

National Aeronautics and Space Administration
Fleet Alternative Fuel Vehicle Program Report for Fiscal Year 2009
February 15, 2010

This National Aeronautics and Space Administration (NASA) Fleet Alternative Fuel Vehicle (AFV) Report for Fiscal Year (FY) 2009 presents the Agency's data on the number of alternative AFVs acquired in FY 2009, and the planned and projected acquisitions for FY 2010 and FY 2011. This report has been developed in accordance with the Energy Policy Act of 1992 (EPAct) (42 U.S.C. 13211-13219) as amended by the Energy Conservation Reauthorization Act of 1998 (Public Law 105-388) (ECRA), Energy Policy Act of 2005 (EPAct), Executive Order (E.O.) 13423 (signed by the President in January 2007) and Executive Order (E.O.) 13514 (signed by the President in October 2009). NASA exceeded the 75 percent AFV acquisition requirement for 298 vehicles, by acquiring 541 total credits in FY 2009. Attachment (A) provides detailed information on the number and types of light-duty vehicles leased or purchased by NASA in FY 2009.

Legislative Requirements

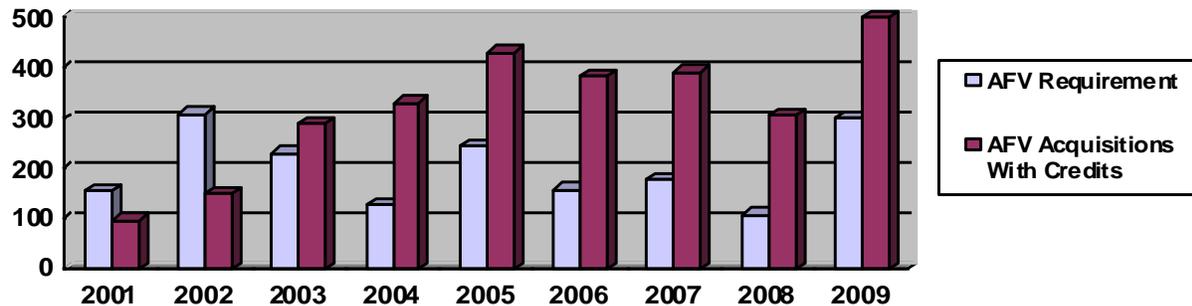
EPAct requires that 75 percent of all covered light-duty vehicles acquired for Federal fleets in FY 1999 and beyond must be AFVs (where the fleets have 20 or more vehicles, are capable of being centrally fueled, and are operated in a metropolitan statistical area with a population of more than 250,000 based on the 1980 census). Certain emergency, law enforcement, and national defense vehicles are exempt from this requirement. In January 2007, President Bush signed Executive Order (E.O.) 13423 which strengthened the mandate and requires agencies with 20 or more vehicles in the United States to decrease petroleum consumption by 2% per year relative to their fiscal year (FY) 2005 baseline through FY 2015. E.O. 13423 also requires agencies to increase alternative fuel use by 10% per year relative to the previous year. In October 2009, President Obama signed Executive Order (E.O.) 13514 which extends the requirement for reduction of petroleum use by 2% annually through (FY) 2020.

NASA Approach to Compliance with EPAct, E.O. 13423 and E.O. 13514

To achieve compliance with the legislative mandates of EPAct, E.O. 13423 and E.O. 13514, NASA has developed an aggressive compliance strategy including the acquisition of 75 percent new, covered light-duty vehicles as AFVs, and uses alternative fuel in these vehicles a majority of the time. NASA will continue to acquire light duty vehicles with higher fuel efficiency, and further reduce petroleum consumption by using biodiesel fuel in diesel vehicles where available. NASA recognizes that AFV fueling infrastructure is extremely limited in most areas of the country. As such, NASA has or intends to develop AFV fueling infrastructure at those NASA Centers where it is not readily commercially available. Additionally, each NASA Center now reports on their institutional compliance with EPAct, E.O. 13423 and E.O. 13514.

NASA Fleet Compliance for FY 2009

This is a graphical depiction of AFV acquisitions by NASA's fleet in FY 2001 through FY 2009. NASA acquired 577 light duty vehicles (LDV's) during FY 2009 of which 398 were EPAAct covered LDV's. Of the total 577 LDV's acquired, 498 were AFVs. NASA also gained 37 credits for biodiesel fuel use and for acquiring dedicated light, medium, and heavy-duty AFVs, for a total of 541 credits, thereby exceeding EPAAct requirements of 75% by 61 percentage points.



