

Executive Order 13149
Compliance Strategy for the
Department of Homeland Security



Homeland
Security

**Greening the Government Through Federal Fleet and
Transportation Efficiency**

Introduction to Homeland Security's Strategy Development

This describes the general approach taken in developing a strategy for the Department of Homeland Security (DHS) in complying with Executive Order 13149 Greening the Government Through Federal Fleet and Transportation Efficiency.

The DHS approach entailed a review of the agency's fleet as a whole, a determination of the characteristics of the individual organizational element fleets, and development of department-wide compliance strategies to form an overall agency-wide approach that strives to meet the goals of E.O. 13149 to the maximum extent possible.

The specific steps taken are summarized in the attached *Federal Fleet Strategy Development*. The resulting strategy provides DHS with a compliance plan that is consistent with the needs of the agency fleet and the requirements of individual organizational fleets.

DHS Compliance Strategy for E.O. 13149

Executive Summary

The Department of Homeland Security is a new organization, formed in early 2003 through the reassignment of components from various other Federal agencies. Some of these components had compliance strategies at the bureau or equivalent organizational level, and others did not. One large organizational element did not exist until Fiscal Year (FY) 2003. Since accurate historical data is not readily or easily available to create an FY 1999 baseline, DHS is working with the Department of Energy to create one based on what the Department might have looked like if it existed in FY 1999.

Due to the varied and diverse missions with which its organizational components are charged, the Department of Homeland Security fleet has historically been highly decentralized. Each bureau operates, maintains, acquires, and funds its own motor vehicle program. A significant portion of the DHS fleet is used for law enforcement functions such as marked police patrol, undercover and surveillance, executive and dignitary protection, and special functions such as bomb disposal, and border enforcement functions requiring severe off-road capabilities. This includes DHS owned vehicles as well as commercially leased vehicles and those leased from GSA. As a result, only a percentage of the Department's fleet is covered by the Executive Order.

To achieve compliance with the requirements of E.O. 13149, DHS is urging its components to acquire 75 percent of new covered light-duty vehicles as AFVs, and to use alternative fuel in these vehicles a majority of the time, where the vehicles and alternative fuels are readily available and do not adversely affect mission accomplishment. The decision to take advantage of a surcharge program that adds \$10 monthly to the cost of every vehicle leased through the General Services Administration (GSA) to help cover the higher incremental cost of many AFV models (compared to conventional vehicles) rests with each bureau and factors in alternative fuel availability, funding availability, and mission needs.

DHS will endeavor to acquire light duty vehicles with a higher fuel economy of 3 mpg in FY 2005, consistent with mission suitability. DHS will also investigate the possibility of adding to its own refueling facilities, although the majority of the fleet not already using them neither starts from nor returns to a common location. In addition to the Customs and Border Protection sites with refueling capability, a few of the training facilities operated by the Federal Law Enforcement Training Center and United States Secret Service have the capability, but are not readily accessible to vehicles not associated with the those facilities.

Working within these limitations, DHS has attempted to develop a comprehensive strategy to comply with the requirements of E.O. 13149 to the maximum extent possible without adversely affecting mission requirements. This strategy includes the use of alternative fuels in alternative fuel vehicles (AFV), the acquisition of light-duty vehicles

with higher fuel economy, and improvements in the overall efficiency of vehicles operated by the agency's fleets.

Table A-1 summarizes the estimated petroleum use reduction in the covered fleet that will be achieved by the Department's compliance strategy. The quantities in the table are given in gasoline gallon equivalents (GGE). Specific details on how each of these reductions will be achieved are provided in Section I-4 of this strategy. As shown in Table A-4, in fiscal year (FY) 2005 the strategy is expected to achieve the 20 percent reduction goal of E.O. 13149.

Table A-1. Estimated FY 2005 Petroleum Reduction by Strategy Approach

Reduction by Strategy Approach			Total Petroleum Reduction in FY 2005	
Use of Biodiesel	Use of Alternative Fuels	Fuel Economy/ Fleet Efficiency Improvements	GGE	% Reduction
20%	35%	45%	470,719	20

I. Data Collection

In order to develop a strategy for DHS to comply with the petroleum use reduction goal of E.O. 13149, the agency first conducted a data collection effort. Table A-2 shows the types of data collected for each of the agency's fleets, and the sources used. The data collected was then used to develop the baseline petroleum consumption, the baseline acquisitions' average fuel economy, and a realistic strategy for achieving the goals of E.O. 13149.

