

# **U.S. Department of Agriculture AFV Program Report for Fiscal Year 2006**

The United States Department of Agriculture (USDA) Alternative Fuel Vehicle (AFV) Program Report for Fiscal Year (FY) 2006 presents the Department's data on the number of alternative fuel vehicles (AFVs) acquired in fiscal year FY 2006, and planned and projected acquisitions for FY 2007 and FY 2008. The 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, Greening the Government Through Federal Fleet and Transportation Efficiency, dated April 2000.

## **Legislative Requirements**

The Energy Policy Act (EPAAct) of 1992 required 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 (MSA) 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. 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. Executive Order (E.O.) 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 by 3 mpg by FY 2005, and using other fleet efficiency measures. The goals of E.O. 13149 expired in FY 2005; however, the Department of Energy instructed Federal agencies to continue to make efforts towards achieving the executive order goals during FY 2006.

## **USDA Fleet Mission Requirements**

USDA has a foreign and domestic vehicle fleet of 42,775 vehicles comprised of owned vehicles, commercial leases, and vehicles leased from the General Services Administration (GSA). The fleet is used to perform mission requirements in support of USDA programs, including the following:

- ◆ Management of the National Forest System, including fire prevention and firefighting
- ◆ Community Natural Resource Conservation Programs

- ◆ Animal, Plant, and Food Safety programs
- ◆ Border Surveillance
- ◆ Agriculture Science Research Programs

## **USDA Vehicle Acquisition Requirements**

The USDA heavy duty, medium duty, and light duty vehicle acquisition (owned, commercially leased, GSA leased) numbers vary from year to year, in a range of about 4000 to 6000 acquisitions, due primarily to the varying replacement cycles used by USDA agencies. GSA leased vehicle replacement cycles are generally every three to four years, while USDA owned vehicles are replaced anywhere from six to ten years. Also, vehicle acquisitions are contingent upon critical mission requirements such as responding to catastrophic events and increases in food and plant inspection services which can necessitate unplanned vehicle acquisitions and increased petroleum use.

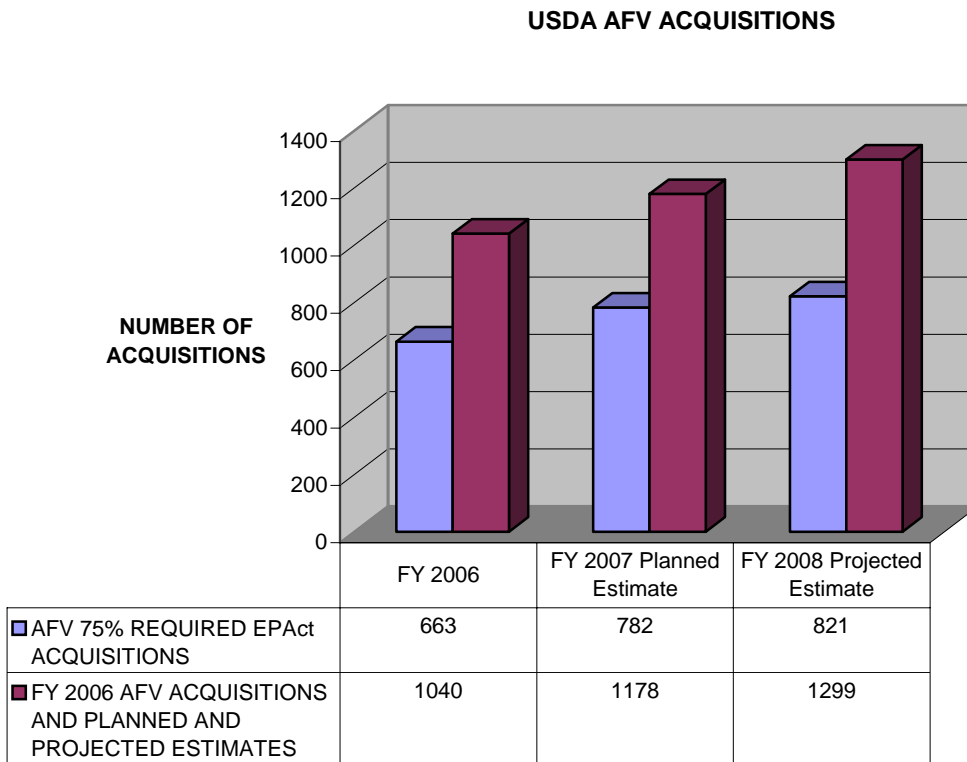
## **USDA Approach to Compliance with EPAct and E.O. 13149 in FY 2006**

