	0	13
<b>Total Number of AFV Acquisitions</b>		<b>884</b>	<b>0</b>	<b>884</b>
Zero Emission Vehicle Credits		0	0	0
Dedicated Light-Duty AFV Credits		30	0	30
Dedicated Medium-Duty AFV Credits		36	0	36
Dedicated Heavy-Duty AFV Credits		0	0	0
Biodiesel Fuel Usage Credits - Projected				631
<b>Total AFV Acquisitions with Credits</b>		<b>950</b>	<b>0</b>	<b>1,581</b>
<b>AFV Percentage of Covered Light-Duty Vehicle Acquisition</b>				<b>94%</b>

## United States Marine Corps

## Petroleum Consumption Report

Data from this report is comprised of the data submitted through the Fuel Use and Economy and Input Fleet Data screens current through FY 2005.

## EO 13149 Covered Petroleum Consumption in GGE

	FY 1999 Baseline	FY2002	FY2003	FY2004	FY2005
Gasoline	5,559,000	6,537,151	6,551,942	6,275,088	6,276,812
Diesel	4,968,804	1,213,179	532,088	415,948	393,880
Diesel component from biodiesel		198,525	592,991	945,961	1,117,656
<b>TOTAL</b>	<b>10,527,804</b>	<b>7,948,855</b>	<b>7,677,021</b>	<b>7,636,997</b>	<b>7,788,348</b>
<b>Reduction*</b>	<b>N/A</b>	<b>24.5 %</b>	<b>27.1 %</b>	<b>27.5 %</b>	<b>26.0 %</b>

\* Reduction is the % reduction compared to the FY 1999 Baseline Total

## Alternative Fuel Consumption (in GGE)

	FY2002	FY2003	FY2004	FY2005
CNG	119,826	69,878	192,337	316,990
LNG	0	0	0	0
LPG	6,502	3,897	9,988	1,154
E-85	379,326	3,154	10,867	5,020
Electric	81	0	0	0
M-85	2,842	3	0	0
Biodiesel (B100)*	65,677	168,828	245,367	283,965
Hydrogen	0	0	0	0
<b>TOTAL</b>	<b>574,254</b>	<b>245,760</b>	<b>458,559</b>	<b>607,129</b>
<b>Estimated Total Fuel Used in AFVs</b>	<b>1,671,175</b>	<b>1,569,920</b>	<b>993,705</b>	<b>1,079,656</b>
<b>% of Alt Fuel Use in AFVs w/o biodiesel<sup>1</sup></b>	<b>30.4 %</b>	<b>4.9 %</b>	<b>21.5 %</b>	<b>29.9 %</b>

\*Biodiesel is calculated at 20% of the reported B20 and 100% of the reported B100 fuel used in the Section III Actual Fuel Cost/Consumption by Fuel Type data input screen. Biodiesel is *not* included in the calculation of total fuels used in AFVs because biodiesel itself is not burned in *Alternatively Fueled Vehicles*.

**Average Fuel Economy of non-AFV Light Duty Vehicle Acquisitions (in mpg)**

	<b>FY 1999 Baseline</b>	<b>FY2002</b>	<b>FY2003</b>	<b>FY2004</b>	<b>FY2005</b>
<b>Fuel Economy</b>	17	21	19.7	20.6	21.4
<b>Change Compared to Baseline</b>		4	2.7	3.6	4.4

\* There is not enough data to generate results. Current year and 1999 baseline data values for Fuel Economy of Light Duty non-AFV Acquisitions can be entered in Block 3 of the Baseline Data Input Screen. Prior year data (i.e., data for years prior to 2005) is not available for change.