

**Department of State**  
**Fleet Alternative Fuel Vehicle Program Report for Fiscal Year 2007**  
**January 29, 2008**

This report summarizes the U.S. Department of State (DOS) fiscal year (FY) 2007 performance in meeting the requirements of: Executive Order (EO) 13423, Strengthening Federal Environmental, Energy, and Transportation Management; and the Energy Policy Act of 1992 (EPAAct; 42 U.S.C. 13211-13219) as amended by the Energy Conservation Reauthorization Act of 1998 (ECRA; Public Law 105-388) and the EPAAct of 2005 (Public Law 109-58).

Exhibit 1 summarizes DOS's progress in meeting the EO and EPAAct requirements. Appendices A and B reflect DOS vehicle acquisitions (for FYs 2007, 2008, and 2009) and fuel consumption data, respectively, and Appendix C contains a glossary of acronyms and terms used in this report.

**Exhibit 1. DOS Performance – EPAAct/EO Requirements FY 2007**

<b>Authority /Mandate</b>	<b>Performance Measure</b>	<b>Requirement</b>	<b>DOS Performance in FY 2007</b>
EPAct 1992	Alternative Fuel Vehicle (AFV) acquisitions	75 percent of the 40 <i>covered fleet vehicle</i> <sup>1</sup> acquisitions must be AFVs.	Acquired 91 AFVs, earned two additional credits <sup>2</sup> for a total of 93 credits (233 percent of covered acquisitions).
EPAct 2005	Alternative fuel (AF) use in AFVs	Dual-fuel vehicles shall be operated on AFs unless a waiver is granted due to unavailability or excessive incremental cost over gasoline.	Department of Energy is determining how this parameter will be calculated.
EO 13423	Subject petroleum consumption	Reduce petroleum consumption by <i>subject vehicles</i> <sup>3</sup> two percent per year compared to FY 2005 baseline of 278,985 gasoline gallon equivalents (GGEs) through FY 2015. Target was four percent decrease by the end of FY 2007.	Consumed 246,033 GGEs, a decrease of 12 percent from the baseline.
EO 13423	AF use	Increase AF consumption by 10 percent compounded annually relative to the FY 2005 baseline of 28,480 GGEs. Target was 21 percent increase by the end of FY 2007.	Consumed 12,462 GGEs, a decrease of four percent from the baseline. <sup>4</sup>

EO 13423	Plug-in hybrid (PIH) vehicles acquisitions	Use PIH vehicles when they are commercially available at a cost reasonably comparable, on life-cycle basis, to non-PIH vehicles.	No PIH vehicles were commercially available.
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<sup>1</sup>By definition, the term “covered fleet vehicles” includes all domestic non law-enforcement (LE), light-duty (LD) administrative vehicles operated in a metropolitan statistical area (MSA) and acquired by lease or purchase in FY 2007.

<sup>2</sup>Two credits earned for acquisition of dedicated medium-duty (MD) AFV.

<sup>3</sup>Domestic, non-law enforcement vehicles of any weight and operating in or out of an MSA.

<sup>4</sup>Due mainly to decreased usage of compressed natural gas (CNG) because of a shortage of qualified drivers for the CNG dedicated buses; more drivers have already been hired in FY 2008.

## **EPAct Acquisition Compliance**

DOS exceeded EPAct alternative fuel vehicle (AFV) acquisition requirements in FY 2007 with a percentage of 233 percent:

- DOS acquired 40 covered fleet vehicles (214 total light-duty (LD) vehicle acquisitions minus exemptions for 172 law enforcement (LE) vehicles and two non-MSA operation vehicles).
- Thirty AFV credits (i.e., 75 percent of 40) were needed to meet the EPAct requirement.
- DOS accumulated a total of 93 AFV credits, significantly more than the 30 required. The 93 AFV credits were accumulated as follows:
  - 33 covered (non-LE) fleet AFVs (32 E85 [a fuel blend of 85% ethanol and 15% gasoline] flex-fuel vehicles [FFVs] and one compressed natural gas [CNG] dedicated [DE] bus);
  - 58 non-covered (LE) fleet AFVs;
  - Two dedicated medium duty (MD) AFV credits (for one MD CNG DE bus);
  - The total of 93 (33 + 58 + 2) AFV acquisition credits resulted in an EPAct percentage of 233 percent (93/40).