Table A-2. Data Requirements

Data Requirement	Information/Data Source
FY 2004 Petroleum Fuel Use (gallons) - Total, non-road, and exempt vehicle fuel use	- SF-82 report -
Fleet Composition and Characteristics - FY 2004 inventory and new acquisitions (conventional and alternative fuel vehicles; light-, medium-, and heavy-duty; gasoline and diesel) - FY 2004 new acquisition model breakdown - FY 2005 and FY2006 projected inventories and new acquisitions (conventional and alternative fuel vehicles; light-, medium-, and heavy-duty; gasoline and diesel) - Number of exempt (security, military, etc.) vehicles purchased in FY2004 and their annual fuel consumption	- SF-82 report - GSA Automotive Division - GSA Fleet Division - Fleet manager interviews
Combined Fuel Economy Ratings by Light Duty Vehicle Category (subcompact, compact, etc.)	- DOE/EPA Fuel Economy Guide, MY 2004

I-1. Department of Homeland Security Baseline Petroleum Use

The agency-wide fleet use of gasoline and diesel fuel was determined for FY 2004, for both covered and non-covered vehicles, to establish the agency's baseline. This baseline was then multiplied by 20 percent to determine the required reduction goal.

A summary of the agency-wide fuel use in FY 1999 appears in Table A-3. For FY 2004, the Department of Homeland Security fleets used just over 21 million GGE of petroleum fuel nationwide, made up almost entirely of gasoline and some diesel. This data was based upon the information provided to the General Services Administration for the FY 2004 SF-82 report.

Table A-3. DHS Agency-wide Petroleum Usage for FY 2004

Fuel Type	Total Department of Homeland Security Petroleum Usage, FY 2004 (Gallons)	GGE Conversion Factor	Total Department of Homeland Security Petroleum Usage, FY 2003 (GGE)
Gasoline	20,033,328	1.0	20,033,328
Diesel Fuel	1,150,556	1.12	1,288,623
Total Petroleum Used			21,321,951

Table A-4 provides a breakdown of DHS petroleum use for its fleet in FY 2004. Based on the percent petroleum use reduction required by E.O. 13149, DHS's overall compliance strategy would be required to achieve a total petroleum use reduction of about 235,360 GGE for the covered fleet in FY 2005. Although the DHS fleet is largely law-enforcement, the Department is committed to the spirit and intent of the Executive Order and individual bureaus are undertaking initiatives within their enforcement fleets.

Table A-4. FY 2004 Petroleum Fuel Use Breakdown for DHS

Department of Homeland Security Agency-wide Petroleum Use (GGE)	Non-road Petroleum Use (GGE)	Exempt Petroleum Use (GGE)	Total Covered Petroleum Use (GGE)	Baseline Petroleum 20% Reduction Goal (GGE)
21,321,951	0	18,968,354	2,353,597	470,719

I-2. DHS Fleet Characteristics

The current DHS fleet is comprised of more than 36,400 vehicles in all fifty states and numerous foreign locations, including program and operational offices. Additionally, organizational element fleet sizes range from several thousand to a few hundred, with varying numbers at any given office or field location. Because of this complexity in the Department’s fleet structure, the decision was made to develop a compliance strategy based on an agency-wide approach.

It must also be noted that a significant portion of the Department’s fleet is law enforcement and therefore not part of the “covered” fleet. The Department, however, remains committed to the spirit and intent of the Executive Order and achieving the stated goals. The organizational elements are being encouraged to achieve any possible savings in their law enforcement fleets as well.

To achieve the greatest impact from the agency-based strategy, the primary focus was placed on the covered fleet, and voluntary efforts from the law enforcement fleets as they have higher fuel consumption. Availability of refueling infrastructure and vehicle maintenance support for Alternative Fuel Vehicles remains a concern as, with a few exceptions, the component fleets do not start and finish the day at a central location where the necessary refueling infrastructure might be located. With the exception of some Customs and Border Protection locations as well as a few specialized USSS and FLETC locations, maintenance is not performed in-house thus hindering the acquisition and storage of environmentally preferable automotive supplies. Additionally, those sites are available only to vehicles associated with the facility.