Summary of NASA's FY2009 AFV Acquisitions

A number of vehicles that were leased and purchased by NASA were not "covered" vehicles. Of the total of 577 light-duty vehicles acquired in FY 2009, the following were not counted for compliance:

- 174 were in fleets located outside covered metropolitan statistical areas (MSA's)
- 4 were exempt as law enforcement vehicles
- 1 was exempt due to geographic assignment

NASA's Fleet AFV Acquisition for FY2010 and FY 2011

Below is the detailed information on planned, projected, and forecasted vehicle acquisitions for NASA in FY 2010, FY 2011, and FY 2012.

2009 AFV Report: Planned Data (FY2010)

	1. Planned Light-Duty Vehicle Acquisitions and Exemptions		
	Acquisitions		
	Leased	Purchased	Total
Total Light-Duty Vehicle Acquisitions	362	45	407
Fleet Exemptions: Fleet Size	0	0	0
Fleet Exemptions: Foreign	0	0	0
Fleet Exemptions: Geographic	0	1	1
Fleet Exemptions: Non-MSA Operation	157	7	164
Vehicle Exemptions: LE Vehicle	6	0	6
Vehicle Exemptions: Non-MSA Operation	0	0	0
Total EPAAct-Covered Vehicles	199	37	236

2. Planned Alternative Fuel Vehicle Acquisition Detail

Vehicle Type	Fuel	LE	Acquisitions		Total	EPAct Credits
			Lease	Purchase		
Light Duty Vehicles						
Sedan/St Wgn Compact	E85 FF	No	104	0	104	104
Sedan/St Wgn Compact	GAS HY ³	No	6	1	7	7
Sedan/St Wgn Midsize	E85 FF	No	17	0	17	17
Sedan/St Wgn Midsize	E85 FF	Yes	6	0	6	0
Sedan/St Wgn Subcompact	CNG DE	No	11	0	11	11
Sedan/St Wgn Subcompact	E85 FF	No	1	0	1	1
LD Minivan 4x2 (Cargo)	E85 FF	No	5	0	5	5
LD Minivan 4x2 (Passenger)	E85 FF	No	37	0	37	37
LD Pickup 4x2	CNG BI	No	3	0	3	3
LD Pickup 4x2	E85 FF	No	51	1	52	52
LD Pickup 4x2	LPG BI	No	0	7	7	7
LD SUV 4x2	E85 FF	No	4	7	11	11
LD Van 4x2 (Cargo)	E85 FF	No	7	0	7	7
LD Van 4x2 (Cargo)	LPG BI	No	0	8	8	8
LD Van 4x2 (Passenger)	E85 FF	No	11	0	11	11
LD Pickup 4x4	CNG BI	No	1	0	1	1
LD Pickup 4x4	E85 FF	No	2	0	2	2
LD SUV 4x4	E85 FF	No	5	0	5	5
Medium Duty Vehicles						
MD Other	LPG BI	No	0	1	1	1
MD Van (Cargo)	CNG BI	No	1	0	1	1
MD Van (Cargo)	CNG DE	No	1	0	1	1
MD Van (Cargo)	E85 FF	No	3	0	3	3
MD Van (Cargo)	LPG BI	No	0	5	5	5
MD Van (Passenger)	CNG BI	No	4	0	4	4
MD Van (Passenger)	CNG DE	No	3	0	3	3
MD Van (Passenger)	E85 FF	No	6	0	6	6
Totals:			289	30	319	313

3. Planned EPAct Acquisition Credits Summary

Base AFV Acquisition Credits:	313
Zero Emission Vehicle (ZEV) Credits:	0
Dedicated Light Duty AFV Credits:	11
Dedicated Medium Duty AFV Credits:	8
Dedicated Heavy Duty AFV Credits:	0
Biodiesel Fuel Usage Credits: ⁴	14
Total EPAct Credits:	346
Overall EPAct Compliance Percentage:	147 %

2009 AFV Report: Projected Data (FY2011)

1. Projected Light-Duty Vehicle Acquisitions and Exemptions

	Acquisitions		
	Leased	Purchased	Total
Total Light-Duty Vehicle Acquisitions	264	35	299
Fleet Exemptions: Fleet Size	0	0	0
Fleet Exemptions: Foreign	0	0	0
Fleet Exemptions: Geographic	0	0	0
Fleet Exemptions: Non-MSA Operation	106	0	106
Vehicle Exemptions: LE Vehicle	3	0	3
Vehicle Exemptions: Non-MSA Operation	1	0	1
Total EAct-Covered Vehicles	154	35	189

