

October 2008

FEDERAL ENERGY MANAGEMENT

Agencies Are Acquiring Alternative Fuel Vehicles but Face Challenges in Meeting Other Fleet Objectives





Highlights of [GAO-09-75R](#), a correspondence to congressional requesters

FEDERAL ENERGY MANAGEMENT

Agencies Are Acquiring Alternative Fuel Vehicles but Face Challenges in Meeting Other Fleet Objectives

Why GAO Did This Study

Congress and the administration set forth energy objectives for federal fleets with 20 or more vehicles. Agencies are to (1) acquire alternative fuel vehicles (AFV) as 75 percent of all new light-duty vehicle acquisitions; (2) use only alternative fuel in AFVs, unless granted a waiver; (3) increase overall alternative fuel use by 10 percent annually; (4) reduce petroleum consumption by 2 percent annually through 2015; and (5) purchase plug-in hybrid electric vehicles when available and at a reasonable cost. The first two objectives are requirements in the Energy Policy Acts (EPAct) of 1992 and 2005. The last three are goals set by Executive Order 13423. GAO was asked to determine agencies' compliance with these objectives for fiscal year 2007 and how agencies are poised to meet them in the future. GAO obtained and analyzed information from the Department of Energy's (DOE) automotive database and other sources and interviewed agency officials.

What GAO Recommends

GAO recommends that DOE (1) report on agencies' compliance with the requirement to use alternative fuel in AFVs, (2) revise its guidance to disallow AFV credits for AFVs not subject to the acquisition requirement, and (3) continue to work with the General Services Administration to resolve data-quality issues. Congress should consider aligning the federal fleet AFV acquisition and fueling requirements with current alternative fuel availability and revising them as appropriate.

To view the full product, including the scope and methodology, click on [GAO-09-75R](#). For more information, contact Mark Gaffigan at (202) 512-3841 or gaffiganm@gao.gov.

What GAO Found

Federal agencies had mixed results in meeting the energy objectives for fleets in fiscal year 2007. First, all the agencies reported meeting or exceeding the requirement to acquire AFVs. However, they did so partly based on receiving credit for AFVs not subject to the requirement, as allowed by the DOE's implementing guidance. For example, AFVs outside large metropolitan areas do not count when agencies establish their acquisition targets, but they do count toward meeting the targets. Second—regarding the requirement to use only alternative fuel in AFVs—neither DOE nor the agencies reported on whether agencies were in compliance with the requirement for fiscal year 2007, even though they are required by law to make such reports. According to agency officials, current systems are unable to track alternative fuel use at the level necessary to assess compliance. However, data from 2006 indicate that agencies primarily fueled their AFVs with gasoline—not alternative fuel—and our analysis found no evidence that this changed in 2007. Data reliability is a concern with respect to the third and fourth objectives. While about half of the agencies reported increasing their alternative fuel use by 10 percent and about two-thirds reported reducing petroleum use by 2 percent in 2007, persistent data problems call these results into question. Finally, no agency acquired plug-in hybrid electric vehicles because they were not commercially available.

Over the next few years, agencies will likely face challenges in meeting all but one of the fleet energy objectives. As they have over the past 4 years, agencies will likely continue to acquire the mandated percentage of AFVs. However, they will likely find it more difficult to meet both the requirement to fuel AFVs only with alternative fuel and the goal of increasing overall alternative fuel use by 10 percent annually because of the limited availability of alternative fuel. It is uncertain whether agencies will be able to reduce petroleum consumption annually by 2 percent in the near future, primarily because they will not be able to rely on alternative fuel to displace significant amounts of petroleum fuel. Furthermore, without better data, it will be difficult to judge agencies' progress in reducing petroleum consumption and increasing alternative fuel use. Some agencies have taken steps to address these issues and improve data quality, but with limited success. Finally, agencies will not be able to meet the goal of acquiring plug-in hybrid electric vehicles until they become commercially available.

Agency Performance in Meeting the Five Fleet Energy Objectives in Fiscal Year 2007

Source of objective	Fiscal year 2007 fleet energy objective	Number of agencies meeting objective	Percentage of agencies meeting objective
Energy Policy Act of 1992	<i>Requirement:</i> Acquire AFVs for 75 percent of new light-duty acquisitions by fleets of 20 or more vehicles in metropolitan statistical areas of 250,000 or more.	21	100
Energy Policy Act of 2005	<i>Requirement:</i> Must use only alternative fuel in AFVs. (DOE may waive the requirement if not feasible, which DOE defines to be if the fuel is unavailable within five miles or 15 minutes or costs 15 percent more than gasoline.)	0	0
Executive Order 13423	<i>Goal:</i> Increase overall alternative fuel use by at least 10 percent annually relative to the 2005 baseline	11	52
	<i>Goal:</i> Reduce petroleum consumption by 2 percent annually through fiscal year 2015 relative to the 2005 baseline	14	67
	<i>Goal:</i> Acquire plug-in hybrid electric vehicles when they are commercially available at a reasonable cost	0	0

Source: GAO analysis of DOE data.



GAO

Accountability * Integrity * Reliability

United States Government Accountability Office
Washington, DC 20548

October 22, 2008

The Honorable Joseph I. Lieberman
Chairman
Committee on Homeland Security and Governmental Affairs
United States Senate

The Honorable Mark Pryor
United States Senate

The Honorable John Warner
United States Senate

Two-thirds of the oil consumed in the United States is used for transportation. The federal government's domestic vehicle fleet consists of about 600,000 civilian and nontactical military vehicles and consumes over 963,000 gallons of petroleum-based fuel per day. Although the federal fleet represents less than 1 percent of all vehicles on the road in the United States today, Congress and the administration have established energy conservation objectives for the federal fleet in an effort to provide leadership in reducing petroleum consumption. These objectives are established in federal law and executive orders and cover 21 federal agencies.¹ Agencies are required by law to

- acquire alternative fuel vehicles (AFV),² such as flex-fuel vehicles that can run either on gasoline or a blend of up to 85 percent ethanol and 15 percent gasoline (E85);³ and

¹The Energy Policy Act of 1992, as amended, and Executive Order 13423 establish the federal agencies that are subject to fleet energy requirements and goals. These agencies must have 20 or more domestic vehicles, and include: Court Services and Offender Supervision Agency for the District of Columbia; General Services Administration; National Aeronautics and Space Administration; Smithsonian Institute; Social Security Administration; Departments of Agriculture, Commerce, Defense, Energy, Health and Human Services, Homeland Security, Housing and Urban Development, Interior, Justice, Labor, State, Transportation, Treasury, and Veterans Affairs; Environmental Protection Agency; and U.S. Postal Service.