Table A-5 summarizes the data on petroleum use and fleet inventory collected from some of the component fleets. Covered petroleum use is listed as a summary figure only, as GSA provides a Department-wide figure for petroleum use by their vehicles and it cannot be easily broken down into accurate bureau-by-bureau figures.

Table A-5. Selected Fleet Information for a DHS-Wide Strategy

DHS Fleet Location	FY2004 Total Petroleum Use (GGE)	FY2004 Covered Petroleum Use (GGE) +	FY 2004 Fleet Inventory		
			LDV	MDV	HDV
Customs and Border Protection	9,641,060	0	10,592	3,202	8
Management	13,449	13,449	24	0	0
Immigration and Customs Enforcement	7,454,896	0	11,748	46	327
Secret Service	1,494,203	0	4,121	10	2
Federal Law Enforcement Training Center	223,712	0	811	68	35
Transportation Security Administration	346,585	346,585	819	89	0
Federal Emergency Management Agency	357,750	357,750	244	165	34
Coast Guard	1,635,813	1,635,813	1,928	1,404	16
Totals	21,167,468	2,353,597	30,287	4,984	422

Sources: Department of Homeland Security SF-82 for 2004.

The Department of Homeland Security fleets above constitute the majority of the Department's fleet and also the great majority of the covered fleet. They are therefore encouraged and required to reduce their petroleum use in accordance with the Executive Order, and to participate in the acquisition of higher fuel economy vehicles.

I-3. Basic Assumptions

A variety of basic assumptions were necessary in developing the DHS strategy and included all of the following:

- E85 supplies will not be more widely available in the near-term. There are currently just over 200 stations nationwide offering E-85, and at least 70 of those are in Minnesota.
- While natural gas supplies were assumed to be currently available in some locations, the number of publicly available stations has actually been declining over the last few years;
- Projected non-AFV acquisition rates for FY 2005 are assumed the same through FY 2007;
- Projected AFV acquisition rates for FY 2005 are assumed to be at least 75 percent for all fleet locations;
- The mix of future AFV acquisitions is based on discussions with individual fleet managers as well as fleet projections of AFV acquisitions for FY 2005, FY 2006, and FY 2007;
- Light duty vehicle turnover in all DHS component fleets was assumed to be five years on average for agency-owned vehicles and 3 years for those obtained through GSA;

- New AFVs were assumed to use alternative fuel the majority of the time on an average annual basis;
- AFV refueling was assumed to follow an availability hierarchy: 1) Using an existing on-site station, 2) using an existing public station, 3) entering an agreement with a local utility or local government having refueling facilities and establishing a payment mechanism, 4) constructing a new on-site station.

I-4. Fleet Analysis

DHS analysis indicates that simply purchasing AFVs and /or more fuel efficient vehicles for the DHS fleet under Energy Policy Act mandates would not result in the required percent reduction in petroleum use by FY 2005 unless gas/electric or E-85 hybrids become widely available in configurations meeting our needs. Therefore, a more comprehensive strategy was developed for attempting to reach the 20 percent reduction goal. It was decided that the DHS compliance strategy would consist of four primary elements:

- (1) Biodiesel Blend (B20) Use
- (2) AFV Acquisitions and Alternative Fuel Use
- (3) Acquisition of Higher Fuel Economy Vehicles
- (4) Fleet Efficiency Improvements.

These options were chosen for their significant potential for petroleum fuel savings in the DHS fleet. A review was performed for each element to determine its potential for reducing petroleum fuel use in the Department's fleets. Brief discussions of each of the four elements and their application in the strategy follow. (Each discussion begins with a table showing that approach's petroleum reduction contribution to the strategy.)

(1) Biodiesel Blend Use

Table A-6. Summary of B20 Use in DHS Strategy

Total Agency Covered Fuel Use in FY 2003 (GGE)	20% Fuel Reduction Goal (GGE)	Strategy Element 1: B20 Fuel Savings (GGE)	Percent of Agency Fuel Reduction Goal
2,353,597	470,719	94,143	20

Discussion of B20

B20 fuel is intended to be used in place of conventional diesel fuel at the one fleet location for vehicular equipment where the nature of operation makes its use feasible. This B20 strategy will result in some GGE savings, as when adjusted for fuel energy content, every gallon of B20 used displaces about 18 percent of a gallon of conventional diesel fuel. In terms of DHS's overall fuel reduction goal, the use of B20 at the targeted fleet location will contribute only a relatively small portion of the total goal.