This chart details USDA's FY 2006 compliance with EPAct and E.O. 13149:

### **Detailed Performance Measures Associated with Legislative Compliance**

<b>AUTHORITY/ MANDATE</b>	<b>PERFROMANCE MEASURE</b>	<b>GOAL/ REQUIREMENT</b>	<b>USDA PERFORMANCE IN FY 2006</b>	<b>ASSOCIATED TABLE</b>
1992 EPACT	AFV Acquisitions	75% of the 883 covered light-duty vehicles acquired in FY 2006 (i.e., 663 vehicles) must be AFVs	Acquired 1,040 AFVs, 2 dedicated medium duty AFV credits, and 31 biodiesel credits. AFV total AFV acquisitions were 1,073. USDA achieved a 122% EPAct acquisition rate, surpassing the established goal	TABLE 1 TABLE 2
E.O. 13149	Alternative Fuel use in AFVs	Increase alternative fuel use in AFVs to a majority (>50%) of the total fuel used in AFVs	USDA did not meet the >50% alternative fuel use requirement; however, USDA increased alternative fuel use in AFVs in FY 2006 compared with past years.	TABLE 3
	Petroleum Consumption Reduction	Reduce petroleum by 20% compared to FY 1999 baseline of 21,069,108 GGE (Gasoline Equivalent Gallons)	Reported 12.5% petroleum reduction	TABLE 4
	Fuel Economy of Light Duty Vehicle Acquisitions	Increase fuel economy compared to FY 1999 base line of 17 mpg	Increased to 22.2 mpg, increase of 5.2 miles over baseline which is a significant achievement for the USDA fleet	TABLE 5

**Table 1. USDA FY 2006 AFV Acquisitions and Planned and Projected AFV Acquisitions Graph**



**Table 2. AFV Acquisition Breakdown**

Acquisitions and Credits	FY 2006 AFV Acquisitions	FY 2007 Planned Estimate	FY 2008 Projected Estimate
Light Duty Vehicle Acquisitions	883	1,042	1094
AFV 75% EPA Act Required Acquisitions	663	782	821
AFV Acquisitions	1040	1,178	1299
Dedicated Credit	2	0	2
Biodiesel Credit	31	122	97
AFV Total Acquisitions	1073	1,300	1398
EPA Act Percentage	122%	125%	128%

Since FY 2001 USDA has consistently surpassed the EPA Act AFV acquisition target goal of 75%. The EPA Act percentages in table 2 reflect USDA's plans to continue this trend. Attachment 1 provides details of FY 2006 actual light duty vehicle acquisitions and

Attachments 2 and 3 provide details for FYs 2007 and 2008 planned and projected light duty vehicle acquisitions.

**Table 3. Alternative Fuel Consumption**

<b>ALTERNATIVE FUEL CONSUMPTION</b>					
<b>ALTERNATIVE FUEL GGEs</b>	<b>FY2002</b>	<b>FY2003</b>	<b>FY2004</b>	<b>FY 2005</b>	<b>FY 2006</b>
CNG	94	1,218	4,543	8,756	7,764
LPG	8,185	2,840	2,664	2,664	2,033
E-85	475	12,189	97,651	179,625	151,700
<b>SUB-TOTAL</b>	<b>8,754</b>	<b>16,247</b>	<b>104,858</b>	<b>191,045</b>	<b>161,497</b>
Biodiesel (B100)*	30,258	105,680	4,482	5,597	16,154
<b>TOTAL</b>	<b>39,012</b>	<b>121,927</b>	<b>109,340</b>	<b>196,642</b>	<b>177,651</b>
<b>Estimated Total Fuel Used in AFVs</b>	<b>960,000</b>	<b>1,268,000</b>	<b>1,500,000</b>	<b>1,623,860</b>	<b>1,238,839</b>
<b>% of Alt Fuel Use in AFVs w/o biodiesel*</b>	<b>0.9119%</b>	<b>1.2813%</b>	<b>6.9905%</b>	<b>11.80%</b>	<b>13.00%</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 used in conventional diesel vehicles, not *Alternatively Fueled Vehicles*.

