

**ENERGY MANAGEMENT
AND CONSERVATION PROGRAM**

Department of Transportation

Report Number: FI-2003-032

Date Issued: March 28, 2003



Memorandum

**U.S. Department of
Transportation**

Office of the Secretary
of Transportation
Office of Inspector General

Subject: **ACTION:** Report on Energy Management
and Conservation Program, DOT
FI-2003-032

Date: March 28, 2003

From: Alexis M. Stefani 
Principal Assistant Inspector General
for Auditing and Evaluation

Reply To
Attn Of: Griser:x61496

To: Assistant Secretary for Administration
Federal Aviation Administrator

This report presents the results of our audit of the Department of Transportation (DOT) energy management and conservation program. Our audit objective was to determine whether DOT's energy management and conservation program was in compliance with applicable laws and regulations. We focused specifically on whether: (1) DOT was exploring new ways to reduce energy consumption and taking advantage of opportunities to reduce energy consumption and costs, and (2) DOT's energy data reported to the Department of Energy (DOE) were reliable and reasonably accurate.

Our audit focused on the Federal Aviation Administration (FAA) and U.S. Coast Guard (Coast Guard) because they accounted for about 96 percent of DOT's energy use. Our scope and methodology are discussed in Exhibit A.

INTRODUCTION

This audit was initiated based on an inquiry from the Senate Committee on Governmental Affairs concerning Governmentwide energy management activities and progress in meeting Federal energy goals. Federal laws and Executive Orders directed agencies to identify and put into service cost-effective energy projects where savings from reduced energy consumption offset investment costs in less than 10 years. To do this, agencies were directed to conduct evaluations of energy usage in all of their buildings and fund cost-effective projects by January 2005.

The Energy Policy Act of 1992 required agencies to reduce building energy use by 20 percent in Fiscal Year (FY) 2000 from FY 1985 baseline levels and report energy data to DOE annually. DOE then compiles the data from all Federal

agencies and reports to Congress. The Assistant Secretary for Administration is responsible for implementing energy policy requirements within DOT.

RESULTS IN BRIEF

Since passage of the 1992 law, DOT has reduced its energy consumption by replacing fixtures and equipment with energy-efficient products and implementing energy awareness programs. For example, FAA's Aeronautical Center installed an energy control system that automatically regulates all heating and air conditioning equipment. However, we found that DOT could further reduce energy consumption and costs by investing in previously identified energy conservation projects.

More Energy Saving Projects Should Be Funded. FAA and Coast Guard identified about 1,100 energy-saving projects, but not all of these cost-effective projects have been funded. We identified 71 FAA projects that would recover the investment costs in 3 years or less, but had not been funded. These 71 projects had a one-time cost of about \$1.3 million, but reductions in energy consumption would save about \$1 million annually. For example, a project to install electronic timers on lights costing \$4,600 would save \$8,300 per year and pay for itself in about 200 days.

Reported Energy Consumption Data Needs to be More Reliable. DOT reported its annual energy consumption data to DOE as required. However, we identified inaccuracies with the reported data. In FY 2000, DOT reported a 29-percent reduction in building energy use from its FY 1985 level, thereby exceeding its 20-percent goal. However, we could not confirm the reduction because some FY 2000 and FY 1985 data were not accurate and adequate supporting documentation was no longer available. For example, FAA under-reported FY 2000 electricity consumption at its Technical Center by 10 percent. Accordingly, we could not attest that DOT exceeded, or met, its energy reduction goal.

Buildings Need to be Better Classified. The 20-percent reduction goal for building energy includes only those buildings that are classified as standard buildings. The law allows agencies to exempt buildings from the reduction goal where it is technically infeasible to reduce energy. We found that both FAA and Coast Guard should reclassify some buildings. We reviewed the use of 59 buildings that FAA reported as exempt and found 5 buildings that should be reevaluated for reporting in the standard category. For example, systems management offices and automated flight service stations were used for basic office functions. FAA has 93 such buildings with about 1.1 million square feet

of space that should be reevaluated for reporting in the standard category. Coast Guard reported all of its facilities in the standard category, but facilities such as lighthouses, while not required, should be exempt.

More Accurate Reporting of Energy Data is Needed. To correct the data problems that we identified would be labor intensive. In 2002, Congress considered proposed legislation (H.R. 4, the Energy Policy Act of 2002) that would have revised the baseline year from FY 1985 to FY 2000. A new bill, the Energy Policy Act of 2003, would establish FY 2001 as the new baseline year. In our opinion, trying to retroactively develop reasonably accurate baseline data for FY 2001 from inaccurate data and records that are already about 2 years old is a waste of time and resources.

Because the proposed legislation already recognizes the need for a more current baseline, it would be better for both Congress and the Administration to set FY 2003 as the baseline to measure energy reductions. By doing this, DOT and the other agencies could make a concerted effort to obtain supportable energy data and building inventories to establish a credible baseline to measure future progress. Accordingly, we are separately providing our report to Congress, suggesting that in its energy bill deliberations, the Congress establish FY 2003 instead of FY 2001 as the baseline year.

More FAA Energy Evaluations Need to be Completed. Except for FAA, we found that DOT is on schedule to meet the January 2005 milestone for conducting energy evaluations. FAA had conducted evaluations on about 58 percent of its building space as of September 30, 2001. However, to meet the January 2005 milestone, FAA should have completed energy evaluations on about 70 percent of its buildings. FAA needs to identify and develop plans to evaluate its remaining space so DOT will meet the executive order deadline.

Management Emphasis is Needed. Energy management has been a national issue since oil embargoes in the mid-1970's to the recent rolling blackouts in California. Notwithstanding the outcome of the energy legislation, DOT needs to place a higher priority on conserving energy and establish accountability for its energy management. To be more effective, DOT needs to reemphasize the importance of its energy program and fund cost-effective energy projects.

To improve DOT's energy management and conservation program, we recommended that DOT (1) prioritize and track energy-saving projects and fund those that have a payback in the near term; (2) develop processes to collect accurate and supportable energy data using actual FY 2003 data; (3) identify the documentation to be retained to support annual reports to DOE; (4) implement schedules to ensure completion of energy evaluations by January 1, 2005, and

(5) disclose in the next annual report to DOE that some consumption and square footage data are not supported by adequate documentation.