Pre-blended Biodiesel is considered to be a more desirable option than requiring operators to “blend” it themselves by pouring an additive into the vehicle’s fuel tank after refueling at a diesel pump. The widely scattered remaining diesel vehicles in the fleet and the cost of procuring very limited quantities render B20 as an ineffective option at this point.

(2) AFV Acquisitions and Alternative Fuel Use

Table A-7. Summary of AFV Fuel Savings

Total Agency Covered Fuel Use in FY 2003 (GGE)	20% Fuel Reduction Goal (GGE)	Strategy Element 2: AFV Fuel Savings (GGE)	Percent of Agency Fuel Reduction Goal
2,353,597	470,719	164,752	35%

Discussion of AFV Acquisitions and Alternative Fuel Use

AFV Acquisitions. The Energy Policy Act of 1992 (EPACT), as amended, requires that future AFV acquisitions rates for each fleet location for FY 2001 and later be 75 percent of total covered vehicle acquisitions. While this provides an aggressive AFV introduction rate through FY 2005 for the strategy and is an extremely effective means of achieving fuel reductions in the DHS fleet, the strategy is hindered by limited vehicle and fuel availability as well as the higher acquisition cost of dedicated and bi-fuel vehicles. On a more positive note, E-85 capable or “flex-fuel” vehicles are becoming more widely available from the manufacturers.

While individual DHS fleets are encouraged to acquire dedicated vehicles, bi-fuel and flexible fuel vehicles will also be acceptable. However, while the strategy assumes that on average new AFVs will use alternative fuel 75 percent of the time each year, this may prove a challenge due to limited availability. Therefore, DHS fleets can purchase a mix of dedicated, bi-fuel, and flexible fuel vehicles as long as this AFV mix uses the maximum amount possible of alternative fuel annually. DHS fleet managers will be held responsible for maximizing alternative fuel use to the extent possible among their AFV fleets where the vehicles and fuel are reasonably available without compromising mission effectiveness.

Alternative Fuel Use. The acquisition of AFVs will be coupled with the use of alternative fuels in these vehicles to the extent possible and practical. AFV fleet fuel consumption in FY 2005 was derived by first estimating the numbers of AFVs in service. Since a five-year light duty vehicle turnover was assumed, only those AFVs purchased in FY 2001 through FY 2005 would still be in service in FY 2005.

The amount of petroleum fuel displaced by the AFVs was estimated by reviewing current usage of alternative fuels and multiplying the numbers of AFVs by the annual per vehicle fuel consumption rate of the light duty gasoline vehicles being displaced.

The annual per vehicle fuel consumption rate was calculated from the fleet's FY 2004 gasoline usage and numbers of light duty gasoline vehicles.

AFV refueling infrastructure. DHS fleet managers recognize that the use of alternative fueled vehicles is the most effective means of reducing petroleum fuel use if they are operated on alternative fuels. Therefore, key factors in assigning AFVs to fleet locations will be the availability of on-site or public AFV refueling stations, the availability of AFVs in those areas, and a commitment by vehicle operators to using alternative fuels a substantial part of the time in these vehicles. If alternative fuels are not available, installing AFV refueling equipment is not considered to be a viable alternative for dedicated or bi-fuel vehicles.

Customs and Border Protection has experimented with the use of CNG, propane and electric vehicles in port facilities where centralized refueling facilities existed and agreements might be entered into. Their study determined that some limited savings in petroleum use may be gained.

Finally, given that domestic vehicle manufacturers appear to be focusing on the development of hybrids and fuel cell vehicles, the outlook for increased numbers and variety of AFVs is somewhat cloudy.

Table A-8. Projected AFV Refueling Infrastructure Costs

DHS Fleet Location	Available On-Site or Public AFV Refueling?	AFV Refueling Infrastructure Costs (\$)		
		E85	CNG	Electric
Federal Law Enforcement Training Center	Yes (CNG)	---	0	---
Totals	---		0	

(3) Acquisition of Higher Fuel Economy Vehicles / Fleet Efficiency Improvements

Table A-9. Summary of Higher Fuel Economy Fuel Savings

Total Agency Covered Fuel Use in FY 2003 (GGE)	20% Fuel Reduction Goal (GGE)	Strategy Element 3: Higher FE Fuel Savings (GGE)	Percent of Agency Fuel Reduction Goal
2,353,597	470,719	211,824	45%

Discussion of Higher Fuel Economy Fuel Savings

Fuel savings due to increases in the annual purchased fleet average fuel economy offer the most significant contribution to the Department's strategy. In addition, some of the Department's law enforcement fleets, while exempt from the provisions of EO13149, are purchasing lighter, more fuel efficient vehicles. Due to the importance of this strategy element, and to achieving some equity among DHS fleets in sharing the burden of this compliance strategy, it was decided that all DHS fleets would be encouraged to meet the higher fuel economy schedule, not just the larger fleets.