The Department increased the overall FY 2006 percentage of alternative fuel use in AFVs (without biodiesel) by 1.2% as compared with FY 2005. The “*Estimated Total Fuel Used in AFVs*” column in the chart above is based on AFVs in the fleet determined by USDA agencies to be “*capable*” of using alternative fuel (whether the vehicle uses alternative fuel or petroleum). The increase in alternative fuel use would have been notably higher if it were not for a 16% decline in E85 use in FY 2006 compared with FY 2005.

This decrease in E85 fuel use in FY 2006 is primarily due to a usage pattern change by USDA’s Rural Development Agency (RD). In FY 2005, RD’s E85 use accounted for 75% of USDA’s total E85 fuel use; in FY 2006 this decreased to 50%. The RD fleet manager reported changes and/or additions to field office duty assignments which required certain vehicles near E85 fueling sites to be driven to different areas of the state or region. Some E85 vehicles (as well as gas vehicles) in close proximity to E85 fueling sites were either transferred or the new mission routes took the vehicles out of refueling range of E85 fueling locations. The removal of the E85 vehicles from areas in close proximity to E85 fueling sites resulted in a 34% decrease in RD E85 fuel use. The use of E85, however, in other USDA agencies increased significantly or remained stable. USDA has developed strategies to increase E85 use in FY 2007 and beyond.

Although B20 biodiesel played an important role in USDA's goal achievement in earlier years, its use declined beginning in FY 2003 due to increased prices and funding constraints. In FY 2006, however, B20 consumption almost tripled from FY 2005 use levels. This trend is expected to continue due to initiatives the department is implementing to increase the use of B20 biodiesel.

**Table 4. USDA Petroleum Consumption**

<b>PETROLEUM CONSUMPTION</b>		
<b>PETROLEUM CONSUMPTION</b>	<b>FY 1999 Baseline</b>	<b>FY 2006</b>
<b>Gasoline</b>	19,219,108	17,698,154
<b>Diesel</b>	1,850,000	679,115
<b>Diesel component from biodiesel</b>	0	58,308
<b>TOTAL</b>	21,069,108	18,435,577
<b>Reduction*</b>	N/A	12.5%*
* Reduction is the % compared to the FY 1999 Baseline Total		

In an effort to ensure that USDA's exempted fuel was properly accounted for and reported in FAST, DOE asked USDA to conduct a review and validation of its FY 2005 non-covered petroleum calculations to determine if reduction in petroleum use needed to be adjusted for FY 2005 and calculated differently in FY 2006 and beyond. All of USDA's exempted fuel use is attributable to the Forest Service (FS). Forest Service conducted a physical inventory of all fleet vehicles and equipment and a fuel analysis. As part of this physical inventory, all FS field units were required to identify all vehicles assigned to Fire/Emergency Response and to Law Enforcement. The results of this inventory validated the FS vehicle database and identified the individual vehicles assigned full time to those activities. The review determined the method by which FS would calculate the distribution of fuel use between exempted and non-exempted activities in FY 2006 and beyond. This review was documented and submitted to DOE as an attachment to USDA's January 2007 report on actions for the OMB Transportation Scorecard.

The initial petroleum reduction percentage USDA reported in the FY 2006 FAST report was 25%. USDA and DOE discussed this calculation and negotiated an agreement to examine the petroleum reduction baseline to more accurately account for USDA's exempted fuel. The results of the inventory and fuel analysis point to a need for USDA to adjust the exempt fuel calculated in the baseline year to more accurately reflect the current 12.5% reduction in covered petroleum consumption. The Department and DOE will meet in the near future to discuss methods for final resolution of this issue.

**Table 5. USDA Fuel Economy Achievements**

Year	FY 1999 Baseline	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006
Average Fuel Economy for Non-AFV Light Duty Vehicle Acquisitions	17.0	18.0	19.0	20.0	20.0	21.0	21.8	22.5

**Improved Fuel Economy**

USDA’s baseline average fuel economy for covered, conventional petroleum non-AFV light-duty vehicle acquisitions was 17 mpg in FY 1999. In FY 2006, USDA has significantly improved to 22.5 mpg. USDA achieved the 3 mpg improvement goal for FY 2005 in FY 2003. The FAST System developers, Idaho National Energy Laboratory, have not included calculations in FAST that convert fuel economy mileage gains into displaced GGEs. This would require a system change needing approval by DOE before the system can be modified.