²Under the Energy Policy Act of 1992, as amended, AFVs include any dedicated, flexible-fuel, or dual-fuel vehicle designed to operate on at least one alternative fuel. In 2008, EPA was amended to include conventional hybrids.

³The alternative fuel acquisition requirement applies only to light-duty vehicles capable of being centrally fueled and operated in metropolitan statistical areas of more than 250,000 people.

- fuel AFVs exclusively with alternative fuel,⁴ unless exempted by waiver.

In addition, agencies are tasked by executive order to meet the goals of

- increasing overall alternative fuel use by at least 10 percent annually relative to their 2005 baseline;
- reducing petroleum consumption by 2 percent annually through fiscal year 2015 relative to their 2005 baseline; and
- acquiring plug-in hybrid electric vehicles when they are commercially available at a reasonable cost.⁵

Agencies are required to report annually on their progress in meeting the fleet energy objectives. These reports are to be made available on agencies' Web sites and are submitted to the Department of Energy (DOE), which is required to provide a comprehensive compliance report to Congress each year. Agencies also must respond to recommendations from both DOE and the Office of Management and Budget (OMB) that are designed to help agencies overcome barriers in meeting fleet objectives. These recommendations are provided through transportation management scorecards issued semiannually by DOE and OMB. Agencies also have to continually provide information on their fleets through DOE's Federal Analytical Statistical Tool (FAST) database, which is used, among other things, to collect information on agencies' alternative fuel vehicles, such as waiver requests to exempt vehicles when alternative fuel is not readily available or is too expensive. Finally, the Office of the Federal Environmental Executive (OFEE), located within the Environmental Protection Agency, also has a role in ensuring agencies' compliance with the fleet objectives. OFEE is responsible for administering the executive order governing the federal fleet, while DOE is primarily responsible for overseeing and administering the requirements under the law.

In this context, you asked us to determine (1) the extent to which agencies met the federal fleet energy objectives in fiscal year 2007 and (2) how agencies are poised to meet these objectives in the future. On September 4, 2008, we briefed staff of the committee on the results of our work. Enclosure I contains the briefing we used, with revisions to incorporate technical comments we subsequently received from the agencies involved. This correspondence

⁴Alternative fuels under DOE regulations include: methanol, ethanol, and other alcohols; blends of 85 percent or more of alcohol with gasoline; natural gas and liquid fuels domestically produced from natural gas; liquefied petroleum gas (propane); coal-derived liquid fuels; hydrogen; electricity; biodiesel; and p-series fuels. 10 C.F.R. § 490.2.

⁵The Energy Independence and Security Act, Pub. L. No. 110-140 (2007), added petroleum reduction and alternative fuel requirements. Specifically, the Act requires that not later than 2015 and each year thereafter, agencies achieve a 20 percent reduction in annual petroleum consumption and a 10 percent increase in alternative fuel consumption relative to a 2005 baseline; also, that agencies begin by 2010 to reduce petroleum consumption and increase alternative fuel consumption at a rate that will enable them to meet these requirements. We did not include the new law in the scope of our study because the law was passed in fiscal year 2008, which is beyond the time frame covered by this report (agency performance for 2007).

summarizes the briefing, including the recommendations made to both DOE and GSA to help federal agencies meet fleet energy objectives. This correspondence also contains a matter for congressional consideration aimed at bringing to the attention of Congress possible inconsistencies between current energy objectives established in law and the availability of alternative fuel.

For the scope of this review, we included the 21 agencies and the corresponding domestic fleet vehicles for which DOE reports to Congress annually. To determine agencies' compliance with current federal fleet energy objectives, we relied primarily on information from DOE's FAST database. We also conducted interviews with relevant fleet officials, including DOE officials and DOE's contractors that are responsible for FAST. To determine how agencies are poised to meet the fleet energy objectives in the future, we performed trend analyses using compliance data from FAST, analyzed transportation scorecards, and analyzed fleet data from FAST and the General Services Administration's (GSA) Special Order Program. We determined that the data we used were reliable for these purposes. More information on the scope and methods we used can be found in enclosure I.

We conducted this performance audit from July 2007 through October 2008 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Results in Brief

Federal agencies had mixed results in meeting the energy objectives for fleets in fiscal year 2007. First, all the agencies reported meeting or exceeding the requirement to acquire AFVs. However, they received some credit for AFVs not subject to the requirement, as allowed by DOE's implementing guidance. For example, only vehicles acquired inside large metropolitan areas are counted when establishing agencies' acquisition targets, but AFVs acquired outside those areas count toward meeting the targets. Second—regarding the requirement to use only alternative fuel in AFVs—neither DOE nor the agencies reported on whether agencies were in compliance with the requirement for 2007, even though they are required by law to make such reports. However, data from 2006 indicate that agencies primarily fueled their AFVs with gasoline—not alternative fuel—and our analysis found no evidence that this changed in 2007. Data reliability is a concern with respect to the third and fourth objectives. While about half of the agencies reported increasing their alternative fuel use by 10 percent and about two-thirds reported reducing petroleum use by 2 percent in 2007, persistent data problems call these results into question. Finally, no agency acquired plug-in hybrid electric vehicles because they were not commercially available.

Table 1: Agency Performance in Meeting the Fleet Energy Objectives, Fiscal Year 2007

Source of objective	Agencies' fiscal year 2007 fleet energy objective	Number of agencies meeting objective	Percentage of agencies meeting objective
Energy Policy Act of 1992	<i>Requirement:</i> Acquire AFVs for 75 percent of new light-duty acquisitions by fleets of 20 or more vehicles in metropolitan statistical areas of 250,000 or more.	21	100
Energy Policy Act of 2005	<i>Requirement:</i> Must use only alternative fuel in AFVs. (DOE may waive requirement if operating on alternative fuel is not feasible, which DOE defines as fuel being unavailable within 5 miles or 15 minutes or costs 15 percent more than gasoline.)	0 ^a	0 ^a
Executive Order 13423	<i>Goal:</i> Increase overall alternative fuel use by at least 10 percent annually, relative to the 2005 baseline.	11	52
	<i>Goal:</i> Reduce petroleum consumption by 2 percent annually through fiscal year 2015, relative to the 2005 baseline.	14	67
	<i>Goal:</i> Acquire plug-in hybrid electric vehicles when they are commercially available at a reasonable cost.	0	0

Source: GAO analysis of DOE data.

