UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

May 4, 1984

RESOURCES, COMMUNITY,
AND ECONOMIC DEVELOPMENT
DIVISION

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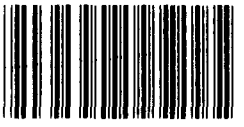

The Honorable Philip R. Sharp
Chairman, Subcommittee on Fossil
and Synthetic Fuels
Committee on Energy and Commerce
House of Representatives

Dear Mr. Chairman:

Subject: Information on Budget Reductions in Energy Information Administration Programs (GAO/RCED-84-128)

As requested in your May 19, 1983, letter and modified in subsequent discussions with your office, this report provides an overview of the Energy Information Administration's (EIA's) budget reductions that occurred from fiscal year 1981 through fiscal year 1984 and information on their effects on six EIA programs. The six programs are the Residential, Nonresidential Buildings, and Industrial Energy Consumption Surveys; the State Energy Data System; the Energy Emergency Management Information System; and the Middle Distillate Monitoring Program.

EIA was established in the Department of Energy in 1977 to provide an independent, unbiased source of energy data collection and analysis for public and private sector decisionmakers. Since fiscal year 1981, EIA's budget steadily decreased from $90 million in fiscal year 1981 to $56 million in fiscal year 1984. Concurrent with budget reductions, EIA's authorized staffing levels were reduced. EIA adjusted for budget and staffing reductions in its overall operations by consolidating or eliminating some of its programs.

Of the six programs we reviewed, the Energy Emergency Management Information System was replaced and the Middle Distillate Monitoring Program was terminated. Budget reductions were not, however, a factor in the replacement and termination of these programs. In the four remaining programs, budget reductions have resulted in reduced data reliability and the elimination or suspension of two surveys which were primary sources of information for one of the programs.

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OBJECTIVES, SCOPE, AND METHODOLOGY

The objectives of our review were to provide an overview of EIA budget reductions that occurred from fiscal year 1981 to fiscal year 1984 and to provide information on their effects on six EIA programs. We performed our review from July through November 1983 at EIA offices in Washington, D.C.

We reviewed EIA's authorizing legislation, appropriation requests, and annual reports to the Congress. We relied on EIA office directors, division directors, branch chiefs, and project managers to identify changes that were caused by the budget reductions. For each of the six programs, we reviewed EIA's user manuals and contract and correspondence files to obtain more detailed information on the changes. We also obtained information on improvements that EIA was not able to make to certain programs because of the unavailability of funds. We did not assess the impact of the changes on users of the data.

We did not evaluate the priorities that EIA used to make reductions to the programs, nor did we attempt to determine the appropriate budget levels for the programs. We obtained estimates of the cost of operating, maintaining, or improving the programs from EIA's annual operating plan, from officials responsible for the programs, and from files and records.

As requested by your office, we did not obtain agency comments on this report. However, we did discuss its contents with the Deputy Administrator, and the Director, Planning and Resources, EIA. The Deputy Administrator said that the information included in this report presents a fair assessment of the effects of budget reductions on the programs. The Director, Planning and Resources concurred. Except as noted above, we made this review in accordance with generally accepted government auditing standards.

OVERVIEW OF EIA'S BUDGET REDUCTIONS

As the following table shows, EIA's budget in fiscal year 1984 was about $35 million less or about 38 percent lower than its budget in fiscal year 1981, and its staff was reduced by more than 300 employees or about 42 percent from the beginning of fiscal year 1981 to the beginning of fiscal year 1984.

Fiscal year	Appropriated funds	Staff years
	(millions)	
1980	$90.8	826
1981[a]	90.4	603
1982	78.9	545
1983	58.6	482
1984	55.9	490[b]

[a]In fiscal year 1981, EIA was appropriated $104.1 million. This amount was reduced by about 13 percent to $90.4 million through a rescission in accordance with Public Law No. 97-12.

[b]Estimated.

In its 1983 Annual Report to Congress, EIA reported that, by terminating mid- and long-term forecasting, eliminating selected data series, reducing the scope of a number of surveys and services, and deferring quality maintenance, it was able to stay within its budget and maintain most of its core data programs.

While budget reductions have occurred, EIA has had available more moneys than appropriated in fiscal years 1983 and 1984. In fiscal years prior to 1983, EIA's expenditures were less than its obligations which resulted in a large balance of carryover funds. Carryover funds arise from funds obligated during one fiscal year to be expended for contract services carried out over 2 or more fiscal years. EIA normally contracts for services on a multi-year basis.

As of September 30, 1982, carryover funds totaled about $39 million. With part of these funds, EIA's expenditures in fiscal year 1983 were about $10 million more than appropriated. In fiscal year 1984, EIA expects expenditures to be about $6 million more than appropriated.