2. Projected Alternative Fuel Vehicle Acquisition Detail

Vehicle Type	Fuel	LE	Acquisitions			EAct Credits
			Lease	Purchase	Total	
Light Duty Vehicles						
Sedan/St Wgn Compact	E85 FF	No	65	0	65	65
Sedan/St Wgn Compact	GAS HY ³	No	3	0	3	3
Sedan/St Wgn Midsize	E85 FF	No	39	0	39	39
Sedan/St Wgn Midsize	E85 FF	Yes	3	0	3	0
LD Minivan 4x2 (Cargo)	E85 FF	No	2	0	2	2
LD Minivan 4x2 (Passenger)	E85 FF	No	18	0	18	18
LD Pickup 4x2	CNG BI	No	16	0	16	16
LD Pickup 4x2	CNG DE	No	7	0	7	7
LD Pickup 4x2	E85 FF	No	51	0	51	51
LD Pickup 4x2	LPG BI	No	0	7	7	7
LD SUV 4x2	E85 FF	No	1	0	1	1
LD Van 4x2 (Cargo)	E85 FF	No	2	0	2	2
LD Van 4x2 (Cargo)	LPG BI	No	0	8	8	8
LD Van 4x2 (Passenger)	E85 FF	No	8	0	8	8
LD Pickup 4x4	CNG BI	No	1	0	1	1
LD Pickup 4x4	E85 FF	No	4	0	4	4
LD SUV 4x4	E85 FF	No	10	0	10	10
Medium Duty Vehicles						
MD Other	LPG BI	No	0	1	1	1
MD Pickup	CNG BI	No	4	0	4	4
MD SUV	E85 FF	No	1	0	1	1
MD Van (Cargo)	CNG BI	No	11	0	11	11
MD Van (Cargo)	E85 FF	No	3	0	3	3
MD Van (Cargo)	LPG BI	No	0	5	5	5
MD Van (Passenger)	CNG BI	No	8	0	8	8
MD Van (Passenger)	CNG DE	No	1	0	1	1
MD Van (Passenger)	E85 FF	No	1	0	1	1
Heavy Duty Vehicles						
HD	LPG BI	No	0	8	8	8
Totals:			259	29	288	285

3. Projected EPA Act Acquisition Credits Summary

Base AFV Acquisition Credits:	285
Zero Emission Vehicle (ZEV) Credits:	0
Dedicated Light Duty AFV Credits:	7
Dedicated Medium Duty AFV Credits:	2
Dedicated Heavy Duty AFV Credits:	0
Biodiesel Fuel Usage Credits: ⁴	15
Total EPA Act Credits:	309
Overall EPA Act Compliance Percentage:	163 %

2009 AFV Report: Forecast Data (FY2012)

1. Forecast Light-Duty Vehicle Acquisitions and Exemptions

	Acquisitions		
	Leased	Purchased	Total
Total Light-Duty Vehicle Acquisitions	341	35	376
Fleet Exemptions: Fleet Size	0	0	0
Fleet Exemptions: Foreign	0	0	0
Fleet Exemptions: Geographic	0	0	0
Fleet Exemptions: Non-MSA Operation	164	0	164
Vehicle Exemptions: LE Vehicle	5	0	5
Vehicle Exemptions: Non-MSA Operation	0	0	0
Total EPA Act-Covered Vehicles	172	35	207

2. Forecast Alternative Fuel Vehicle Acquisition Detail

Vehicle Type	Fuel	LE	Acquisitions			EPA Act Credits
			Lease	Purchase	Total	
Light Duty Vehicles						
Sedan/St Wgn Compact	E85 FF	No	29	0	29	29
Sedan/St Wgn Compact	GAS HY ³	No	2	0	2	2
Sedan/St Wgn Midsize	E85 FF	No	31	0	31	31
Sedan/St Wgn Midsize	E85 FF	Yes ²	2	0	2	0
Sedan/St Wgn Subcompact	CNG DE	No	5	0	5	5
LD Minivan 4x2 (Cargo)	E85 FF	No	14	0	14	14
LD Minivan 4x2 (Passenger)	E85 FF	No	68	0	68	68
LD Pickup 4x2	CNG BI	No	6	0	6	6
LD Pickup 4x2	E85 FF	No	63	0	63	63
LD Pickup 4x2	LPG BI	No	0	7	7	7
LD SUV 4x2	E85 FF	No	9	0	9	9
LD SUV 4x2	E85 FF	Yes ³	3	0	3	0
LD Van 4x2 (Cargo)	E85 FF	No	3	0	3	3
LD Van 4x2 (Cargo)	LPG BI	No	0	8	8	8
LD Van 4x2 (Passenger)	E85 FF	No	12	0	12	12
LD Pickup 4x4	CNG BI	No	4	0	4	4
LD Pickup 4x4	E85 FF	No	10	0	10	10
LD SUV 4x4	E85 FF	No	11	0	11	11