**USDA Initiatives for Increasing Alternative Fuel Use and Decreasing Petroleum Use**

**Conversion of Diesel Tanks to B20 Use**

In FY 2006, USDA analyzed its owned inventory of 247 diesel tanks to develop a prioritized list for conversion to B20 use based on location, size, and annual diesel fuel use. The nationwide tank inventory is distributed as follows:

- Forest Service (FS) – 204
- Agriculture Research Service (ARS) - 28
- Natural Resources Conservation Service (NRCS) - 15

Approximately 3,000 medium and heavy duty vehicles in the USDA fleet use 2,000,000 gallons of petroleum diesel annually. Over 90% of these diesel vehicles are in the FS inventory; these vehicles account for over 90% of USDA’s annual diesel fuel use.

The analysis of the USDA diesel tanks identified an opportunity to convert 20 to 37 diesel tanks to B20 fuel use by the end of FY 2007. USDA developed an implementation plan with a timetable for converting the top 20 prioritized diesel tanks to B20 biodiesel, all of which are FS tanks. The Forest Service National Fleet Manager’s meeting in February 2007 will be the catalyst for an aggressive movement to convert the selected diesel tanks to B20 use this year. The FS will also begin the review process for Phase 2 conversion of additional

tanks. The next action steps will address conversion planning for diesel tanks owned by ARS and NRCS.

### **Use of E85 in Locations in Close Proximity to E85 Fueling Sites**

In FY 2006, the Department performed a zip code analysis of its E85 vehicle inventory to determine which vehicles were located in close proximity to existing or planned E85 fueling sites. A thorough review of the USDA vehicle zip codes revealed that over 600 USDA E85 vehicles operated in areas near E85 fueling sites. In FY 2007, USDA issued a new policy instructing the agencies to acquire E85 vehicles whenever an E85 option is available for the vehicle type and size ordered. This policy should significantly increase the E85 vehicle inventory in locations near E85 fueling sites. This analysis has established a method for USDA to monitor vehicle acquisitions and fuel use in areas that provide E85 fuel. Also, the Department will continually review E85 acquisitions, fuel use, and areas nationwide where E85 fueling sites are planned.

### **OMB Transportation Score Card Actions**

OMB requested that USDA take specific actions to decrease petroleum use. Listed below are action items that USDA successfully completed towards establishing methods to decrease petroleum use and increase alternative fuel use:

#### **Actions taken in FY 2006:**

- Analyzed inventory of USDA-owned diesel tanks to develop prioritized list, based on location, size and annual fuel use to tanks to convert to B20 use
- Developed implementation plan, for converting top 20 diesel tanks to B20 biodiesel fuel use by 9/30/07
- Reviewed and updated USDA/Forest Service inventory of law enforcement and emergency vehicles
- Submitted a short report on planned actions to increase alternative fuel use, especially biofuels, to achieve compliance with EO 13149
- Performed an analysis to identify the top 50 USDA locations as measured by number of vehicles to determine a critical mass (50-100) of vehicles at one location (This analysis determined that it was not feasible to install an E85 alternative refueling station on USDA owned facilities by 2007.)

#### **New Initiatives for FY 2007**

- Conduct pilot projects involving two USDA locations with a sufficient number of E85 vehicles to use E85 fuel 100% of the time
- Develop new partnerships with Federal, state, and local government entities to increase availability and access to alternative fuel sites
- Update and revise USDA Petroleum Strategy to meet new requirements of the 2005 Energy Policy Act

- Continue diesel to B20 tank conversion

## **Summary**

The FY 2006 AFV report illustrates that the Department has exceeded its AFV acquisition requirements under EPC Act and has expectations to continue this progress in FYs 2007 and 2008. The report also documents increased alternative fuel use in FY 2006 and increased MPG ratings in newly acquired light duty vehicles. The reduction of petroleum, however, is a dilemma which the Department is aggressively seeking to resolve. The reduction in petroleum use in FY 2007 and future years will be achieved by implementing the viable initiatives that were developed in FY 2006, i.e., E85 zip code analysis, diesel to B20 tank conversions, etc. USDA will continually reevaluate petroleum reduction strategy initiatives to seek new opportunities.

The following barriers continue to impede progress towards petroleum reduction efforts:

- The lack of available valid alternative fuel use data which hinders federal agencies' compliance with the mandated reporting requirements.
- The issues of tertiary fleet card data correctly identifying fuel type purchased at the pump and the inability to obtain full and accurate accounting of fuel use for USDA owned and GSA leased vehicles.
- The inability of the FAST system to convert the annual acquisition of fuel economy vehicles into displaced GGEs or convert miles traveled to displaced GGEs.
- The inability to capture alternative fuel purchases.