DOT, FAA, and Coast Guard agreed with our recommendations and are taking, or have taken, corrective actions. DOT and FAA commented that FY 2003 is unlikely to provide a typical baseline year considering the major restructuring of the Federal Government to create the Department of Homeland Security, and that new goals for future accomplishment of energy reductions should consider accomplishments already made. We have included these comments in the final report, which will be provided to Congress for its consideration. We also made changes to the final report as appropriate to address management comments.

BACKGROUND

The National Energy Conservation Policy Act and the Energy Policy Act of 1992 require Federal agencies to reduce energy usage and improve energy efficiency. The Energy Policy Act and Executive Orders require Federal agencies to reduce energy consumption as measured in British Thermal Units (BTUs) per square foot of building space. By FY 2000, agencies were to reduce energy use in their standard-type buildings by 20 percent from FY 1985 levels. Although other facilities are exempt from energy reduction goals, agencies still must report energy usage and make efforts to reduce energy consumption.

Agencies report to DOE their total annual energy consumption and space measurements for all buildings they own, operate, manage, or lease (if agencies pay utilities separately from leases). DOE, in turn, publishes an Annual Report to Congress on Federal Government Energy Management and Conservation Programs.

Under Executive Order 13123, agencies are to perform energy evaluations¹ on 10 percent of their buildings each year beginning in 1995, with completion by January 1, 2005. These energy evaluations are to identify conservation alternatives. All investments that will be recovered in less than 10 years are to be implemented by January 1, 2005, to the maximum extent practicable.

In FY 2000, DOT reported spending about \$120.2 million on energy costs and consumed about 10.1 trillion BTUs of energy. Of that amount, 96 percent was consumed by FAA and Coast Guard. Table 1 shows DOT's total reported energy consumption and associated data for FY 2000.

¹ Energy evaluations identify energy conservation opportunities and energy waste. Evaluations are usually performed by contractors with specific expertise.

Table 1. DOT's FY 2000 Energy Data

Operating Administration	Cost (millions)	Building Square Feet		Energy Consumption (in trillion BTUs)	Percent of Total DOT Consumption
		Standard (millions)	Exempt (millions)		
FAA	\$67.3	3.7	16.0	6.8	67
Coast Guard	\$46.5	29.5	0	2.9	29
Others	\$6.4	3.2	.3	.4	4
Total	\$120.2	36.4	16.3	10.1	--

RESULTS

Cost Beneficial Conservation Projects Have Been Identified

The Energy Policy Act of 1992 states that not later than January 1, 2005, each agency shall, to the maximum extent practicable, install in owned buildings all energy conservation projects with payback periods of less than 10 years.

By performing energy evaluations, FAA identified 502 energy-saving projects as of July 2002. Of those, 221 projects had payback periods of less than 10 years but these projects had not been implemented. More significantly, we found that for 71 of the 221 projects, FAA would recover its investment costs in 3 years or less. Collectively, these 71 projects had a one-time cost of about \$1.3 million, but the reductions in energy consumption would save about \$1 million every year thereafter. For example, a project costing \$4,600 to install electronic timers to provide lights only when needed would save \$8,300 per year and would pay for itself in about 200 days.

Between FY 1998 and FY 2002, FAA's budget request included about \$5.2 million to fund energy conservation projects. However, only \$700,000 was provided, of which \$100,000 was to implement projects and \$600,000 was paid to contractors to improve the accuracy of FAA's energy data. We reviewed budget justifications and found that they could be more convincing had the justifications clearly shown that investments in these projects would reduce energy consumption and pay for themselves through lower energy costs.

Coast Guard's evaluations also identified 586 conservation projects as of August 2002, but it was unable to identify the projects that had been implemented without contacting each of the 127 units responsible for the projects. Coast Guard does not request specific energy funding in its budget submission. Coast Guard funds projects through its Facility Energy Efficiency Funds program where operating funds are set aside for conservation projects

costing less than \$50,000. In FY 2001, Coast Guard units requested a total of \$2.5 million for energy projects through this program. Of this amount, Coast Guard was able to fund only \$1.2 million. Similar to FAA, Coast Guard's budget documents did not show the benefits of funding these projects.

Notwithstanding the effort and expense to identify cost-effective energy projects, we found that FAA and Coast Guard were not systematically monitoring or tracking the projects to determine which projects were accomplished or were being planned. To identify the 221 projects that had not been implemented, FAA had to canvass its regions and field offices and obtain the status of individual projects. As mentioned earlier, Coast Guard was unable to provide any project status information without a labor-intensive effort.

DOT needs to prioritize cost-effective energy projects that pay for themselves in less than 10 years. Prioritizing projects would allow managers to identify specific projects with the best payback in the near term when making and defending budget decisions.

Reported Energy Data Were Not Reliable

DOT reported its annual energy data to DOE as required. However, we identified inaccuracies with the reported data. In FY 2000, DOT reported a 29-percent reduction in building energy use from its FY 1985 baseline level, thereby exceeding its 20-percent goal. However, we could not confirm this reduction because some FY 2000 and FY 1985 data were not accurate and adequate supporting documentation was no longer available.

Because the law and DOE criteria allow some buildings to be exempt² from the reduction requirement, it is important that buildings be accurately classified as standard (subject to the reduction requirements) or exempt for reporting purposes. DOT's energy use is determined by dividing its standard buildings' energy consumption (in BTUs) by the buildings' square feet of space. Thus, to report accurate energy use, DOT must have accurate data on both consumption and the square footage of its buildings.

DOT reported that energy use in its standard buildings during FY 1985 was about 143,000 BTUs per square foot and 102,000 BTUs per square foot in FY 2000, resulting in a reported reduction of 29 percent. However, we identified inaccuracies with DOT's reported consumption data and square feet of building space for both FYs 1985 and 2000. Examples follow.

² Buildings may be exempt where it is technically infeasible to implement energy efficiency measures. Structures such as parking garages, picnic areas, and ships docked in port may be exempted.