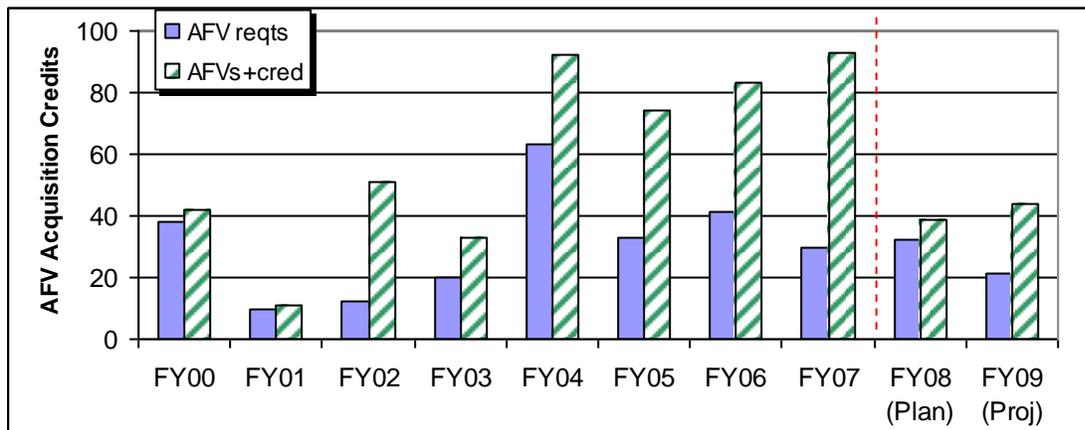
Of note, one of the LE vehicles leased from the General Services Administration (GSA) was replaced by a hybrid electric 4x4 sport utility vehicle (SUV), which is not classified as an AFV, but helps to reduce petroleum fuel consumption.

### ***AFV Acquisitions***

DOS has successfully met the EPAct requirement every year (see Exhibit 2) as reflected in the Federal Automotive Statistical Tool (FAST), mainly due to its policy of acquiring AFVs for all covered vehicles to the maximum extent that

AFVs meeting operational requirements are available from original equipment manufacturers. GSA-leased vehicles comprised 100 percent of the FY 2007 covered acquisitions.

**Exhibit 2. EAct AFV Requirements vs. AFV Acquisitions + Credits**



**Exemptions**

DOS acquired 214 total LD vehicles in FY 2007. Of those acquisitions, only 40 were “covered” for the purposes of EAct compliance, leaving 174 exempt vehicle acquisitions as follows:

- 172 law enforcement vehicles with the Bureau of Diplomatic Security (DS).
- Two operated in a non-MSA.

**Appendix A** contains FAST data on the numbers and types of LD vehicles that the DOS leased or purchased for the non-exempt fleet in FY 2007.

**FY 2008 Planned and FY 2009 Projected Acquisitions**

DOS plans to continue its policy of acquiring AFVs exclusively for its non-exempt fleet, except where operational requirements make that impractical.

