DOE F 1325.8
8-25-93
(08-93)

United States Government **Department of Energy**

memorandum

DATE: September 30, 2008 Audit Report Number: OAS-L-08-17

REPLY TO: IG-34 (A08PT059)

SUBJECT: Special Review on "Petroleum-Based Fuels Use"

TO: Assistant Secretary for Energy Efficiency and Renewable Energy, EE-1

INTRODUCTION AND OBJECTIVE

In Fiscal Year (FY) 2007, the Department of Energy (Department) consumed over seven million gallons of petroleum-based fuel in the operation of a fleet of over 14,000 light, medium and heavy duty vehicles. These vehicles were either owned by the Department or leased through the General Services Administration (GSA). Since April 2000, the Department has been subject to a number of executive and legislative mandates to reduce the use of petroleum-based fuel. The Department's mission requires that it assume a leadership role in energy conservation. Further, the practical impact of recent gasoline price increases on the cost of operating a 14,000 vehicle fleet requires aggressive conservation efforts.

In May 2002, we issued a report on *Alternative Fuels Use at the Department of Energy* (DOE/IG-0553) that disclosed the Department's past fuel conservation efforts had not always been satisfactory. Because of deficiencies in its strategy, we found that the Department was unlikely to meet its goal of displacing 20 percent of its petroleum needs through alternative fuels use by 2005. Management concurred with our findings and pledged to take a number of corrective actions designed to increase alternative fuel use. Because of the long standing mandates to reduce fuel usage and the realities of the current energy situation, we conducted this review to determine whether the Department and its contractors are reducing their use of petroleum-based fuels.

CONCLUSIONS AND OBSERVATIONS

We found that the Department was aggressively pursuing a strategy to reduce its use of petroleum-based fuels and that it appeared to be on track to meet or exceed previously established goals in this area. At the six sites included in our review, officials were promoting the use of alternative fuels and had developed and were applying a number of fuel conservation techniques. Consistent with these actions, management officials reported that the Department:

- Exceeded Federal requirements by achieving a 9.7 percent reduction in petroleum-based fuels use since FY 2005; and,

- Was on track to achieve a 45 percent reduction by FY 2012.

These results are positive. During our review, however, we identified two additional actions that, if promptly addressed, may help the Department further reduce fuel use and better prepare it to adjust to budget and mission impacts associated with volatile fuel prices. In particular:

- Headquarters program officials had stressed the importance of previously established goals, but had not taken specific action in response to recent fuel price increases to promote the Department-wide use of site-developed conservation techniques; and,

- Two of the sites we visited had developed preliminary FY 2008 fuel price budget impact projections showing an unbudgeted increase of $800,000. However, the Department had not developed an overall agency-level projection or attempted to forecast and formally address the impact of petroleum price increases on future operations.

Actions to address these two points, combined with the Department's current and planned efforts, should place it in a position to meet the challenges of rising fuel prices and set an example for other Government agencies.

The attachment to this memorandum provides more details on our observations, conclusions, and suggested actions regarding the use of petroleum-based fuel use. Because no formal recommendations are being made in this report, a response is not required. We appreciate the cooperation of your staff and the various Departmental elements that provided information and assistance.

Rickey R. Hass
Assistant Inspector General
for Environment, Science, and Corporate Audits
Office of Inspector General

Attachment

cc: Acting Deputy Secretary
Chief of Staff
Director, NNSA Policy and Internal Controls Management, NA-66
Manager, Idaho Operations Office

Manager, Office of River Protection
Manager, Richland Operations Office
Team Leader, Audit Liaison Team, CF-1.2
Audit Liaison, EE-3A
Audit Liaison, EM-33
Audit Liaison, NE-42
Audit Liaison, SC-41
Audit Liaison, BPA, DN-7