- Coast Guard's reported FY 1985 figures did not include square feet of space in leased buildings for which it paid the utilities. The Coast Guard currently leases about 3.7 million square feet of building space, which represents about 11 percent of total building space.
- Coast Guard consumption data for all buildings at the Baltimore Yard (over 154 billion BTUs, or 4 percent of the Coast Guard's total BTUs), were not included in FY 1985 figures.
- FAA's Technical Center consumption was incorrectly underreported by 10 percent for FY 2000. Utility bills showed 79 billion BTUs of electricity were used, but the energy manager reported using only 71 billion BTUs. The reported amount for electricity was understated because bills for 11 months rather than 12 months were used to report annual consumption.
- Coast Guard overreported the square footage of space for eight buildings we reviewed at its Portsmouth facility by a net of 17,000 square feet (6 percent of the sampled space), ranging from underreporting of 1,700 square feet to overreporting of 12,000 square feet.

FAA and Coast Guard acknowledged that their processes for collecting and reporting energy data need improvement. Without effective mechanisms for collecting and reporting energy data, these data inaccuracies will continue.

Building Classifications

DOT's reporting of its building space and the related energy use was not in compliance with DOE guidance. According to DOE guidance, a building or facility may be exempted from the reduction goals if it is technically infeasible to implement energy efficiency measures and reduce the building's use of energy. The guidance cites specific examples of facilities that should be exempt, such as ships that consume energy while docked in port.

We reviewed the use of 59 buildings that FAA reported as exempt. In our opinion, five buildings should be reevaluated for reporting in the standard category. For example, two buildings at the Technical Center were used as general office or storage areas and a building at the Aeronautical Center was used as a credit union. The credit union building was exempted because it was used previously to support computer operations. The other two buildings were a systems management office (SMO) and an automated flight service station

(AFSS). Our walk-through of these buildings disclosed that they were used for basic office functions.

Energy managers agreed that SMOs and AFSSs are administrative offices and, therefore, should be included in the standard, not exempt, category. FAA has 93 such buildings, each averaging 12,000 square feet of space for a total of about 1.1 million square feet of space, that should be reevaluated for reporting in the standard building category. FAA agrees that these buildings should be reevaluated, but believes fewer than 93 will meet the criteria for the standard category.

Coast Guard reported all of its facilities and the related energy in the standard building category. While there is no requirement to exempt facilities, DOE's guidance states that facilities, such as outside parking garages, should not be counted as standard building space. However, we found specific examples, such as docked Coast Guard cutters, outdoor picnic areas, and lighthouses, that were reported in the standard building category. Including such facilities in the standard category makes it more difficult for the Coast Guard to meet future reduction goals.

The classification of buildings within FAA and Coast Guard needs more management oversight or monitoring. In FAA, the energy managers' recommendations to exempt buildings were accepted with limited reviews. Coast Guard stated its decision to classify all its facilities and structures as standard buildings was based on the lack of individual meters on buildings, and thus the difficulty of separating standard building energy from total consumption. Without better management oversight and proper classification of buildings, these reporting deficiencies will continue to go undetected.

Best Practice Model

We found that the FAA Aeronautical Center (the Center) in Oklahoma City, Oklahoma, could serve as an example of best practices regarding energy management. The Center has more than 100 facilities and about 3 million square feet of building space. The Center energy manager has done an excellent job of collecting and reporting energy data (consumption and square feet) on each building and implemented a comprehensive network of energy coordinators who assist in monitoring energy usage and promoting awareness of energy conservation.

The energy manager used actual utility bills to support energy consumption data and developed a method to allocate usage to each building. The Center also installed meters and an automatic energy control system that automatically

regulates heating and air conditioning equipment and collects usage data from the meters. This allows equipment to be turned off or regulated to save energy when buildings are not occupied. The Center performed energy evaluations on about 90 percent of its facility space and implemented conservation measures when requested funding was provided. The FY 2000 energy report shows energy reductions exceeding 31 percent from FY 1985, with an 8-percent reduction from FY 1999 to FY 2000.

More Accurate Reporting of Energy Reductions is Needed

Regarding DOT's overall energy reporting, because of the inaccuracies identified, we could not attest that DOT exceeded, or met, its energy reduction goal. To correct the data problems that we identified would be labor intensive. In 2002, Congress considered proposed legislation (H.R. 4, the Energy Policy Act of 2002) that would have revised the baseline year from FY 1985 to FY 2000. Currently, Congress is considering the Energy Policy Act of 2003 that would establish FY 2001 as the new baseline year. Trying to retroactively develop reasonably accurate baseline data for FY 2001 from inaccurate data and records that are already about 2 years old is a waste of time and resources.

Because the proposed energy legislation already recognizes the need for a more current baseline, it would be better for both Congress and the Administration to set FY 2003 as the baseline to measure energy reductions. By doing this, DOT and other Federal agencies could make a concerted effort to obtain supportable energy data from current records to establish a credible baseline to measure future progress. Accordingly, we are separately providing our report to Congress, suggesting that in its energy bill deliberations, the Congress establish FY 2003 as the baseline year.

FAA Energy Evaluations Are Not on Schedule

Except for FAA, we found that DOT is on schedule to meet the January 2005 milestone for conducting energy evaluations. To meet the milestone, each of the Operating Administrations should have completed evaluations on or about 70 percent of their space by September 30, 2001. As presented in Table 2, as of September 30, 2001, Coast Guard and the other Operating Administrations are on schedule to complete energy evaluations of their building space by January 2005, but FAA is not.

**Table 2. Energy Evaluations of Facility Space
as of September 30, 2001**

Operating Administration	Total Square Feet (millions)	Evaluated Square Feet (millions)	Percent Complete
Coast Guard	29.5	23.1	78
FAA	19.8	11.4	58
Others	3.5	3.3	94
Total	52.8	37.8	72

FAA reported it had evaluated 71 percent of its building space, but could provide supporting evaluations for only 58 percent of its space. This occurred because of an internal discrepancy regarding the total square feet of space to be evaluated. We found that FAA is reporting 19.8 million in total facility square footage, but established a 10-year evaluation plan based on 15.5 million square feet. If FAA continues under this plan, it will complete evaluations on only 78 percent of its space by January 2005. FAA needs to resolve this discrepancy and develop plans to evaluate the remaining space.

Challenges Ahead

Notwithstanding the outcome of the energy legislation, DOT needs to place a higher priority on conserving energy and establish accountability for its energy program. To be more effective, DOT needs to reemphasize the importance of its energy program and fund additional cost-effective conservation projects.