- For FY 2008, DOS plans to acquire 31 E85 FFV replacements from GSA and expects its EAct percentage for FY 2008 to be above 90 percent.
- For FY 2009, DOS projects that 37 E85 FFVs will be acquired through replacement by GSA of GSA-leased vehicles and expects its EAct percentage for FY 2009 to exceed 100 percent, after the exemption for LE vehicles has been applied.
- The planned replacements of two CNG bi-fuel (CNG BI) and two CNG DE vehicles in FY 2008 will most likely be changed to gasoline or diesel vehicles or other types of AFVs due to the limited availability of natural gas

vehicles (NGVs) from manufacturers. The same applies to the projected replacements of one CNG DE and four CNG BI vehicles in FY 2009. If AFVs are not available, DOS will strongly consider acquiring diesel engine vehicles and burning biodiesel fuel in an effort to comply with the spirit and intent of standing requirements. With improvements in technology, hybrid electric vehicles (HEVs) (possibly even HEVs whose primary fuel source is an alternative fuel) may also be a consideration at the time of planned acquisition; again, HEVs (whose primary fuel source is petroleum fuel) are not AFVs by definition, but while their acquisition will negatively impact DOS's AFV acquisition percentage, they will help DOS meet petroleum fuel consumption mandates.

### **EO and EAct Fuel Consumption Compliance**

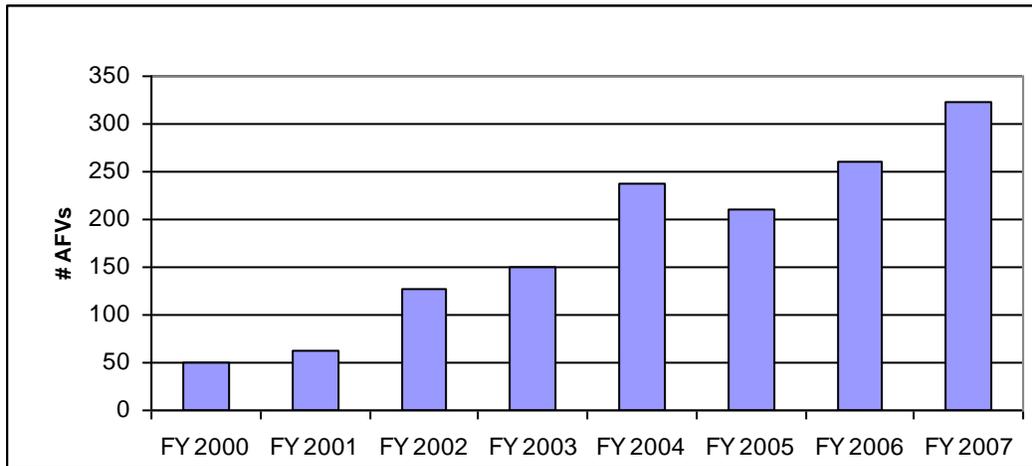
In FY 2007, DOS actively pursued the petroleum reduction and vehicle fuel efficiency requirements of EO 13149, even though the target date (end of FY 2005) was past, resulting in "green" scores for actions taken on the agency's 2007 OMB Transportation Management Scorecard. On January 24, 2007, EO 13423 revoked EO 13149 of April 21, 2000. The new EO 13423 calls for each federal agency to:

- Reduce vehicular petroleum consumption (for domestic, non-LE vehicles of any weight and operating in or out of an MSA) by two percent annually through FY 2015 (compared to the FY 2005 usage, which is referred to as the FY 2005 baseline).
- Increase vehicular non-petroleum based fuel (i.e., alternative fuel) consumption by 10 percent compounded annually.
- Use plug-in hybrid (PIH) vehicles when they are commercially available at a cost reasonably comparable to non-PIH vehicles.

EAct 2005 requires that dual-fuel vehicles use AFs exclusively unless the AF is (1) not reasonably available or (2) unreasonably more expensive compared to gasoline. Subsequently, the on-line FAST system was set up in FY 2007 for the Department of Energy (DOE) to receive the requests from agencies for waivers of the EAct AF use requirement in FY 2008 for dual-fuel vehicles based on the distance/cost criteria when applicable. In June 2007, DOS requested waivers for 67 dual-fuel vehicles, all of which were approved by DOE.

As evidenced by Exhibit 3 below, the number of AFVs (mostly E85 FFVs) in the DOS domestic fleet continues to increase.