Special Review on Petroleum-Based Fuels Use

Federal Requirements

The Department of Energy (Department) is subject to a number of fuel conservation directives. Executive Order 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, issued in January 2007, requires agencies to reduce the use of petroleum-based fuels by two percent annually relative to Fiscal Year (FY) 2005 baselines. Agencies must also increase the use of alternative, non-petroleum based fuels by 10 percent annually. The Energy Independence and Security Act of December 2007 incorporated the Executive Order's requirements into law and required agencies to achieve a 20 percent reduction in petroleum consumption and a 10 percent increase in annual alternative fuel consumption by October 1, 2015, relative to FY 2005 baselines. It also imposed a requirement for agencies to purchase only low greenhouse gas emitting light and medium duty vehicles. To demonstrate compliance with these Federal requirements, the Department and other Federal agencies enter fuel and vehicle use information for each FY into the Federal Automotive Statistical Tool (FAST) system.

Fuel Alternatives and Conservation Efforts

Our review found that the Department had taken a number of steps to promote the use of alternatives to traditional petroleum-based fuels. These alternatives included the use of ethanol, as well as other transportation fuels such as biodiesel made with vegetable oil or other non-petroleum feedstock. Efforts were underway to increase the number and utilization of electric, hybrid and alternate fuel vehicles. As indicated by the statistics cited later in this report, the Department's facilities report that they have made progress in reducing their dependence on petroleum-based fuels.

The Department's current alternative fuels infrastructure, however, has not fully matured. For example, refueling stations are often not available and convenient to Department field locations. The Office of Energy Efficiency and Renewable Energy (EERE), is currently working with Departmental sites, as well as local communities, to promote the development of necessary alternative fuels infrastructure. For example, the Nevada Test Site and Los Alamos National Laboratory were installing alternative fuel infrastructure on site. Additionally, EERE has provided information on Federal fleet alternative fuel vehicle locations to the infrastructure developers and is in the process of seeking agreements to develop the necessary infrastructure.

During our review, we also noted that Department field sites had identified and were implementing a number of fuel saving techniques at the local level. In support of the Department's strategy to decrease the use of petroleum-based fuels, the six sites covered by our review had promoted conservation techniques such as:

- The purchase of more compact and lighter-duty vehicles;
- Increasing the percentage of electric and hybrid vehicles in their fleets;
- Teleconferencing; and,
- Ride-sharing.

Some of these sites had also identified and publicized best practices for decreasing fuel usage such as avoiding unnecessary idling of engines, ensuring preventative maintenance was performed, and using the most practical vehicle for the task. Additionally, Department field activities, as well as other Federal agencies, had begun to evaluate whether the composition of their fleets (the mix of light, heavy, and advanced technology vehicles) was appropriate.

Progress Against Previously Established Goals

Based on these and related conservation efforts, the Department reported that it had decreased the use of petroleum fuels by 9.7 percent and increased its use of alternative fuels by approximately 47 percent since FY 2005. EERE leads the Department's effort to meet fuels usage goals and tracks conservation efforts. EERE is currently in the process of conducting visits and analyzing each of the top 20 sites' implementation of the Department's conservation strategy. In its draft *Compliance Strategy for Executive Order 13423 and the Energy Independence and Security Act of 2007*, dated February 2008, EERE reported that the Department's reduction of petroleum-based fuels use had exceeded and will continue to exceed established goals based on data reported in the FAST system. This success is primarily the result of increasing the use of alternative fuels such as E85 and biodiesel.

Further, a recent study conducted for the Department indicates that the results of its conservation efforts may be more positive than indicated by FAST data. Approximately 70 percent of the Department's fleet consists of GSA leased vehicles. For these vehicles, all fuel purchases are made using a GSA credit card and fuel costs are included in the annual contract price for the lease of each vehicle. However, the Department's study noted that because of problems with the way fueling stations report and bill transactions, data on alternative fuels may have been incorrectly reported as gasoline purchases. The Department's study, bolstered by information provided by General Services Administration (GSA), found that 50 to 60 percent of points of sale transactions were incorrectly coded as to the type of fuel. GSA plans to work with industry officials to encourage retailers to upgrade their reporting capabilities to more accurately classify fuel sales.