RECOMMENDATIONS

We recommend that the Assistant Secretary for Administration, in coordination with the DOT Operating Administrators:

1. Prioritize and track the Department's energy-saving projects and make a concerted effort to fund those projects that have payback in the near term. This effort should include justifications for budget submissions that clearly show the cost and energy savings to be achieved.
2. Develop processes to collect and report accurate and supportable energy data using actual FY 2003 data. To do this, ensure inventories of all buildings are complete, buildings are properly classified as standard or exempt, and reported energy usage is supported with actual bills or meter readings.

3. Identify the type and extent of documentation to be retained to support annual reports to DOE.
4. Implement schedules for each Operating Administration to complete energy evaluations for DOT to meet the milestone on January 1, 2005.
5. Disclose in DOT's next annual energy report to DOE that some of the reported energy consumption and square footage of space are not supported by adequate documentation.

MANAGEMENT COMMENTS

A draft of this report was provided to the Assistant Secretary for Administration, the FAA Administrator, and the Coast Guard Commandant on January 22, 2003. They generally agreed with our recommendations and we made changes to the final report as appropriate to address management comments.

DOT Comments

The Assistant Secretary for Administration responded on February 21, 2003. A summary of the comments is provided below. The complete text of the Assistant Secretary's comments is in Appendix I. While the Office of the Assistant Secretary for Administration (OST) agrees that establishing a new baseline year may be useful, the year selected must provide an accurate and typical basis for measuring, and goals for future accomplishments must consider energy efficiency accomplishments already achieved. OST agrees that setting a new baseline year of 2000 would only result in a continuation of past inaccuracies. However, OST maintains that 2005 would be a more appropriate baseline year.

Anything before 2005 is unlikely to provide a typical baseline year, as agencies such as the U.S. Coast Guard and the Transportation Security Administration leave to become part of the Department of Homeland Security. For these reasons, OST recommends that OIG, in its interactions with Congress, suggest that the new baseline year be no earlier than 2005.

Recommendation 1. Concur. OST will, in coordination with the Operating Administrations and the energy technical support team, develop guidance for reporting and tracking energy savings projects. OST agrees that budget justifications need to clearly identify the cost of the project, the projected energy savings, the basis for the projected savings, and projected payback times. OST will work with DOT budget and the Operating Administrations to identify the

information that would be useful in the budget process and provide guidance. OST anticipates completing this guidance by June 2003.

Recommendation 2. Concur. OST will work with the Operating Administrations, the energy technical support team, and real property staff to ensure that energy consumption and building square footage data are as accurate as possible. OST will also work with the real property and energy staffs to determine how the building inventory can be kept up-to-date as facilities and building use change. OST also will assess the extent to which energy data are supported by actual bills or meter readings, identify impediments, and construct an action plan to ensure that data reporting is as accurate as possible. OST anticipates these efforts will be completed by December 2003.

Recommendation 3. Concur. OST will, in coordination with the Operating Administrations, the energy technical support team, and records management staff, develop guidance for retaining supporting documentation by September 2003. These materials will be maintained for 3 years, and will subsequently be maintained in summary form only.

Recommendation 4. Concur. OST will work with the Operating Administrations to develop guidance for establishing a schedule for completing facility energy audits and for reporting progress toward the January 1, 2005 goal. OST anticipates having this guidance completed by May 2003.

Recommendation 5. Concur. OST included a statement in the transmittal letter for the FY 2003 Annual Energy Report to DOE noting the consumption and square footage data were not supported by adequate documentation.

FAA Comments

The Acting Assistant Administrator for Financial Services and Chief Financial Officer responded on March 12, 2003. A summary of the comments is provided below and the complete text of the Acting Assistant Administrator's comments is in Appendix II.

FAA acknowledges that inaccuracies remain in some parts of the FY 1985 baseline, and stated that if the OIG recommends a change in the baseline year, the recommendation should also include that organizations that have already implemented conservation measures and met reduction goals receive credit for the reductions already achieved. FAA also stated that to set new across-the-board goals tied to a new baseline would penalize organizations that have proactively implemented best practices.

Recommendation 1. Concur. The implementing organizations, with guidance from the policy office, will review and refine criteria for ranking energy conserving projects. FAA will work with the Department to establish common format and fields to track energy-savings projects, develop a cross-organizational tracking system to provide the essential information regarding energy-savings projects, and include in budget justifications a clear statement of cost and energy savings. FAA expects to complete all actions by March 31, 2004.

Recommendation 2. Concur. Since 1994, the FAA has spent more than \$1 million to develop an in-house data system to record and manage energy consumption information for FAA facilities. DOT is implementing a new accounting system (Delphi). The FAA energy program will continue to request that Delphi be modified to capture information in support of tracking cost and units of consumption. FAA also plans to ensure that inventories of all buildings are complete, establish a plan for the recategorization of facilities, and ensure that consumption data are supported with actual bills or meter readings as FAA is able. FAA expects to complete all actions by December 31, 2004.

Recommendation 3. Concur. FAA is working with the DOT Energy Manager and receiving guidance from DOE to identify documentation to be retained. FAA expects to complete this action by September 30, 2003.

Recommendation 4. Concur. FAA will create a list of facilities still requiring energy audits and prepare a schedule for completing the energy audits. FAA expects to complete this action by September 30, 2003.

Recommendation 5. Concur with comment. FAA stated that OIG should note that some data are not supportable, but others are very supportable. FAA included a statement of data reliability in its FY 2002 report to OST.

Coast Guard Comments

The Coast Guard Chief of Staff responded on February 28, 2003. A summary of the comments is provided below and the complete text of the Chief of Staff's comments is in Appendix III.

Recommendation 1: Concur in Part. Coast Guard will continue to use the Facility Energy Efficiency Fund for priority energy retrofits. As with most Federal agencies, a funding gap exists between available funds and project requirements. Project funding priority is based upon simple payback calculations; energy savings are calculated as part of this process. An effort is

underway to enhance project tracking by using the Civil Engineering Database System. Coast Guard expects to complete this project by December 2003.