These barriers are of major concern to USDA but not within our power to resolve independently. Given these data collection problems and issues, USDA will continue best efforts to provide the most reliable and accurate petroleum reduction and increased alternative fuel use data possible in our reporting.

As difficult as the data collection problem and issues are, some progress is being made. GSA is introducing a system in April 2007 that will track leased vehicles petroleum and alternative fuel data. Also, GSA developed a method to capture and report alternative fuel data that was helpful to the Federal agencies FAST reporting efforts in FY 2006. USDA is also making strides towards improving data accuracy. The Department has been able to more effectively train its fleet managers to gather and analyze critical fleet related information for the purpose of providing more accurate data. Also, agency financial data is being reviewed for petroleum and alternative fuel costs. In addition, a database has been developed which assists agencies with tracking vehicle acquisitions, disposals, and inventory changes. This system was very useful for the USDA FY 2006 FAST report.



<b>Actual Department of Agriculture FY 2006 Vehicle Acquisitions</b>					
<b>Actual FY 2006 Light-Duty Vehicle Acquisitions</b>				<b>Total Vehicle Inventory</b>	
	<b>Leased</b>	<b>Purchased</b>	<b>Total</b>		
Total number of Light-Duty (8,500 GVWR) - Vehicle Acquisitions		1,537	2,203	3,740	31,987
Exemptions	Fleet Size	2	0	2	25
	Geographic	0	68	68	1,732
	Law Enforcement	48	0	48	123
	Non-MSA Operation (fleet)	579	1,192	1,771	15,376
	Non-MSA Operation (vehicles)	541	427	968	(n/a)
<b>EPACT Covered Acquisitions</b>		<b>367</b>	<b>516</b>	<b>883</b>	<b>14,731</b>
<b>Actual FY 2006 AFV Acquisitions</b>				<b>Total Vehicle Inventory</b>	
<b>Vehicle</b>	<b>Leased</b>	<b>Purchased</b>	<b>Total</b>		
Sedan	CNG Bi-Fuel Subcompact	2	0	2	3
Sedan	CNG Dedicated Subcompact	0	0	0	2
Sedan	CNG Bi-Fuel Compact	0	0	0	1
Sedan	E-85 Flex-Fuel Compact	174	10	184	631
Sedan	E-85 Flex-Fuel Midsize	56	93	149	913
Sedan	CNG Dedicated Large	0	0	0	7
Sedan	E-85 Flex-Fuel Large	1	0	1	1
Pickup 4x2	CNG Bi-Fuel	0	0	0	7
Pickup 4x2	CNG Dedicated	0	0	0	1
Pickup 4x2	E-85 Flex-Fuel	14	168	182	1,245
Pickup 4x2	LPG Bi-Fuel	0	0	0	12
Pickup 4x4	CNG Bi-Fuel	0	0	0	13
Pickup 4x4	CNG Dedicated	0	0	0	5
Pickup 4x4	E-85 Flex-Fuel	42	352	394	905
Pickup 4x4	LPG Bi-Fuel	0	0	0	4
SUV 4x2	E-85 Flex-Fuel	1	4	5	51
SUV 4x4	E-85 Flex-Fuel	24	28	52	447
Minivan 4x2 (Passenger)	E-85 Flex-Fuel	40	20	60	308
Van 4x2 (Passenger)	E-85 Flex-Fuel	0	10	10	80
Van MD (Passenger)	CNG Dedicated	0	1	1	3
<b>Total Number of AFV Acquisitions</b>		<b>354</b>	<b>686</b>	<b>1,040</b>	<b>4,639</b>
Zero Emission Vehicle Credits		0	0	0	
Dedicated Light-Duty AFV Credits		0	0	0	
Dedicated Medium-Duty AFV Credits		0	2	2	
Dedicated Heavy-Duty AFV Credits		0	0	0	
Biodiesel Fuel Usage Credits - Actual				31	
<b>Total AFV Acquisitions with Credits</b>		<b>354</b>	<b>688</b>	<b>1,073</b>	
<b>AFV Percentage of Covered Light-Duty Vehicle Acquisition</b>				<b>122 %</b>	