^aWe estimated compliance for this objective in the aggregate only; not for each agency.

Over the next few years, agencies will likely face challenges in meeting all but one of the fleet energy objectives. As they have over the past 4 years, agencies will likely continue to acquire the mandated percentage of AFVs. However, they will likely find it more difficult to meet both the requirement to fuel AFVs only with alternative fuel and the goal of increasing overall alternative fuel use by 10 percent annually because of the limited availability of alternative fuel. It is unclear whether agencies will be able to reduce petroleum consumption annually by 2 percent in the near future, primarily because they will not be able to rely on alternative fuel to displace significant amounts of petroleum fuel. Furthermore, without better data, it will be difficult to judge agencies' progress in increasing alternative fuel use and reducing petroleum consumption. Some agencies have taken steps to address these issues and improve data quality, but with limited success. Finally, agencies will not be able to meet the goal of acquiring plug-in hybrid electric vehicles until they become commercially available, which is not expected for several years.

More detailed information on each area we reviewed follows in enclosure I.

Conclusions

Allowing agencies to count AFV acquisitions that are not subject to the requirement toward meeting the requirement gives the incorrect impression that agencies are greatly exceeding the requirement. More importantly, agencies continue to acquire AFVs that they cannot expect to fuel with alternative fuel because of location or cost. They are fueling these vehicles mostly with petroleum, which does nothing to further the government's energy objectives. Until alternative fuel, particularly E85, is more widely available, agencies will likely continue to expend time and resources on acquiring AFVs with limited success in displacing petroleum, possibly missing opportunities to displace petroleum through other means. In addition, agencies and DOE have not met their clear responsibility to report on their compliance with the Energy Policy Act of 2005's alternative fueling requirement. Finally, in some cases, data quality problems have rendered agencies unable to accurately measure their progress toward the energy objectives.

Recommendations for Executive Action

To accurately determine the progress agencies are making in meeting the requirement to use only alternative fuel in their AFVs, we are recommending that the Secretary of Energy report annually on agencies' compliance with the alternative fueling requirement of the EPLA. To provide information that more transparently captures agencies' compliance with the AFV acquisition requirement, we are recommending that the Secretary of Energy revise its implementation guidance to disallow AFV credits for AFVs not subject to the acquisition requirement. Because it is necessary to have accurate data for determining agencies' progress in increasing alternative fuel use and decreasing petroleum use, we also recommend that the Secretary of Energy and the Administrator of the General Services Administration continue their ongoing efforts to resolve data quality issues in these areas.

Matter for Congressional Consideration

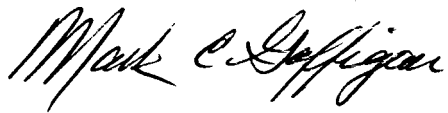
To help agencies more efficiently use their resources to increase use of alternative fuel and decrease use of petroleum, Congress should consider aligning the federal fleet AFV acquisition and fueling requirements with current alternative fuel availability and revising those requirements as appropriate.

Agency Comments and Our Evaluation

We provided a draft of this correspondence to DOE and GSA for their review and comment. GSA agreed with our recommendations and provided technical comments, which we incorporated as appropriate. DOE did not provide comments.

We are sending copies of this correspondence to interested congressional committees, the Secretary of Energy, the Administrator of GSA, the Office of Management and Budget, the Office of the Federal Environmental Executive, and other interested parties. We also will make copies available to others upon request. In addition, the correspondence will be available at no charge on the GAO Web site at <http://www.gao.gov>.

If you or your offices have any questions about this correspondence, please contact me at (202) 512-3841 or gaffiganm@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this correspondence. Key contributors are listed on the Scope and Methodology page of enclosure I.

A handwritten signature in black ink that reads "Mark C. Gaffigan". The signature is written in a cursive style with a large, stylized 'M' and 'G'.

Mark Gaffigan
Director, Natural Resources and Environment

Enclosures

Background

Applicable Laws and Executive Order

- EPAct 1992 (as amended)
- Energy Conservation Reauthorization Act 1998
- EPAct 2005
- Executive Order 13423 (January 2007)

Coverage

- Twenty-one federal agencies with 20 or more domestic vehicles covered by the fleet requirements of the laws and executive order.
- All light-duty vehicles located in a metropolitan statistical area with population of 250,000 are subject to AFV acquisition objective (about 56 percent of domestic federal fleet in 2007).
- Waivers for the alternative fueling objective may be granted if operating the vehicle on alternative fuel is not feasible.

Fleet Subject to AFV Acquisition Objective, 2007

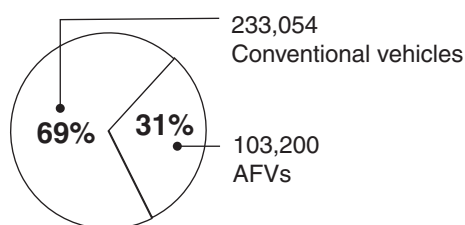
- 336,254 vehicles (see fig. 1).
- Gasoline and E85 (a blend of about 85 percent ethanol and 15 percent gasoline) are the most common fuel types in the fleet (see fig. 2).
- Ninety-nine percent of AFVs in the fleet are flex-fuel vehicles, which can operate on E85, regular gasoline, or any combination.

Federal Energy Management: Agencies Are Acquiring Alternative Fuel Vehicles But Face Challenges In Meeting Other Fleet Objectives

Establishment of Federal Fleet Energy Objectives

The Energy Policy Act (EPAct) of 1992 requires that 75 percent of all light-duty vehicles acquired starting in fiscal year 1999 be alternative fuel vehicles (AFV). The requirement covers fleets with 20 or more vehicles in the United States that are capable of being centrally fueled and operated in a metropolitan statistical area with more than 250,000 people. All light-duty vehicles that weigh 8,500 pounds or less are subject to this requirement. Certain law enforcement, emergency, and military tactical vehicles are exempt. In 2007, there were 336,254 vehicles that met this definition. Furthermore, in 1998, the Energy Conservation Reauthorization Act amended the EPAct to allow one AFV acquisition credit for each vehicle that operates solely on alternative fuel and one credit for every 450 gallons of biodiesel fuel used in vehicles over 8,500 pounds gross vehicle weight rating. These additional credits may not fulfill more than half of an agency's AFV requirement. The EPAct was again revised in 2005 to require that all AFVs be fueled with alternative fuel. Agencies may seek waivers from this requirement if operating the vehicles on alternative fuel is not feasible. The Department of Energy's (DOE) guidance stated this to be the case when alternative fuel is not available within 5 miles or 15 minutes of a vehicle's address or the cost exceeds that of conventional fuel by more than 15 percent. In 2007, Executive Order (E.O.) 13423, Strengthening Federal Environmental, Energy, and Transportation Management, added three goals to existing requirements. Under the new E.O., agencies are expected to (1) increase overall alternative fuel use by at least 10 percent annually relative to a 2005 baseline, (2) reduce petroleum use by 2 percent annually through fiscal year 2015, relative to a 2005 baseline, and (3) purchase plug-in hybrid electric vehicles when they are available at a reasonable cost.