### Exhibit 3. DOS AFV Fleet



At the end of FY 2007, there were 323 AFVs in the DOS fleet, 293 of which were LD dual-fuel vehicles (either CNG BI or E85 FFV). DOS is in the process of evaluating disposition for the 67 waived dual-fuel vehicles located where no AFs are reasonably available or planned. Disposition options taken or being considered for the waived AFVs include turning in vehicles no longer needed, replacement with non-AFVs, and no action when an AF station will soon be located within five miles of a vehicle's primary garage location.

#### *Use of Alternative Fuels in AFVs*

DOS took the following actions in FY 2007 to increase the use of AFs in AFVs:

- DOS continued or established dialogue with various governmental agencies, commercial firms and other entities, such as Clean Cities Coalitions, to promote AF availability for AFVs. For example, contact with Burke Oil in Boston revealed that their E85 pump, which is only two miles from a DOS FFV, may finally open in FY 2008 after much delay due to "red tape".
- Informed AFV custodians by direct contact that DOS is required by EO 13423 to increase annually the use of AFs and by the EPAct to use AFs in AFVs when an AFV is within five miles or 15 minutes of an AF station.
- E-mailed the Alternative Fuel Station Locator web site address to AFV custodians and informed them where the closest AF stations are located.
- Reminded AFV custodians by direct contact of AF usage requirements when informing them of new AF stations opening near them.

*Biodiesel Use:* Diesel vehicles make up only six percent of DOS's domestic fleet. DOS plans to use biodiesel in those vehicles to the maximum extent possible. However, the availability of biodiesel is quite limited. In FY 2007, DOS's reported consumption of B20 (a fuel blend of 20 percent biodiesel and 80 percent diesel) was only 44 GGEs. Biodiesel consumption is likely underreported because of problems with incomplete/inaccurate fuel data caused by:

- Incorrect coding of B20 as regular diesel at point of sale such as at the Pentagon Navy Exchange (NEX) station;
- Unavailability of detailed fuel transaction data from GSA on the GSA-leased vehicles (including the location of the purchase, which may have helped identify if B20 was purchased).

*CNG Use:* DOS's CNG vehicle inventory currently consists of:

- 12 CNG DE vehicles: seven buses, one LD 4X2 van, and four MD vans.
- 21 CNG BI vehicles: one heavy-duty (HD) vehicle, 17 MD vans, one LD van, and two LD pickups.

The amount of CNG used in FY 2007 is about half what was used in FY 2006 due mainly to decreased use of the CNG DE buses because of a shortage of qualified drivers. DOS has hired some drivers and is recruiting more as part of an effort to improve efficiency of its bus operations.

Moreover, lack of adequate CNG refueling infrastructure continues to be a problem, with only one source (the Pentagon NEX station) being convenient for daily DOS use. Even at this station, CNG buses are unable to obtain enough fuel pressure from the NEX CNG pump to operate for more than one day. Consequently, the buses must refuel every day, incurring additional costs in manpower and fuel. Though not convenient for normal refueling operations, there are two backup sites for CNG refueling: one near the Washington Navy Yard and the other at the Arlington Transit (ART) site in Shirlington, VA. Of note, the ART CNG station, which is a recently opened state-of-the-art refueling site of which DOS buses are part of the anchor fleet, will become the primary fueling source for DOS CNG buses in the third quarter of FY 2008.

*E85 Use:* The amount of E85 reported in FAST as used by all DOS vehicles remained about the same from FY 2003 to FY 2007 (at around 3,000 or 4,000 GGEs). The actual amount is difficult to measure due to point-of-purchase coding problems; a good example is the E85 available at the Pentagon NEX station. At one time the NEX station was correctly coding E85, but with a change

in the refueling equipment this last year, the E85 is now coded as unleaded gas whenever the fuel is paid for at the pump (instead of with the cashier inside). This results in the agency having to estimate how much of the fuel might be E85 for the FFVs refueling there.