Dissemination of Best Practices

We observed that a number of steps have been taken to reduce petroleum-based fuel consumption. Our review disclosed, however, that the Department, at the Headquarters program level, had not formally emphasized mechanisms to combat recent fuel price increases. Specifically, Headquarters program offices had not developed or published guidance to encourage increased conservation efforts and had not established a formal mechanism to collect and publish site-level conservation best-practices. To put this point in perspective, we did find that program officials stressed compliance with existing Federal goals for reducing petroleum demand. However, it was not evident that they took specific actions to accelerate conservation in response to the recent volatility in fuel prices. Some program managers told us that site-level and other agency best practices were discussed at a recent GSA Federal Fleet Manager's Conference, but that formal mechanisms had not been developed for sharing such information across the Department.

Budget Impact

Additionally, we observed that the Department had not taken action to estimate the aggregate impact of fuel prices and budget implications on future operations. Increased fuel prices have led to significant increases in the cost to operate all vehicles. In April 2008, GSA implemented a fuel surcharge to recover the rapidly escalating costs of both petroleum based and alternative fuels. This additional fee has a significant, real-time impact on Departmental site budgets. At two of the sites visited, we learned that officials had prepared preliminary projections that estimated the impact of increased fuel costs of $300,000 and $500,000, respectively, for FY 2008. While these forecasts provide some insight as to potential impact of price increases now and in the future, none of the six sites reviewed had developed formal strategies to address future mission impacts. Such projections are likely to be particularly relevant as GSA anticipates that the FY 2009 lease rate will be increased to fully incorporate fuel price increases. Sites also need to specifically consider the increasing cost of operating vehicles using alternative fuels when preparing their estimates because these fuels are generally less-efficient than petroleum-based fuels.

CONCLUSION/ SUGGESTED ACTIONS

Our overall conclusion based on the review of the six sites visited was that the Department has taken a number of positive steps to promote fuel conservation and use of alternative fuels at its field activities. However, in today's environment of volatile petroleum-based fuel prices, the Department needs to take advantage of every opportunity to decrease its use and become a model for other Federal agencies to follow. Therefore, we suggest that the Assistant Secretary for EERE in conjunction with the National Nuclear Security Administration and applicable Department program offices take the following actions:

- Share its best practices throughout the Agency and identify, on an ongoing basis, additional opportunities to reduce the use of petroleum-based fuels, including, where possible, the use of advanced technology vehicles; and,

- Develop:

    1. Supplemental guidance to promote fuel conservation techniques; and,

    2. A projection of the budget impacts of rising fuel costs and a plan to address future impacts on mission.

SCOPE AND METHODOLOGY

OBJECTIVE

To determine whether the Department of Energy (Department) and its contractors are reducing their use of petroleum-based fuels.

SCOPE

We conducted the review from June 2008 to August 2008 at Department Headquarters in Washington, D.C.; the Idaho National Laboratory (Idaho) in Idaho Falls, ID; the Nevada Test Site (Nevada) in Nye County, NV; the Bonneville Power Administration (BPA) in Portland, OR; the Los Alamos National Laboratory (LANL) in Los Alamos, NM; and the Hanford Site (Hanford) and Pacific Northwest National Laboratory (PNNL) in Richland, WA.

METHODOLOGY

To accomplish the audit objective, we:

- Reviewed applicable Federal regulations, Department Orders and Manuals, and other guidance related to reducing the use of petroleum-based fuels;
- Reviewed fuel use and vehicle information contained in the Federal Automotive Statistical Tool database;
- Reviewed and analyzed monthly reports since June 2007 for General Service Administration leased vehicles;
- Reviewed and analyzed fuel usage reports since June 2007 for Department-owned vehicles;
- Obtained information from fleet management officials at Idaho, Nevada, BPA, LANL, Hanford , and PNNL regarding actions taken to reduce the use of petroleum-based fuels;
- Held discussions with Headquarters officials regarding programmatic responsibilities relative to reducing petroleum-based fuels; and,
- Held discussions with other Federal agencies regarding action taken to reduce petroleum-based fuel usage.