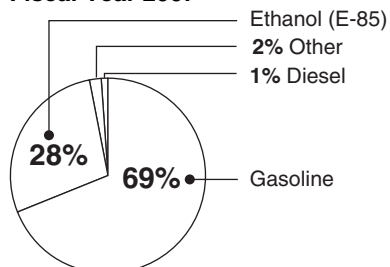
Figure 1: Composition of Fleet Subject to AFV Acquisition Objective, Fiscal Year 2007



Total Fleet: 336,254

Source: GAO analysis of DOE fleet data.

Figure 2: Composition of Fleet Subject to AFV Acquisition Objective, by Fuel Type, Fiscal Year 2007



Source: GAO analysis of DOE fleet data.

Fleet Performance FY 2007

Fleet Energy Objective

#1. Seventy-five percent of new light-duty vehicles must be AFVs

Federal Agencies Had Mixed Results in Meeting the Energy Objectives for the Federal Fleet in 2007

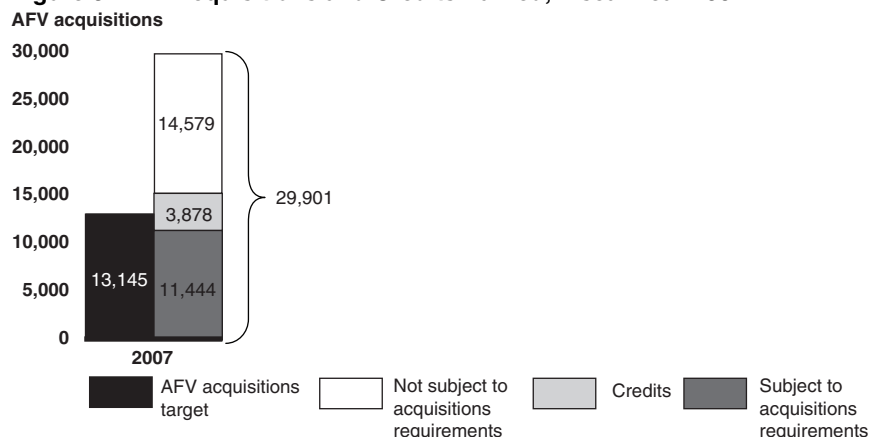
Most Agencies Met the AFV Acquisition Requirement but Received Credit For AFVs That Were Not Subject to the Requirement

All 21 agencies (100 percent) reported meeting the AFV acquisition requirement in 2007.

Agencies acquired 59,832 total vehicles in 2007. Of these, 17,527 were light-duty vehicles subject to the AFV requirement and 42,305 were not. Thus, the target for 2007 was for agencies to acquire at least 13,145 AFVs (75 percent of 17,527).

- Of the 17,527 vehicle acquisitions subject to the requirement, agencies acquired 11,444 AFVs.
- Also, agencies will receive 3,878 additional credits toward meeting the requirement for acquiring AFVs that operate solely on alternative fuel, regardless of size, and for using bio-diesel, as established by law.
- Furthermore, DOE's implementation guidance under the previous E.O. allowed agencies to count, or "credit," toward the target of 13,145 all the AFVs within the 59,832 vehicles they acquired—not just those within the 17,527 acquisitions that were subject to the fleet requirement. DOE's implementation of the new E.O. is ambiguous regarding these credits. If these credits are counted in 2007, agencies will receive credit for an additional 14,579 AFVs among the 42,305 acquisitions that were not subject to the fleet requirement—mostly for AFVs outside metropolitan areas—for a total of 26,023 AFV acquisitions.
- Combined, AFV acquisitions (26,023) and additional credits (3,878) would result in total AFV credits of 29,901. This amounts to 171 percent of the light-duty vehicle acquisitions covered by the E.PAct 1992, well above the 75 percent requirement (see fig. 3).

Figure 3: AFV Acquisitions and Credits Earned, Fiscal Year 2007



Source: GAO analysis of DOE fleet data.

Fleet Performance FY 2007

Fleet Energy Objective

#2. AFVs must be fueled with alternative fuel 100 percent of the time, unless they qualify for a waiver

DOE and Agencies Did Not Report on Agencies' Compliance with Alternative-Fuel-Only Fueling Requirement for 2007; However, Our Analysis Indicates That Agencies Did Not Meet the Requirement

Section 701 of EPOA 2005 directs DOE to monitor and report to Congress annually on agencies' compliance in fueling AFVs with alternative fuel 100 percent of the time, unless they qualify for a waiver because the fuel is not readily available or is too expensive.

- DOE did not compile or report compliance data relative to Section 701 in 2007 through its tracking and reporting system. However, for 2006, DOE reported on agencies' compliance with the executive order that preceded E.O. 13423, which set a goal for agencies to fuel AFVs with alternative fuel a majority of the time. In 2006, DOE reported that none of the agencies met this goal, and collectively agencies fueled their AFVs with alternative fuel only about 7 percent of the time. Although DOE did not have data on alternative fuel use in AFVs for 2007, according to our analysis, results for 2007 would be similar to those for 2006
- DOE did not require waivers for 2007 operations.
- o Since 2006, agencies have been required to include information on their compliance with the EPOA 2005, as amended, including the requirement to fuel AFVs exclusively with alternative fuel, in their annual reports on their Web sites and in the *Federal Register*.
 - Our review of agencies' Web sites and the *Federal Register* in June 2008 found that many agencies' sites did not include updated annual reports, and several agencies had no annual reports at all. None of the 21 agencies reported on compliance with the EPOA requirement to fuel AFVs 100 percent of the time with alternative fuel in 2007.