While DOS is increasing the number of FFVs in the fleet (290 in FY 2007, an increase of 29 percent from the previous year), the amount of E85 that is actually used will not increase significantly until more E85 stations become available, such as in the El Paso, TX geographical area. In order to take full advantage of the few opportunities available to use E85 through increased driver awareness, vehicle custodians of DOS FFVs were informed of the requirement to use E85 and where to refuel.

*Prospects for Meeting Required AF Increases:* CNG comprises the majority of DOS's AF usage. Unfortunately, CNG use has greatly decreased from the FY 2005 baseline due to less use of the CNG DE buses. Consequently, the agency AF usage is less than half the FY 2005 level (of 28,480 GGEs) instead of meeting the requirement of increasing 10 percent in FY 2006 and then 11 percent in FY 2007. From this deficit position, it will be very challenging to catch up to the target levels of AF usage, but DOS expects to be able to make some progress with the hiring of new drivers to operate the CNG buses and increasing the awareness of the drivers of the non-waived FFVs to always seek E85 stations for refueling.

### ***Petroleum Consumption Reduction Progress***

DOS reduced its petroleum fuel consumption in FY 2007 by 12 percent over the FY 2005 baseline. EO 13423 requires each Federal agency operating a fleet of at least 20 motor vehicles to reduce the fleet's total consumption of petroleum products by two percent annually through the end of FY 2015, which equated to a four percent reduction requirement in FY 2007.

*Efficiency measures:* Although Federal agencies are no longer required by EO 13149 to increase fuel efficiency of fleet vehicles, doing so helps to reduce petroleum consumption. Thus, in November 2007 DOS renewed its formal agreement with the GSA Fleet Office that SUVs will not be provided to any DOS entity as scheduled replacements or to fill new vehicular requirements without the prior approval of the Fleet Management & Operations (FMO) office. Before authorizing provision of the SUV, FMO validates the requirement through direct contact with the cognizant bureau vehicle custodian; effort is taken during discussions to fill the vehicle requirement with a more fuel efficient vehicle (such

as a mini-van) before issuing final approval for a SUV. This policy has contributed to increasing the fuel efficiency of the DOS fleet by reducing the number of SUVs.

*Reduction guidance:* In FY 2007 FMO again reinforced petroleum use reduction guidance to fleet field activities through direct contact and by publishing a Department Notice soliciting the cooperation of all DOS employees, especially drivers, vehicle custodians, and managers to reduce petroleum consumption by:

- Driving vehicles more efficiently (slow starts, observing posted speed limits, removing unnecessary cargo, adhering to established maintenance schedules);
- Combining trips;
- Reducing the number of assigned vehicles;
- Sub-pooling or shared-use of vehicles between offices located in close proximity to one another;
- Conducting business by telephone, e-mail or teleconference;
- Using commercial delivery services, taxi cabs, DOS shuttle buses, and public transportation;
- Placing transport requirements on contractors;
- Using CNG and E85 in dual-fuel vehicles;
- Ordering AFVs and smaller and/or more fuel-efficient models (including HEVs) to replace current vehicles (e.g., replacing large 4x4 SUVs with FFV minivans).

## **Barriers & Impediments to Compliance**

There are certain barriers and impediments to compliance with the EOs and EPAAct requirements that face DOS and, in fact, all federal agencies. These obstacles hinder effective development of AF infrastructure and efficient planning of AFV acquisition:

- Limited availability of commercial AF infrastructure and the expense of getting AFs to remote areas, such as the International Boundary and Water Commission site at Del Rio, TX.
- Limited availability each year of AFVs that will meet mission requirements. For example, there are no CNG LD or MD sedans or vans being manufactured in the 2008 model year, except for the Honda Civic GX, which does not meet DOS's needs.