It was assumed that the DHS fleet would meet the increased average fuel economies of 3.0 mpg by FY 2005 compared with the FY 1999 baseline by pursuing the following schedule for fleet fuel economy increases in new acquisitions between 2003 and 2005:

- 3.0 mpg increase in FY 2005

The FY 2004 average fleet fuel economy was calculated at 19.5 mpg for the vehicle types acquired in that year.

It was assumed that the schedule for achieving a minimum fuel economy increase through 2005 would be met by individual fleets acquiring more appropriate vehicle types with smaller engine sizes and two-wheel versus four-wheel drives, as well as gasoline hybrid vehicles. However, it is left to the individual fleets to decide the best means of achieving the fuel economy increases through their annual vehicle acquisitions.

Discussion of Fleet Efficiency Improvements

The strategy requires that each fleet will put in place an improvement plan that achieves a reduction in overall fleet petroleum fuel consumption relative to the baseline.

The DHS strategy does not stipulate which types of efficiency improvement techniques must be instituted by the individual fleets. Fleet managers will assess their fleet's efficiency in accomplishing their mission. Strategies include:

- Using compact sedans in preference to large or mid-size sedans;
- Acquisition and use of alternative fuel vehicles in areas where the fuel is available and vehicles are operated within the local area;
- Rescheduling or combining routes to increase vehicle passenger capacities;
- Reviewing fleet size as well as composition and using taxis, public transportation, or renting on an as-needed basis where practical and cost effective;
- Decreasing vehicle trips per day; and

- Reviewing work processes to determine if alternative methods are available that will reduce or eliminate the need for vehicular travel.

Each of these will be considered to achieve a reduction in petroleum use. An added benefit of these improvements could be increased personnel productivity.

These agency-wide fleet efficiency improvements should contribute significantly to DHS meeting or exceeding the 20% reduction goal.

II. Results of the Department of Homeland Security Strategy

As of FY 2002, components that would become part of DHS had already begun to achieve reductions in petroleum use by their covered fleets and exceeded the 1 mpg increase in fuel economy for light duty vehicles required by that year. The Department believes it is on track to meet the goal of a 3 mpg increase in average fuel economy by FY 2005. The projected results for the DHS strategy will be shown for the DHS fleet as a whole. Under this strategy, the largest fuel savings will be achieved through the acquisition of more fuel efficient vehicles and AFV's.

In addition, DHS remains committed to meeting or exceeding the 20% fuel reduction goal established by E.O. 13149. Our strategy is to achieve the maximum amount possible without adversely affecting our ability to accomplish the Department's missions. We believe that 20% may be exceeded if affordable hybrid vehicles appropriate for the mission become readily available in the near future. The Department will also require the use of alternative fuels in AFVs wherever it is possible and practical to do so without seriously jeopardizing mission effectiveness, and will require the acquisition of higher fuel economy petroleum fueled vehicles to achieve the 3.0 mpg increase in fleet average fuel economy by FY 2005.

Compliance with this strategy will be reviewed each year and adjustments made as necessary to keep pace with evolving fleet requirements of DHS.

III. Recognition and Awards

As part of its strategy, DHS was considering special recognition or awards for its personnel and/or fleets that exceed the strategy's requirements or exhibit leadership in attaining its objectives and the goals of the Executive Order.

Taking into consideration the size and composition of the fleet, as well as the various missions to be accomplished, parameters for recognition may include:

- Most significant use of alternative fuel vehicles and alternative fuels;
- Creative measures implemented for reducing the number of miles driven; and
- Significant reductions in vehicle size with a corresponding gain in fuel efficiency;

Methods of recognition may include spot awards, time off awards, certificates, promotional items (pens, key chains, etc.), commendations in employee newsletters or at award ceremonies.