Fleet Performance FY 2007

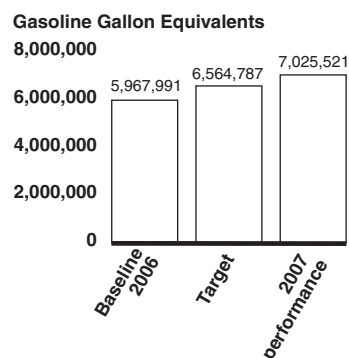
Fleet Energy Objective

#3. Increase overall alternative fuel use by 10 percent annually, relative to 2005 baseline

Over Half of the Agencies Reported Meeting the Goal of Increasing Their Use of Alternative Fuel by 10 Percent, but Data Are Unreliable

- Eleven of the 21 agencies (52 percent) reported meeting the goal. Collectively, agencies exceeded the alternative fuel target by over 461,000 gallons (about 7 percent). (See fig. 4)
- According to DOE and other agency officials, data on alternative fuel use may be inaccurate due to problems associated with the tracking of alternative fuel. Most notably, fueling stations do not have standardized product codes for alternative fuel. Because most agencies rely on credit card records in reporting on the types and amounts of fuel they consume, determining the exact amount of alternative fuel, as well as petroleum fuel, used in their fleets can be a significant challenge.
 - DOE's annual 2006 report to Congress and the Office of the Federal Environmental Executive's 2007 report to the President both noted inconsistencies in fuel consumption data provided by the agencies.
 - Agency annual reports also cite continuous problems with tracking purchases of alternative fuel. Two agency officials told us they were unable to track and accurately report on alternative fuel use in their fleets. One fleet manager informed us that the amount of alternative fuel being used at one location was underreported by as much as 40 percent.
 - The Office of Management and Budget (OMB) has cited inconsistent reporting in the annual transportation management scorecards it uses to assess agency compliance with fleet objectives. For example, in its 2007 scorecard for General Services Administration's (GSA) internal fleet, OMB commented on the inconsistency in the amounts of alternative fuel use reported by the agency in 2005 and 2006 (about 50,000 gallons in each year) relative to the amount reported in 2007 (about 2,200 gallons).

Figure 4: Alternative Fuel Consumed by the Federal Fleet, Fiscal Year 2007



Source: GAO analysis of DOE fleet data.

Fleet Performance FY 2007

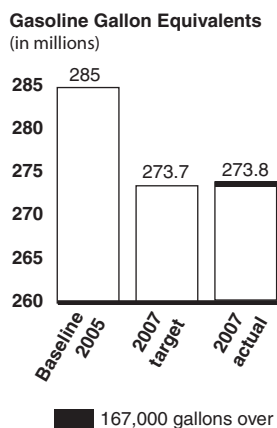
Fleet Energy Objective

#4. Reduce petroleum consumption by 2 percent annually, relative to 2005 baseline

Two-Thirds of the Agencies Reported Meeting the Petroleum Reduction Goal, but the Data Are Unreliable

- Fourteen of the 21 agencies (67 percent) reported meeting the goal. Collectively, however, agencies fell short of the petroleum reduction target by about 167,000 gallons (see fig. 5).
- The previous petroleum use goal was a 20 percent reduction by the end of fiscal year 2005 (about 3 percent annually) using 1999 as a baseline. No agency was able to meet that reduction goal. In 2007, according to DOE, the administration changed the goal to make it more achievable. Even under this relaxed target in 2007, one-third of the agencies and the federal government as a whole fell short of the goal.
- Data on petroleum consumption are unreliable, in part due to agencies' inability to accurately track alternative fuel use through credit card records:
 - DOE's annual reports to Congress frequently cited concerns about the quality of petroleum consumption data provided by agencies.
 - OMB, through its transportation scorecards, also has noted inconsistencies in agencies' data. For example, OMB commented on inaccuracies and inconsistencies found in fuel consumption and other data provided by the Department of Defense (DOD), GSA,¹ and the National Aeronautics and Space Administration (NASA).

Figure 5: Petroleum Fuel Consumption by the Federal Fleet in Fiscal Year 2007, Compared to the Fiscal Year 2007 Target for Reduction



Source: GAO analysis of DOE fleet data.

¹We refer to GSA's internal fleet of about 1,200 vehicles.

Fleet Performance FY 2007

Fleet Energy Objective

#5. Acquire plug-in hybrid electric vehicles when commercially available and at a reasonable cost

Because of the Lack of Availability, No Agency Met the Goal to Acquire Plug-In Hybrid Electric Vehicles

- Agencies were not able to acquire plug-in hybrid electric vehicles because they were not commercially available.

Projected Performance

Fleet Energy Objective

#1. Seventy-five percent of new light-duty vehicles must be AFVs

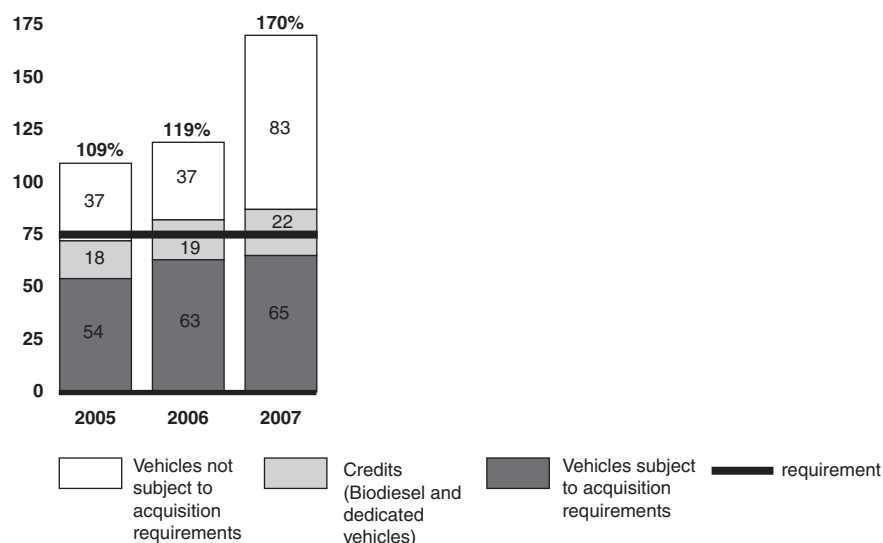
Agencies Will Likely Face Challenges in Meeting All but One of the Fleet Objectives

Agencies Will Likely Continue to Meet AFV Acquisition Requirement in the Future

- In general, agencies have consistently exceeded the requirement for the past 3 years.
- About half of the agencies project that they will exceed their AFV acquisition targets in 2008.
- AFVs are readily available and are comparably priced to conventional vehicles.
- According to DOE officials, agencies can count AFVs not subject to the requirement toward their AFV acquisition target. They also can receive additional credit for biodiesel use and for AFVs that operate only on alternative fuel. As a result, agencies have easily exceeded AFV acquisition targets for the past several years (see fig. 6), even acquiring more AFVs in 2007 in areas not subject to the acquisition requirement than in those that were subject to it.