## **Conclusion**

The DOS continues to be fully committed to compliance with the EPAct and EO requirements. With its policy of exclusively acquiring AFVs for its non-exempt fleet, except where operational requirements make such acquisitions impractical, DOS expects to continue its record of meeting or exceeding the 75 percent EPAct percentage for the foreseeable future.

With the number of AFVs increasing (almost all new AFVs are E85 FFVs), DOS has the potential to use a great deal more E85 as it becomes more commercially available. DOS continued or established dialogue in FY 2007 with various organizations to promote alternative fuel availability. As for CNG usage, while DOS can now refuel at Arlington County's new CNG site, there are fewer natural gas vehicles offered by manufacturers for DOS to acquire, so it is unlikely that CNG usage can increase in the future beyond prior consumption levels. The ability to meet alternative fuel consumption requirements is still constrained by limited infrastructure, but is gradually improving as more stations open.

**Appendix A**  
**Department of State**  
**Complex-Wide AFV Report 2007 – Actual**

<b>Actual Department of State FY 2007 Vehicle Acquisitions</b>					
<b>Actual FY 2007 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		207	7	214	967
Exemptions	Fleet Size	0	0	0	0
	Geographic	0	0	0	0
	Law Enforcement	165	7	172	680
	Non-MSA Operation (fleet)	0	0	0	0
	Non-MSA Operation (vehicles)	2	0	2	(n/a)
<b>EPACT Covered Acquisitions</b>		<b>40</b>	<b>0</b>	<b>40</b>	<b>287</b>
<b>Actual FY 2007 AFV Acquisitions</b>					<b>Total Vehicle Inventory</b>
<b>Vehicle</b>	<b>Leased</b>	<b>Purchased</b>	<b>Total</b>		
Sedan	E-85 Flex-Fuel Compact	0	0	0	5
Sedan	E-85 Flex-Fuel Midsize	30	0	30	49
Pickup 4x2	E-85 Flex-Fuel	2	0	2	9
Pickup 4x4	CNG Bi-Fuel	0	0	0	2
Pickup 4x4	E-85 Flex-Fuel	5	0	5	9
SUV 4x2	E-85 Flex-Fuel	4	0	4	34
SUV 4x4	E-85 Flex-Fuel	15	0	15	108
Minivan 4x2 (Passenger)	E-85 Flex-Fuel	34	0	34	68
Minivan 4x2 (Cargo)	E-85 Flex-Fuel	0	0	0	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	7
Bus	CNG Dedicated	1	0	1	7
Van MD (Passenger)	CNG Bi-Fuel	0	0	0	9
Van MD (Passenger)	CNG Dedicated	0	0	0	2
Van MD (Cargo)	CNG Bi-Fuel	0	0	0	8
Van MD (Cargo)	CNG Dedicated	0	0	0	2
HD 16,001 + GVWR	CNG Bi-Fuel	0	0	0	1
<b>Total Number of AFV Acquisitions</b>		<b>91</b>	<b>0</b>	<b>91</b>	<b>323</b>
Zero Emission Vehicle Credits		0	0	0	
Dedicated Light-Duty AFV Credits		0	0	0	
Dedicated Medium-Duty AFV Credits		2	0	2	
Dedicated Heavy-Duty AFV Credits		0	0	0	
Biodiesel Fuel Usage Credits – Actual				0	
<b>Total AFV Acquisitions with Credits</b>		<b>93</b>	<b>0</b>	<b>93</b>	
<b>AFV Percentage of Covered Light-Duty Vehicle Acquisition</b>				<b>233 %</b>	

**Appendix B**  
**Department of State**  
**FY2007 EO 13423 Petroleum Consumption Report**

**Covered Petroleum Consumption in GGE**

<b>Baseline</b>											
	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>
<b>Gasoline</b>		237,260	210,103								
<b>Diesel</b>		39,640	35,895								
<b>B20</b>		414	35								
<b>Total</b>	<b>278,985</b>	<b>277,314</b>	<b>246,033</b>								
<b>Target</b>		273,405	267,825	262,245	256,666	251,086	245,506	239,927	234,347	228,767	223,188
<b>Compliant</b>		<b>No</b>	<b>Yes</b>								

\* B20 is the diesel component from covered biodiesel consumption.