Recommendation 2. Concur. The Coast Guard Finance Center pays all utility bills which enables the capture of accurate and supportable utility consumption data that are processed into the Fast Accounting System for Energy Reporting (FASER) system. FASER requires modifications and enhancements; however, a project is underway to alleviate the current deficiencies. This project may be coordinated with the Department of Homeland Security for possible inclusion of other users. Implementation for the FY 2004 reporting cycle is targeted. For FY 2003, Coast Guard will verify utility consumption at its larger installations.

Metering is a barrier to exempting certain facilities and cutter electricity. To exempt accurately, the 1985 performance data for facilities and cutters is needed. Due to the effort required to obtain appropriate data, Coast Guard intends to forgo the exemption process. If a new baseline is established, Coast Guard will pursue appropriate exemptions with metered data.

Recommendation 3. Concur. The Coast Guard Energy Program Manager retains documentation for 3 years. The information is then sent to the record holding facility. If the data year is a baseline year, the Program Manager retains all data and supporting documentation for an indefinite period.

Recommendation 4. Concur. Coast Guard is ahead of schedule for energy evaluations and will complete the effort by January 1, 2005. Additional actions include the creation of a common database for tracking evaluations and results.

Recommendation 5. Concur. The Coast Guard FY 2002 energy report explains data derivations and identifies sources of information. Coast Guard will integrate facility information systems to provide one database for square footage. This effort will be completed in March 2003.

The Coast Guard is taking a conservative approach regarding leased square footage by including only those leased facilities where it is known that Coast Guard pays the utilities. The energy consumption data for the Coast Guard Yard complex was included in the FY 2002 report, which impacts performance as compared to the baseline and previous years information. Efforts will be made to obtain usage data from 1985. Since legislative actions may change the 1985 baseline year, Coast Guard does not want to expend excessive resources to adjust the baseline figures.

OFFICE OF INSPECTOR GENERAL RESPONSE

We considered management comments and made changes to the final report as appropriate to address their comments. Actions taken and planned by DOT, FAA, and Coast Guard are reasonable. These recommendations are resolved, subject to follow-up requirements in DOT Order 8000.1C. Because Coast Guard transferred to the Department of Homeland Security (DHS) on March 1, 2003, we will provide this report along with Coast Guard action plans and estimated completion dates to the DHS Office of Inspector General for follow-up to ensure corrective actions are taken.

We appreciate the courtesies and cooperation of DOT, FAA, and Coast Guard representatives. If you have questions concerning this report, please call me at (202) 366-1992, or Glenn Griser at (202) 366-1496.

#

cc: Commandant, U. S. Coast Guard
Inspector General, Department of Homeland Security

EXHIBIT A. SCOPE AND METHODOLOGY

This audit reviewed energy conservation in DOT-owned facilities and leased facilities where DOT paid utilities separate from the lease. This audit did not include energy used to fuel vehicles or aircraft.

We reviewed supporting documentation for DOT's FY 1985 and FY 2000 energy data. Specifically, we reviewed documentation supporting the FAA and Coast Guard submissions, the two agencies that make up 96 percent of DOT's energy consumption. We also reviewed the status of energy audits and implementation of the recommended energy saving projects. To verify the accuracy of DOT's energy data reported to DOE, we reviewed utility bills and building square footage documentation at five field locations, three for Coast Guard and two for FAA. We also walked through 59 buildings that FAA classified as exempt and reviewed specific Coast Guard facilities, such as lighthouses and picnic areas, that were classified as standard buildings. We visited facilities in Atlantic City, New Jersey; Leesburg, Virginia; Washington, D.C., New York, New York; Oklahoma City, Oklahoma; Portsmouth, Virginia; Cleveland, Ohio; and Baltimore, Maryland.

We reviewed documentation of FAA's and Coast Guard's energy audits and conservation projects through FY 2001. We also interviewed appropriate officials, agency energy managers, and contractor personnel and reviewed supporting documentation including utility bills and facility size information. We also contacted DOE for guidance and clarification on the energy program.

We conducted the audit from March through December 2002. The audit was conducted in accordance with Government Auditing Standards prescribed by the Comptroller General of the United States.

EXHIBIT B. MAJOR CONTRIBUTORS TO THIS REPORT**THE FOLLOWING INDIVIDUALS CONTRIBUTED TO THIS REPORT.**

<u>Name</u>	<u>Title</u>
Glenn Griser	Program Director
Robert Falter	Project Manager
Tom Wise	Senior Auditor
Cindy Allen	Management Analyst



Memorandum

**U.S. Department of
Transportation**
Office of the Secretary
of Transportation

Subject: **ACTION:** Response to Draft Report on Energy
Management and Conservation Program

Date: February 21, 2003

From: Vincent T. Taylor *V. Taylor*
Assistant Secretary for Administration

Reply to
Attn. of:

To: John L. Meche
Assistant Inspector General

The Department Of Transportation Has Achieved Significant Energy Savings

The U.S. Department of Transportation (DOT) has taken action to improve energy efficiency within its facilities, and has applied innovative approaches to leverage available resources to achieve maximum potential savings. For example, DOT used creative financing techniques to make energy saving capital improvements on buildings. Currently DOT has nine Energy Savings Performance Contracts (ESPC) in place that produce annual energy savings estimated at over 130 billion Btu. These contracts make contractor payments contingent on the energy savings produced. In another innovative approach to energy savings, DOT leveraged available funding by working with the utility companies. In a partnership with PEPCO, the local electric utility, the DOT headquarters building lighting system was retrofit with a more efficient system that paid for itself in less than three years. Innovative energy saving techniques such as combined heat and power facilities as well as fuel cells have been used at other DOT facilities. The Department has also implemented renewable energy technologies including solar and wind in locations where it is cost-effective. We anticipate applying these conservation and alternative energy sources at additional locations where they are cost-effective. Petroleum use for heating has been substantially reduced by converting heating systems to natural gas and other domestic fuel sources. The use of sustainable design techniques are now being introduced in new construction projects that will provide further, cost-effective energy efficiency improvements in future buildings.

Careful Consideration Necessary for Establishing New Baseline and Energy Efficiency Goals

While the Department agrees that establishing a new baseline year may be useful in providing an opportunity to establish a new, more accurate baseline perspective from which to measure future energy efficiency improvements, several concerns arise in this endeavor. First the year selected as a new baseline must provide an

accurate and typical basis for measuring. Secondly, establishing goals for future energy efficiency accomplishments must consider energy efficiency accomplishments already achieved.