Figure 6: Agency Performance in Meeting AFV Acquisition Requirement, Fiscal Years 2005-2007 (in percentage)

AFVs as a percentage of light-duty acquisitions subject to EPA Act
200



Source: GAO analysis of DOE fleet data.

Projected Performance

Fleet Energy Objective

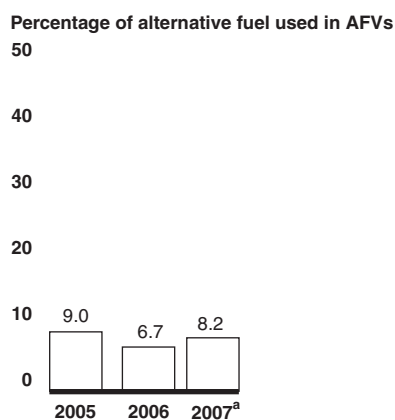
#2. AFVs must be fueled with alternative fuel 100 percent of the time, unless they qualify for a waiver

Insufficient Alternative Fuel Infrastructure Will Likely Hinder Agencies' Ability to Fuel AFVs Exclusively with Alternative Fuel

Past performance strongly suggests that agencies will not achieve the requirement in the next few years.

- In the past 3 years, only two agencies met the alternative fueling requirement under the previous E.O., which called for agencies to fuel AFVs the majority of the time with alternative fuel. Collectively, agencies reported using alternative fuel in AFVs about 9 percent of the time in 2005 and 7 percent of the time in 2006. We estimate that agencies' alternative fuel use was about 8 percent in 2007.
- For 2008 operations, DOE assessed waiver requests submitted by the agencies. Eighteen of the 21 agencies requested waivers, primarily because the vehicles were not close enough to alternative fuel. DOE received waiver requests for 76,565 vehicles and approved 74,623 (97 percent), covering 61 percent of AFVs in the federal fleet.

Figure 7: Alternative Fuel Use in AFVs in Fiscal Years 2005, 2006, and 2007



Source: GAO analysis of DOE fleet data.

^aGAO estimated alternative fuel use in 2007.

Projected Performance

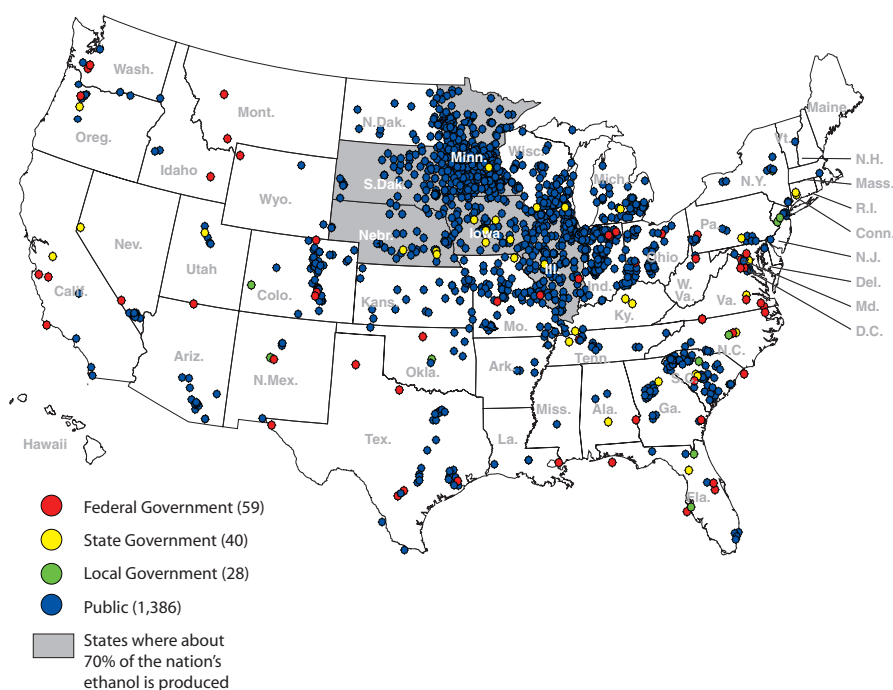
Fleet Energy Objective

#2. AFVs must be fueled with alternative fuel 100 percent of the time, unless they qualify for a waiver (continued)

Agencies face several barriers that may prevent them from achieving the requirement in the near future.

- Production levels of E85 are unlikely to increase significantly over the next few years because of limits to expanding U.S. ethanol production capacity and because less than 1 percent of that capacity is used in higher blends, such as in E85. (The most common use of corn ethanol is as a fuel extender in blends of 10 percent ethanol or less.)
- As of June 2008, only about 1,500 fueling stations nationwide, less than 1 percent, offered E85. Most are in the upper Midwest. Additionally, E85 is currently unavailable in 16 states, and 19 states have 10 public and federal fueling stations or fewer (see fig. 8).

Figure 8: Location of Government- and Private-Owned Fueling Stations Offering E85 as of June 2008



Source: Congressional Research Service and DOE's Alternative Fuels Data Center data.

Projected Performance

Fleet Energy Objective

#2. AFVs must be fueled with alternative fuel 100 percent of the time, unless they qualify for a waiver (continued)

The agencies we reviewed have taken steps to increase their alternative fuel use:

- *Developed alternative fuel strategic action plans.* These incorporate partnering with other agencies and advocacy organizations in an effort to promote greater development of alternative infrastructure. For example, the GSA has partnered with DOE, the National Ethanol Vehicle Coalition, and other stakeholders to help industry identify potentially new alternative fueling locations.
- *Emphasized better communications.* For example, some agencies have made fleet training materials readily available to staff on their intranets and participate in periodic conference calls with national fleet transportation coordinators. Agencies also have shared their success stories through public and agency forums, such as work group meetings for federal agencies and annual federal fleet conferences.
- *Provided more accurate information.* Agencies provided information on the location of their AFVs to DOE's National Renewable Energy Laboratory (NREL), which uses this information to assist drivers in locating alternative fueling stations.
- *Increased the number of federal fueling stations offering E85.* For example, DOD has installed eight alternative fueling stations at various installations across the country. The Army is working with the Army Air Force Fuel Exchange Service to develop a business case for installing additional alternative fueling infrastructure. NASA has increased its E85 fueling capacity by adding an additional 10,000 gallon tank at Kennedy Space Center in Florida. An existing 1,000 gallon E85 tank at the Johnson Space Center in Texas will be relocated to make room for a 10,000 gallon E85 tank, and NASA's White Sands Test Facility in New Mexico has activated a 2,500 gallon E85 tank.