**Alternative Fuel Consumption in GGE**

<b>Baseline</b>											
	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>
<b>CNG</b>		18,265	8,999								
<b>LNG</b>		0	0								
<b>LPG</b>		0	0								
<b>E-85</b>		4,523	3,454								
<b>Electric</b>		0	0								
<b>M-85</b>		0	0								
<b>B100</b>		104	9								
<b>Hydrogen</b>		0	0								
<b>Total</b>	<b>28,480</b>	<b>22,892</b>	<b>12,462</b>								
<b>Target</b>		31,328	34,460	37,906	41,697	45,867	50,454	55,499	61,049	67,154	73,869
<b>Compliant</b>		<b>No</b>	<b>No</b>								

\*B100 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.

\*\*It is often difficult to accurately determine AF use due to fuel coding issues at the point of sale.

**Appendix C**  
**Department of State**  
**Glossary**

4x2 – Two wheel drive

4x4 – Four wheel drive

AF - Alternative Fuel; a fuel defined as alternative by the EPAct of 1992.

AFV - Alternative Fuel Vehicle; a vehicle that can run on an alternative fuel.

ART – Arlington Transit (Arlington County, VA).

ASTM – American Society for Testing and Materials

B20 – fuel blend of 20 percent biodiesel and 80 percent petrodiesel.

Biodiesel – a renewable alternative fuel made primarily from soybeans in the US.

CNG – Compressed Natural Gas; a domestically produced alternative fuel.

CNG Bi-Fuel Vehicle – a NGV with two separate fueling systems that enable the vehicle to use either CNG or a conventional fuel (gasoline or diesel).

CNG Dedicated Vehicle – a NGV that uses only CNG fuel.

Diesel – Petroleum diesel

Dual Fuel Vehicle – designed to operate on a combination of an alternative fuel and a conventional fuel (includes CNG bi-fuel and E85 flex-fuel vehicles).

DOS – Department of State

DE – Dedicated; a vehicle that uses only one type of fuel, such as a CNG DE bus.

DS – Bureau of Diplomatic Security

E85 – fuel blend of 85 percent ethanol and 15 percent gasoline

ECRA – Energy Conservation Reauthorization Act

EO – Executive Order

EO 13149 – Greening the Government through Federal Fleet and Transportation Efficiency

EPAct – Energy Policy Act

Ethanol – an alcohol-based alternative fuel made primarily from corn in the US.

FAST – Federal Automotive Statistical Tool; an online data reporting system for Federal fleet management personnel.

FFV – Flexible Fuel Vehicle; a vehicle that can run equally well on any blend of gasoline and ethanol up to 85% ethanol (E85).

FMO – Fleet Management & Operations Division, Office of General Services Management, Deputy Assistant Secretary for Operations, Bureau of Admistration, DOS

FY – Fiscal Year

GGE – Gasoline Gallon Equivalent: a concept used to describe the difference in energy content of various fuels, using gasoline as the baseline.

GSA – General Services Admistration

GVWR – Gross Vehicle Weight Rating

HD – Heavy Duty, a vehicle weighing > 16,000 lbs GVWR

IBWC – International Boundary and Water Commission

LD – Light Duty; a vehicle that weighs less than 8,500 lbs. GVWR

LE – Law Enforcement

MD – Medium Duty, a vehicle weighing between 8,500 lbs. and 16,000 lbs. GVWR

MSA – Metropolitan Statistical Area

NGV – Natural Gas Vehicle

NEX – Navy Exchange

Original Equipment Manufacturer - OEM; e.g.: Ford, General Motors, Honda

Petrodiesel – diesel from petroleum

SUV – Sport Utility Vehicle