While we agree with the Office of Inspector General (OIG) that setting a new baseline year of 2000 would only result in a continuation of past inaccuracies, we maintain that 2005 would be a more appropriate baseline year. The year selected for establishing any new baseline must provide sufficient time to prepare systems to accomplish accurate energy measurements. It should also offer a typical energy use profile, and should provide the Department of Energy (DOE) sufficient time to work proactively with Federal agencies to identify specific standards and support requirements on a Government wide basis. This will help to ensure baseline measurement comparability not only across DOT, but throughout the government. Finally, anything before 2005 is unlikely to provide DOT and many other agencies with a typical baseline year, as agencies such as the United States Coast Guard and the Transportation Security Administration leave to form the Department of Homeland Security. For these reasons, we recommend that OIG, in its interactions with the Congress, suggest that the new baseline year be no earlier than 2005.

RECOMMENDATIONS AND RESPONSES

The OIG report recommends that the Assistant Secretary for Administration (OST) in coordination with the DOT operating administrations (OA):

Recommendation 1: Prioritize and track the Department's energy saving projects and make a concerted effort to fund those projects that have payback in the near term. This effort should include justifications for budget submissions that clearly show the cost and energy savings to be achieved.

Response: Concur. OST will, in coordination with the OAs and the energy technical support team consisting of the budget, procurement, and legal staff, develop guidance for reporting and tracking energy savings projects. We agree that budget justifications for energy conservation projects need to clearly identify not only the cost of the project, but also the projected energy savings, the basis for the projected savings, (i.e. theoretical or empirical data from actual use or trials), and the projected payback times. In this way, budget decision makers will have better data upon which to base their final decisions regarding funding. Our office will work with OST budget and the individual OAs to identify the type of information that would be useful in the budget process, provide guidance to the OAs and the OST energy team, and work with them to ensure that justifications provide convincing data. We anticipate completing this guidance by June 2003. We will also monitor energy conservation project progress through direct interaction with energy managers throughout the department and by requiring periodic reports.

Recommendation 2: Develop processes to collect and report accurate and supportable energy data using actual 2003 data. To do this, ensure inventories of all buildings are

complete, buildings are properly classified as standard or exempt, and reported energy usage is supported with actual bills or meter readings.

Response: Concur. OST will work with the OAs, the energy technical support team, and real property staff to ensure that energy consumption and building square footage data are as accurate as possible. Specifically we will work with OST real property staff and OA real property and energy staff to clarify the actual building inventory and its square footage. We anticipate completing this process by September 2003. We will also work with the real property and energy staffs around the Department on an ongoing basis to determine how the building inventory used by the energy staff can be kept up-to-date as facilities, and building use change. In addition, we will work with energy contacts throughout the Department to assess the extent to which energy data is currently supported by actual bills or meter readings, identify impediments, and construct an action plan to ensure that data reporting is as accurate as possible in light of the constraints. We anticipate completing this energy data assessment by December 2003.

Recommendation 3: Identify the type and extent of documentation to be retained to support annual reports to DOE.

Response: Concur. OST will, in coordination with the OAs, the energy technical support team, and records management staff, develop guidance for retaining supporting documentation by September 2003. We anticipate that this guidance will call for retaining following types of documentation:

- Database files supporting the reported square footage provided by OAs and OST real property.
- Spreadsheets showing calculations used to derive energy usage.
- Energy Information Administration (EIA) national average unit prices as a source for comparison.
- Supporting documents for report compilation.
- Source document outlining report requirements.
- Transmittal memorandum.
- Narrative reports.

These materials will be maintained for a period of three years, and will subsequently be maintained in summary form only to accommodate space limitations. The summary data will be noted and dated as previously documented.

Recommendation 4: Implement schedules for each OA to complete energy evaluations for DOT to meet the milestone on January 1, 2005.

Response: Concur. OST will work with the OAs to establish a schedule to complete facility energy audits by January 1, 2005. Specifically we will develop guidance for establishing a schedule for completing facility energy audits and for reporting progress toward the January 1, 2005 goal. We anticipate having this guidance completed by May

2003.

Recommendation 5: Disclose in DOT's next annual energy report to DOE that the reported energy consumption and square footage of space are not supported by adequate documentation.

Response: Concur. OST included a statement in the transmittal letter for the recently submitted FY2003 Annual Energy Report to DOE noting DOT's OIG determined the consumption and square footage data were not supported by adequate documentation.

Thank you for the opportunity to comment on the draft report. If you have any questions, please contact Martin Gertel of my staff on 366-5145.



U.S. Department
of Transportation

**Federal Aviation
Administration**

Memorandum

Subject: **INFORMATION:** Draft Report on Energy
Management and Conservation Program, DOT

Date: March 12, 2003

From: Acting Assistant Administrator for Financial
Services and Chief Financial Officer

Reply to
Attn. of:

To: Assistant Inspector General for Financial and
Information Technology Audits

As requested in your memorandum dated January 22, attached is the Federal Aviation Administration's (FAA) comments to each recommendation. We are also including additional comments following our response to the recommendations.

We acknowledge that inaccuracies remain in some parts of the fiscal year (FY) 1985 baseline (even though we have expended resources to try to address those inaccuracies). It is essential to ensure that the significant accomplishments that have been made are recognized. If the Office of Inspector General (OIG) recommends to Congress a change in the baseline year, then the OIG should also include a strong recommendation that organizations (or parts of organizations) that have already implemented conservation measures and met reduction goals (such as FAA) receive credit for the reductions already achieved. To set new across-the-board goals tied to a new baseline would penalize organizations that have proactively implemented best practices.

The OIG has identified some 93 buildings with about 1.1 million square feet as potential space for reporting in the standard category. The FAA believes that when the buildings are re-evaluated for possible reporting in the standard category, as currently planned, fewer than 93 buildings will meet the criterion for the standard category.

We appreciate the opportunity to comment on this report. Should you have questions or need further information, please contact Anthony Williams, Budget Policy Division, ABU-100. He can be reached at (202) 267-9000.


John F. Hennigan

Attachment

**Federal Aviation Administration's Response to the
Office of Inspector General's Draft Report on
Energy Management and Conservation Program, DOT**

OIG Recommendation 1: Prioritize and track the Department's energy-saving projects and make a concerted effort to fund those projects that have payback in the near term. This effort should include justifications for budget submissions that clearly show the cost and energy savings to be achieved.