Projected Performance

Fleet Energy Objective

#3. Increase overall alternative fuel use by 10 percent annually, relative to the 2005 baseline

Insufficient Infrastructure Will Also Likely Hinder Agencies from Increasing Their Use of Alternative Fuel by 10 Percent Annually

As with the previous requirement, agencies' ability to meet this goal will be significantly hampered by the limited availability of alternative fuel.

- Limited fueling stations and low production levels of E85 will limit the amount of alternative fuel available to agencies.
- Concerns over data reliability will likely continue to make it difficult to accurately assess agencies' compliance.

Agencies have taken steps to improve data quality.

- *Improved the tracking of alternative fuel.* For example, GSA has improved its Fleet Drive Thru, a Web-based data collection and reporting system for vehicles leased through GSA. Among other things, the system allows agencies to retrieve fueling data for AFVs directly, allowing for inaccuracies to be more readily identified.
- *Increased external efforts to improve data quality.* For example, GSA, DOE, and the National Ethanol Vehicle Coalition have partnered to urge the fuel industry to standardize fuel product codes and to assist credit card providers in resolving errors in their reports on alternative fuel purchases.

Projected Performance

Fleet Energy Objective

#4. Reduce petroleum consumption by 2 percent annually, relative to 2005 baseline

Agencies' Prospects for Significantly Reducing Petroleum Use in the Future Are Uncertain

Agencies face difficulties in continuing to meet the petroleum reduction goal.

- About 99 percent of the ethanol produced in the United States is used in blends of 10 percent or less, limiting the government's ability to significantly displace petroleum.
- AFVs can be more costly to buy and operate than standard vehicles. The U.S. Postal Service, which owns the largest number of E85 vehicles of any agency—about 37,000 in 2007—found that these vehicles are more costly to buy and operate than non-AFVs because of the higher fuel cost of E85 and lower fuel efficiency of AFVs. The Postal Service reported that their AFVs reduced fuel efficiency by about 29 percent, thereby increasing fuel consumption by about 1.5 million gallons in 2007.
- A limited number of fuel-efficient AFVs are available to agencies. We found that from 2006 through 2008, GSA offered through its Special Order Program, the means by which most agencies acquire vehicles, only one AFV compact sedan—a 6-cylinder model—and no subcompact AFV sedans. According to GSA officials, the program includes the most fuel-efficient AFVs available commercially—automobile manufacturers currently offer few fuel-efficient AFVs. GSA officials pointed out that agencies may acquire vehicles outside of the program, but agencies will typically pay significantly more for these vehicles.

Projected Performance

Fleet Energy Objective

#4. Reduce petroleum consumption by 2 percent annually, relative to 2005 baseline (continued)

Rather than relying on E85, some agencies have turned to other methods to reduce petroleum use.

- *Increased their use of conventional hybrids.* The Postal Service and other agencies are using conventional hybrids in an effort to reduce petroleum consumption. Postal Service officials believe that hybrids are better suited for stop-and-go driving by service carriers and can improve fuel efficiency by as much as 21 percent. EPCRA 1992 was amended in 2008 to include conventional hybrids in the definition of AFVs; however, the additional cost of hybrids, \$8,000 to \$10,000 per vehicle, also may limit agencies' use of them.
- *Employed better fleet management practices.* Several agencies have reduced the number of vehicles in their fleets, encouraged carpooling, and instructed drivers to take actions aimed at increasing fuel efficiency, such as observing posted speed limits and performing scheduled maintenance.
- *Leveraged resources to acquire other types of AFVs.* NASA partnered with the Marine Corps to urge GSA to acquire about 40 compressed natural gas vehicles through a special purchase arrangement between GSA and Honda.
- *Studied ways to reduce petroleum consumption.* NASA has begun testing electric vehicles, the Postal Service is continuing its test of conventional hybrids, and GSA is trying to identify vehicles it could replace with more fuel-efficient models.

Projected Performance

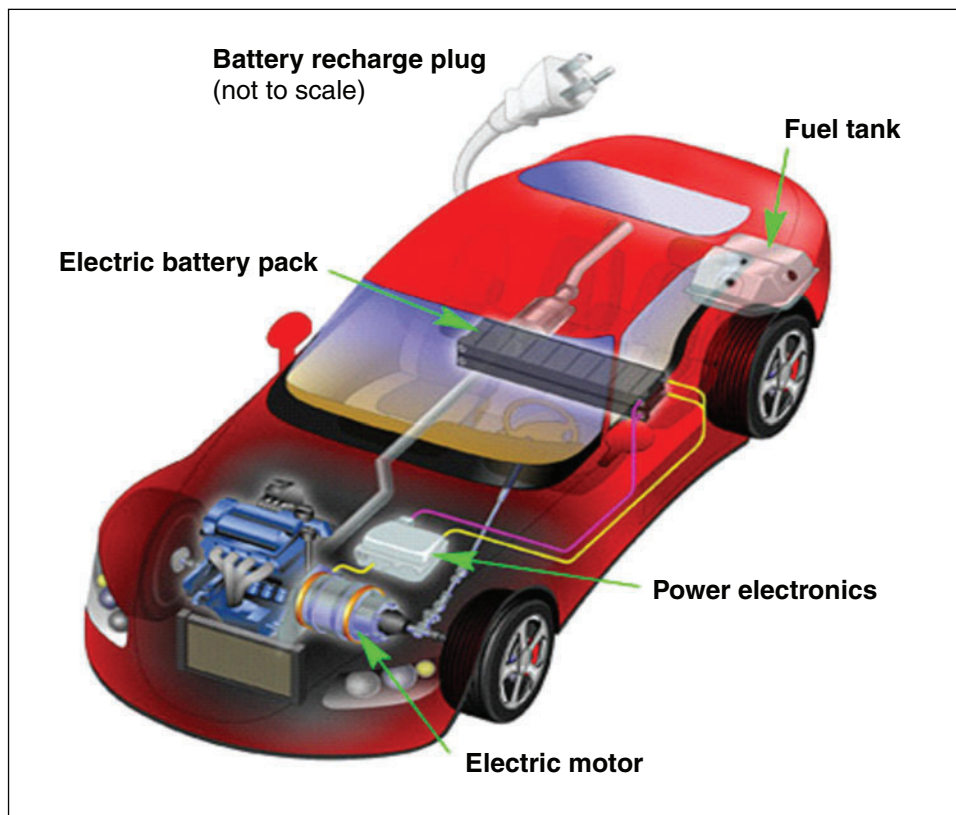
Fleet Energy Objective

#5. Acquire plug-in hybrid electric vehicles when commercially available and at a reasonable cost