LD SUV 4x4	E85 FF	Yes	2	0	2	0
Medium Duty Vehicles						
MD Other	CNG BI	No	2	0	2	2
MD Other	LPG DE	No	0	1	1	1
MD Pickup	CNG BI	No	1	0	1	1
MD Van (Cargo)	CNG BI	No	2	0	2	2
MD Van (Cargo)	E85 FF	No	2	0	2	2
MD Van (Cargo)	LPG BI	No	0	5	5	5
MD Van (Passenger)	CNG BI	No	5	0	5	5
MD Van (Passenger)	E85 FF	No	2	0	2	2
Totals:			288	21	309	302

3. Forecast EPA Act Acquisition Credits Summary

Base AFV Acquisition Credits:	302
Zero Emission Vehicle (ZEV) Credits:	0
Dedicated Light Duty AFV Credits:	5
Dedicated Medium Duty AFV Credits:	2
Dedicated Heavy Duty AFV Credits:	0
Biodiesel Fuel Usage Credits: ⁴	15
Total EPA Act Credits:	324
Overall EPA Act Compliance Percentage:	157 %

Petroleum Savings

Since it is difficult, if not impossible, to project petroleum savings in the out years, only actual data is provided for FY 2009. E.O. 13423 established NASA baseline in FY 2005. NASA by E.O. 13423 and E.O. 13514 mandates a 2% reduction of petroleum use annually through FY 2020.

Covered Petroleum Consumption in GGE

	Baseline										
	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Gasoline	770,847	833,580	888,044	733,068							
Diesel	301,092	316,588	337,136	285,534							
B20	99,859	99,207	30,764	63,964							
Total	1,275,831	1,171,798	1,249,375	1,255,944	1,082,566						
Target	1,250,314	1,224,797	1,199,281	1,173,764	1,148,247	1,122,731	1,097,214	1,071,698	1,046,181	1,020,664	
Compliant	Yes	No	No	Yes							

* B20 is the diesel component from covered biodiesel consumption.

Alternative Fuel use by NASA in FY 2009

New alternative fuel use baselines were derived from FY 2005 data. By mandate of E.O. 13423, NASA is required to increase alternative fuel use by 10% annually.

The majority of vehicles acquired by NASA and other federal fleets are leased from GSA. These leases include maintenance and fuel cost for the vehicles. Annual usage for the Agency is determined through the use of a GSA credit card to purchase alternative fuel. However, since product code standards are not uniform among suppliers of alternative fuels (e.g. ethanol or E-85), it is difficult for credit vendors to determine the specific fuel purchased. The exception may be natural gas, which is usually purchased at local utility refueling sites, which allows fleets to contact the utility for accurate accounting of purchase fuel. Alternative fuel use data is approximate from proportioning GSA data and internal record keeping efforts.

Alternative Fuel Consumption in GGE											
	Baselin e FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
CNG		15,760	32,047	14,837	11,902						
LNG		0	0	0	0						
LPG		10,661	10,237	7,263	7,664						
E-85		199,227	231,772	234,671	241,260						
Electric		0	0	0	0						
M-85		0	0	0	0						
B100		29,015	29,323	21,625	19,101						
Hydrogen		0	0	0	0						
Total	148,433	254,663	303,379	278,396	279,927						
Target		163,276	179,603	197,564	217,320	239,052	262,958	289,253	318,179	349,997	384,996
Compliance		Yes	Yes	Yes	Yes						

*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.

Summary

As detailed in this report and the included charts, NASA exceeded the AFV acquisition requirements of EPAct in FY2009 and projects to repeat this accomplishment in FY 2010 and FY 2011. In addition, NASA fleets were able to meet the goal for annual fleet petroleum consumption in FY 2009.

Due to the end of the shuttle program, NASA expects a significant drop in fleet size, which will further reduce petroleum consumption as well as alternative fuel consumption.