FAA Response: Concur. The implementing organizations, with guidance from the policy office, will review and refine criteria for ranking energy conserving projects. FAA is planning the following actions:

- a. Work with the Department to establish common format and fields to track energy-savings projects. (Suggest that this be a simple format, something that will be able to be accommodated without additional funding.) Estimated completion date is June 30.
- b. Develop a cross-organizational tracking system to provide the essential information regarding energy-savings projects. (Completion of this task will be subject to requirements, availability of personnel, and funding.) Estimated completion date is March 31, 2004.
- c. Energy budget advocate to include in budget justification a clear statement of cost and energy savings that would result from the projects. This will be completed in the first quarter of 2004.

OIG Recommendation 2: Develop processes to collect and report accurate and supportable energy data using actual FY 2003 data. To do this, ensure inventories of all buildings are complete, buildings are properly classified as standard or exempt, and reported energy usage is supported with actual bills or meter readings.

FAA Response: Concur. Since 1994, the FAA has spent more than one million dollars to develop an in-house data system to record and manage energy consumption information for FAA facilities. The system imports data from the Departmental Accounting and Financial Information System (DAFIS). The Department of Transportation (DOT) presently is attempting to implement a new accounting system (DELPHI) to replace DAFIS. The DAFIS system contains fields for meter readings, conversion factors, and amount used. However, because the data fields are not mandatory, most records of energy cost do not have corresponding consumption data. FAA has spent an additional \$600,000 for a contractor to rectify the data in the system by reviewing original invoices and correcting and completing the data entered into the energy management reporting system by FAA regional accounting clerks. The FAA energy program will continue to request that DELPHI be modified to capture information presently being recorded in DAFIS in support of tracking cost and units of consumption. Since the early planning of DELPHI these have not been mandatory. It is critical for FAA to get this information in order to comply with Federal mandates on

reporting accurate energy usage. This issue has been raised to the senior executive levels of the FAA; however, a final determination regarding this request has not yet been made. We are planning the following actions:

- a. Ensure inventories of all buildings are complete. Estimated completion date is March 31, 2004.
- b. Establish a plan for the re-categorization of facilities to ensure that buildings are properly categorized. Estimated completion date is September 30.
- c. Ensure that consumption data are supported with actual bills or meter readings. We will comply with the recommendation, as we are able. In some cases multiple buildings are included on one meter - in these cases breakouts in consumption will be based on engineering estimates. Estimated completion date is December 31, 2004.

OIG Recommendation 3: Identify the type and extent of documentation to be retained to support annual reports to Department of Energy (DOE).

FAA Response: Concur. We are working with the DOT Energy Manager and receiving guidance from DOE to identify the type and extent of documentation to be retained to support annual reports. Estimated completion date is September 30.

OIG Recommendation 4: Implement schedules for each Operating Administration to complete energy evaluations for DOT to meet the milestone on January 1, 2005.

FAA Response: Concur. FAA plans to perform evaluations of thousands of smaller facilities using a prototypical audit/evaluation where there are numerous identical or similar facilities. In order to conserve precious resources for use in implementing energy conservation measures, the FAA plans to audit small representative samples of facilities and extrapolate results to all similar facilities. We will create a list of facilities still requiring energy audits and prepare a schedule for completing the energy audits. The present audit plan intentionally excluded numerous small equipment enclosures because most of the energy consumed is used to power electronic tracking and communications equipment not subject to conservation. We will work with the DOT Energy Manager to develop an implementation schedule. Estimated completion date is September 30.

OIG Recommendation 5: Disclose in DOT's next annual energy report to DOE that the reported energy consumption and square footage of space are not supported by adequate documentation.

FAA Response: Concur. The OIG should note that some of the data are not supportable, but others are very supportable. FAA began including a statement of data reliability in its FY 2002 report.

Additional Comments:

In the INTRODUCTION:

The second sentence would be more accurate and parallel with sentences that follow by adding "...to identify and..." so the sentence would read, "Federal laws and Executive Orders direct agencies to identify and to put into service cost-effective...". The subsequent sentence would be parallel and complete by changing it to read, "To do this, agencies are directed to evaluate energy usage in all their buildings and fund appropriate projects by January 2005."

Written thus, the introduction connects extensive energy audits to the mandates to identify and implement projects. The former is well along by any measure--the latter is not.

In the section RESULTS IN BRIEF:

On page 2, in the last paragraph, the Office of the Inspector General (OIG) says, "We reviewed the use of 59 buildings that the FAA reported as exempt and found 5 buildings that should be reported in the standard category." Insert the word "possibly" after the word "should." The new sentence will read, "We reviewed the use of 59 buildings that the FAA reported as exempt and found 5 buildings that should possibly be reported in the standard category." These spaces will need to be evaluated before being placed in another category.

The last sentence of page 2 and continuing on page 3 reads, "For example, buildings housing a systems management office and an automated flight service station were used for basic office functions. FAA has 93 such buildings with about 1.1 million square feet of space that should be evaluated for reporting in the standard category." The statement misleads. The antecedent of "93 such buildings" clearly is the example. In fact, the FAA only has 33 systems management offices and the OIG may have seen one of only a few automated flight service stations that are collocated. That understanding makes the "about 1.1 million square feet of space" a very questionable guess.

On page 3, in the third paragraph and later, the OIG writes "... we are separately providing our report to Congress," which will suggest a new baseline year. We acknowledge that inaccuracies remain in some parts of the FY-1985 baseline, even though we have performed surveys, calculated engineering estimates, and obtained audit information to try to address those inaccuracies. If the OIG suggests a new baseline year, the OIG should include a strong recommendation that any new energy reduction goals not penalize those energy managers who have been proactive. It is essential to recognize the parts of the FAA that have already implemented aggressive energy conservation measures. If a new baseline year is to be established, then the FAA suggests FY 2004 (or later) be recommended to allow time to have a clear plan in place before the start of the fiscal year to ensure that the processes capture the necessary information.

On page 4, at the top of the page in point (5), insert the word “some” before the word “consumption.” Point (5) will read, “... (5) disclose in the next annual report to DOE that some consumption and square footage data are not supported by adequate documentation.”