<b>Planned Department of Agriculture FY 2007 Vehicle Acquisitions</b>				
<b>Planned FY 2007 Light-Duty Vehicle Acquisitions</b>				
		<b>Leased</b>	<b>Purchased</b>	<b>Total</b>
Total number of Light-Duty (8,500 GVWR) - Vehicle Acquisitions		1,068	2,287	3,355
Exemptions	Fleet Size	4	0	4
	Geographic	0	65	65
	Law Enforcement	22	0	22
	Non-MSA Operation (fleet)	364	1,216	1,580
	Non-MSA Operation (vehicles)	243	399	642
<b>EPACT Covered Acquisitions</b>		<b>435</b>	<b>607</b>	<b>1,042</b>
<b>Planned FY 2007 AFV Acquisitions</b>				
	<b>Vehicle</b>	<b>Leased</b>	<b>Purchased</b>	<b>Total</b>
Sedan	E-85 Flex-Fuel Compact	307	21	328
Sedan	E-85 Flex-Fuel Midsize	24	77	101
Pickup 4x2	E-85 Flex-Fuel	5	136	141
Pickup 4x2	LPG Bi-Fuel	0	3	3
Pickup 4x4	E-85 Flex-Fuel	22	436	458
Pickup 4x4	LPG Bi-Fuel	0	2	2
SUV 4x2	E-85 Flex-Fuel	3	1	4
SUV 4x4	E-85 Flex-Fuel	30	47	77
Minivan 4x2 (Passenger)	E-85 Flex-Fuel	26	20	46
Van 4x2 (Passenger)	E-85 Flex-Fuel	3	13	16
Van 4x2 (Cargo)	E-85 Flex-Fuel	2	0	2
<b>Total Number of AFV Acquisitions</b>		<b>422</b>	<b>756</b>	<b>1,178</b>
Zero Emission Vehicle Credits		0	0	0
Dedicated Light-Duty AFV Credits		0	0	0
Dedicated Medium-Duty AFV Credits		0	0	0
Dedicated Heavy-Duty AFV Credits		0	0	0
Biodiesel Fuel Usage Credits - Planned				122
<b>Total AFV Acquisitions with Credits</b>		<b>422</b>	<b>756</b>	<b>1,300</b>
<b>AFV Percentage of Covered Light-Duty Vehicle Acquisition</b>				<b>125 %</b>

<b>Projected Department of Agriculture FY 2008 Vehicle Acquisitions</b>				
<b>Projected FY 2008 Light-Duty Vehicle Acquisitions</b>				
		<b>Leased</b>	<b>Purchased</b>	<b>Total</b>
Total number of Light-Duty (8,500 GVWR) - Vehicle Acquisitions		1,280	2,088	3,368
Exemptions	Fleet Size	4	0	4
	Geographic	0	67	67
	Law Enforcement	14	8	22
	Non-MSA Operation (fleet)	453	1,230	1,683
	Non-MSA Operation (vehicles)	236	262	498
<b>EPACT Covered Acquisitions</b>		<b>573</b>	<b>521</b>	<b>1,094</b>
<b>Projected FY 2008 AFV Acquisitions</b>				
	<b>Vehicle</b>	<b>Leased</b>	<b>Purchased</b>	<b>Total</b>
Sedan	CNG Bi-Fuel Compact	0	1	1
Sedan	E-85 Flex-Fuel Compact	552	20	572
Sedan	E-85 Flex-Fuel Midsize	35	66	101
Pickup 4x2	E-85 Flex-Fuel	14	121	135
Pickup 4x2	LPG Bi-Fuel	0	2	2
Pickup 4x4	CNG Dedicated	0	2	2
Pickup 4x4	E-85 Flex-Fuel	20	282	302
SUV 4x2	E-85 Flex-Fuel	5	4	9
SUV 4x4	E-85 Flex-Fuel	41	61	102
Minivan 4x2 (Passenger)	E-85 Flex-Fuel	28	21	49
Van 4x2 (Passenger)	E-85 Flex-Fuel	0	24	24
<b>Total Number of AFV Acquisitions</b>		<b>695</b>	<b>604</b>	<b>1,299</b>
Zero Emission Vehicle Credits		0	0	0
Dedicated Light-Duty AFV Credits		0	2	2
Dedicated Medium-Duty AFV Credits		0	0	0
Dedicated Heavy-Duty AFV Credits		0	0	0
Biodiesel Fuel Usage Credits - Projected				97
<b>Total AFV Acquisitions with Credits</b>		<b>695</b>	<b>606</b>	<b>1,398</b>
<b>AFV Percentage of Covered Light-Duty Vehicle Acquisition</b>				<b>128 %</b>