Plug-In Hybrid Electric Vehicles Are Unlikely to Be Widely Available Before 2010 at the Earliest

- Battery weight, durability, and cost are the biggest obstacles to commercializing plug-in hybrid electric vehicles. Limited production by Toyota and General Motors might begin in 2010.
- In July 2008, GAO initiated a review regarding issues associated with using plug-in hybrid electric vehicles in the federal government.

Figure 9: Components of a Plug-in Hybrid Electric Vehicle



Source: National Renewable Energy Laboratory for Department of Energy.

Conclusions and Recommendations

Federal Fleets

Conclusions

Since 1992, Congress and the President have sought to reduce federal dependence on petroleum, using alternative fuel as one of their main tools. Virtually every agency has succeeded in acquiring more AFVs, but none has been able to significantly displace petroleum with alternative fuel, due to its lack of availability. Furthermore, allowing agencies to count AFV acquisitions that are not subject to the requirement toward meeting the requirement gives the incorrect impression that agencies are greatly exceeding the requirement. More importantly, agencies continue to acquire AFVs that they cannot expect to fuel with alternative fuel because of location or cost. Instead, they are fueling these vehicles mostly with gasoline, which does nothing to further the government's energy objectives. In some cases, it has increased total fuel consumption, making operation of the vehicles more costly than if the agency had purchased standard vehicles. Until alternative fuel, particularly E85, is more widely available, agencies will likely continue to expend time and resources on acquiring AFVs with limited success in displacing petroleum. In places where agencies do not have a reasonable prospect of achieving the fueling requirement, they may miss opportunities to displace petroleum consumption through other means. Petroleum reduction is one of the central rationales behind all five energy objectives. However, the acquisition and fueling requirements may, in some cases, undermine efforts to cut petroleum use. In addition, agencies and DOE have not met their clear responsibility to report on their compliance with the EPCA's 2005 alternative fueling requirement. Furthermore, in some cases, data quality problems have rendered agencies unable to accurately measure their progress toward increasing alternative fuel or reducing petroleum consumption, or to effectively target areas for improvement.

Conclusions and Recommendations

Federal Fleets

Recommendations for Executive Action

We recommend that the Secretary of Energy (1) report annually on agencies' compliance with the alternative fueling requirement under Section 701 of EPAAct 2005, and (2) revise DOE's implementation guidance to disallow AFV credits for AFVs not subject to the acquisition requirement.

We recommend that the Secretary of Energy and the Administrator of the General Services Administration continue their ongoing efforts to resolve data quality issues in these areas.

Matter for Congressional Consideration

Congress should consider aligning the federal fleet AFV acquisition and fueling requirements with current alternative fuel availability and revising those requirements as appropriate.

Scope, Methodology, and Related Products

GAO Contacts

Mark Gaffigan, 202-512-3841 or gaffiganm@gao.gov

Staff Acknowledgments

In addition to the contact named above, individuals making key contributions to this briefing include: Karla Springer, John Johnson, Michael Kendix, Ben Shouse, Barbara Timmerman, and Robert Alarapon.

Scope and Methodology

To determine agencies' compliance with 2007 federal fleet energy objectives, we relied primarily on information from DOE's Federal Automotive Statistical Tool (FAST) database. In addition, we reviewed annual DOE reports and agency annual reports on compliance with EPA's 1992 and 2005 and executive orders. We also conducted interviews with relevant fleet officials, including DOE officials and DOE contractor staff from the Idaho National Laboratory that work with FAST.

To determine whether agencies are poised to meet fleet energy goals in the future, we performed trend analyses using compliance data from FAST, analyzed transportation scorecards issued to agencies by OMB and DOE, and analyzed vehicle data from the GSA Special Order Program. We determined these data to be sufficiently reliable for our purposes, which were to determine agencies' compliance in 2007 and prospects for compliance in the future.

We conducted this performance audit from July 2007 through October 2008 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Related Products

GAO, *Bio-fuels: DOE Lacks a Strategic Approach to Coordinate Increasing Production with Infrastructure Development and Needs*, [GAO-07-713](#) (Washington, D.C.: June 8, 2007).

GAO, *U.S. Postal Service: Vulnerability to Fluctuating Fuel Prices Requires Improved Tracking and Monitoring of Consumption Information*, [GAO-07-244](#) (Washington, D.C.: Feb. 16, 2007).

GAO, *Department of Energy: Key Challenges Remain for Developing and Deploying Advanced Energy Technologies to Meet Future Needs*, [GAO-07-106](#) (Washington, D.C.: Dec. 20, 2006).

DOE, *Clean Cities Alternative Fuel Price Report—June 2006* (Washington, D.C. June 2006).

(360948)

Enclosure II

Comments from the General Services Administration



GSA Administrator

September 26, 2008

The Honorable Gene L. Dodaro
Acting Comptroller General
U.S. Government Accountability Office
Washington, DC 20548

Dear Mr. Dodaro:

The U.S. General Services Administration (GSA) thanks you for the opportunity to review and comment on the draft report, "FEDERAL ENERGY MANAGEMENT: Agencies Are Acquiring Alternative Fuel Vehicles but Face Challenges in Meeting Other Fleet Objectives" (GAO-08-1112R). We concur with the joint recommendation to the Department of Energy (DOE) and GSA, and we will continue our ongoing work with DOE to resolve data quality issues.

If you have any questions, please contact me. Staff inquiries may be directed to Mr. Kevin Messner, Associate Administrator, Office of Congressional and Intergovernmental Affairs, at (202) 501-0563.

Sincerely,

A handwritten signature in black ink that reads "James A. Williams".

James A. Williams
Acting Administrator

cc: Mark Gaffigan, Director, Natural Resources and Environment, GAO

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