In the section **RESULTS**:

On page 5, the third paragraph, second sentence reads, “However, only \$700,000 was provided to implement these projects.” That is not accurate. From FY 1998 to FY 2001, about \$600,000 was paid to contractors to rectify the consumption and rate data collected for FAA facilities and reported to the Department of Transportation (DOT). The remaining \$100,000 was “to implement projects.”

On page 6, in the second paragraph, the OIG says, “...we found that FAA and Coast Guard were not monitoring or tracking the projects...”. Insert the word “systematically” before “monitoring.” The new sentence will read, “...we found that FAA and Coast Guard were not systematically monitoring or tracking the projects...”.

On page 8, in the third paragraph, the OIG states, “In FAA, the energy managers’ recommendations to exempt buildings were accepted without review.” The FAA believes the energy managers’ recommendations to exempt buildings had a sufficient level of review before acceptance. The Office of Environment and Energy (AEE) was aware of all recommendations to exempt and was working with the various implementing organizations regarding their reporting categories.

U.S. Department
of Transportation

United States
Coast Guard



Command
United States Coast Guard

2100 Second Street, S.W.
Washington, DC 20593-0001
Staff Symbol: G-
Phone: (202) 267
Fax: (202) 267
Email:

7500

MEMORANDUM

From:

A handwritten signature in black ink, appearing to read "J. Beckwith".

February 28, 2003

Reply to G-CQM
Attn of: Mark Kulwicki
267-2294

To: Assistant Inspector General

Subj: DOTIG DRAFT REPORT ON ENERGY MANAGEMENT AND CONSERVATION

Ref: (a) Project Number 02F3007F000

1. Enclosed is the U.S. Coast Guard response to the Department of Transportation Inspector General (DOTIG) comments contained in referenced draft report titled "Energy Management and Conservation".

2. If you have any questions, please contact Mark Kulwicki at 202-267-2294

#

Enclosure: U.S. Coast Guard Response to OIG Report

RECOMMENDATIONS AND RESPONSES

Recommendation 1: Prioritize and track the Department's energy saving projects and make a concerted effort to fund those projects that have payback in the near term. This effort should include justifications for budget submissions that clearly show the cost and energy savings to be achieved.

Response: *Concur in Part.* The U.S. Coast Guard will continue to use the Facility Energy Efficiency Fund (FEEF) as a source of funds for priority energy retrofits. The source of funds is included in the recurring base for the USCG operating and expense account (AFC 30). The current amount is \$2.0 million. Project funding priority is based upon simple payback calculations; energy savings are calculated as part of this process. An effort is underway to enhance project tracking by using the Civil Engineering Database System (CEDS). We expect to complete this project by December 2003. As with most Federal Agencies, a funding gap exists between available funds and project requirements. The USCG uses Energy Savings Performance contracts as a means to supplement available agency funding.

Recommendation 2. Develop processes to collect and report accurate and supportable energy data using actual 2003 data. To do this, ensure inventories of all buildings are complete, buildings are properly classified as standard or exempt, and reported energy usage is supported with actual bills or meter readings

Response. *Concur.* Under the current process, the local units do not receive utility bills. The USCG Finance Center pays all utility bills. This enables the agency to capture utility consumption data that is accurate and supportable. The data is processed and fed into the Fast Accounting System for Energy Reporting (FASER) system. However, this system requires some modifications and enhancements to make it more effective. A project is underway to determine the most cost effective means to alleviate the current deficiencies; completion for use in the FY03 reporting cycle is unlikely. This project may be coordinated with the Department of Homeland Security for possible inclusion of other users. Implementation for FY04 reporting cycle is targeted. For FY03 reporting, the USCG will enhance its reporting procedures through verification of utility consumption at larger USCG installations.

Metering at USCG facilities is a barrier to exempting certain facilities and cutter electricity. Inclusion of some potentially exempt facilities inflates USCG energy data. These facilities were included as part of the baseline data. In order to exempt accurately, the 1985 performance data for these facilities and cutters is needed. Due to the level of effort required to obtain appropriate data, the USCG intends to forgo the exemption process for these facilities under Executive Order 13123 requirements. However, if a new baseline is established, the USCG will pursue appropriate exemptions accompanied with metered data.

Recommendation 3. Identify the type and extent of documentation to be retained to support annual reports to DOE

Response. *Concur.* The USCG retains the following supporting documentation

- DAFIS source files for determination of dollars spent on energy by type
- Database files supporting the reported square footage
- Spreadsheets showing calculations used to derive energy usage from Energy Information Administration (EIA) prices
- Source documents outlining report requirements
- Transmittal memorandum and Narrative report

The USCG Energy Program Manager retains documentation for 3 years. After 3 years, the information is sent to the appropriate record holding facility. If the data year in question is a baseline year, the Program Manager retains all data and supporting documentation for an indefinite period.

Recommendation 4. Implement schedules for each operating administration to complete energy evaluation for DOT to meet milestones on January 1, 2005

Response. *Concur.* The USCG is ahead of schedule for energy evaluations. We will complete the effort by January 1, 2005. Additional actions include the creation of a common database for tracking evaluations and results. The target completion date for each remaining evaluation is January 1, 2005. These evaluations are part of the on-going energy program for USCG.

Recommendation 5. Disclose in DOT's next annual energy report to DOE that the reported energy consumption and square footage of space are not supported by adequate documentation.

Response. *Concur.* The USCG FY02 energy report explains data derivations and identifies sources of information. This practice will continue for all future reports. We will integrate the USCG facility information systems to provide one database for square footage. Upon completion of this effort (March 2003), the data becomes the responsibility of the agency asset management process.

The USCG is taking a conservative approach regarding leased square footage. That is, reported total square footage figures include only those leased facilities where it is known that the USCG pays for the utilities. This could result in the underreporting of square footage. Since all energy consumption is reported, the performance results may be understated.

The energy consumption data for the CG Yard complex is included in the FY02 report and will be included in all subsequent reports. The inclusion of this data impacts performance as compared to the baseline and previous years information. Efforts will be made to obtain usage data from 1985 to present from the utility providers. Since

legislative actions may change the 1985 baseline year, the USCG does not want to expend excessive resources to take actions necessary to adjust the baseline figures.