EFFECTS OF BUDGET REDUCTIONS ON THE SIX PROGRAMS

We reviewed six EIA programs--three surveys and three systems. Surveys are EIA's primary method of collecting energy data. The surveys, usually in the form of questionnaires, are administered by telephone, by personal interview, or through the mail. Data systems are manual or automated operations that

compile raw data into forms useful for communicating information in reports or publications. The raw data may be provided by a survey or by several other data systems. For example, the Residential Energy Consumption Survey, conducted primarily by personal interview, collected energy consumption and expenditure data from about 4,700 households in 1982. On the other hand, the Energy Emergency Management Information System combined data from a number of EIA data systems and had the ability to produce a number of statistical reports on energy supplies and consumption.

Of the six programs, the Energy Emergency Management Information System has been replaced and the Middle Distillate Monitoring Program has been terminated. However, some of their functions continue to be carried out. Budget reductions were not a factor in the replacement and termination of these programs. In the four remaining programs--the Residential, Nonresidential Buildings, and Industrial Energy Consumption Surveys and the State Energy Data System--budget reductions have resulted in reduced data reliability and the elimination or suspension of two surveys which were primary sources of information for one program. Data reliability was reduced because (1) survey sample sizes were reduced, (2) survey universes were not updated, or (3) surveys were conducted less frequently.

Generally, when the size of a sample is reduced, the survey's standard error increases, thereby decreasing the data's reliability. The standard error is a measure of the expected difference between the result of a single sample and the characteristics for the universe. In addition, if the survey universe is not updated to account for changes in its characteristics, the resulting data that are collected may not be useful, regardless of the validity of the responses to the survey or the accuracy of the sample on which it was based. Furthermore, when the frequency of data collection is reduced, users have less current information available.

The Residential Energy Consumption Survey

The Residential Energy Consumption Survey (RECS), a nationwide survey of household energy consumption and expenditures, was conducted annually from 1978 through 1982 and is planned to be conducted again in 1984. The survey, which cost about $1.3 million in 1982, measured factors affecting residential energy consumption, such as size of houses, number of residents, and types of fuel consumed.

As a result of budget reductions, EIA reduced the size of the RECS sample by 1,327 households, from 6,051 in 1980 to 4,724 in 1982, thereby decreasing the data's reliability. The Acting

Director, Energy End Use Division, also told us that the effect of reducing the sample size is generally greater for smaller population groups within the survey, such as household consumption by fuel types or geographic regions. These groups usually have higher standard errors because the sample is smaller. The Acting Director said that to restore the sample to its 1980 size would cost about $300,000.

In addition, the Acting Director said that, until fiscal year 1984, EIA did not have sufficient funds to update the RECS universe of U.S. households to incorporate 1980 census changes. In fiscal year 1984, EIA allocated $300,000 for this update. The update will include changes in national and regional population growth and fuel types used.

The budget reductions have also resulted in reduced frequency of data collection. RECS has been conducted annually since 1978. In 1983, however, because of budget reductions, EIA decided to delay the survey until 1984 and test it as a biennial survey. EIA plans to evaluate the results of the 1984 survey before determining how frequently to conduct it. If EIA decides to perform the survey biennially, data will not be collected for the off-year and users will have to estimate data for the years that data are not collected.

The Acting Director also said that the number of improvements that could be made to the survey was limited by available funds. For example, EIA could obtain better estimates of energy consumed by residents of master-metered apartment buildings where one meter measures all energy consumed throughout the building. EIA currently estimates energy consumption for residents in master-metered apartments based on energy used in individually metered households in similar buildings. In 1981, EIA determined that some of these estimates were in error by as much as 50 percent. The Acting Director estimated that it would cost about $100,000 to develop an improved methodology for estimating apartment energy consumption in master-metered buildings.

The Acting Director told us that, to develop the methodology, EIA would conduct a small survey of master-metered buildings to determine the size and characteristics of the building, number of units, types of fuels used, and additional energy use, such as in laundries and elevators. The Acting Director estimated that about 900,000 apartment buildings have master meters.

According to the Acting Director, EIA could obtain information on energy savings due to the installation of household energy conservation measures. The Acting Director said that EIA needs about $335,000 to obtain this information. The survey, which

would be a part of RECS, would include $85,000 to conduct telephone interviews with 2,500 households and $250,000 to gather information from utility companies on energy consumption for the 2,500 households.

Nonresidential Buildings Energy Consumption Survey

The Nonresidential Buildings Energy Consumption Survey (NBECS) is a nationwide survey of energy consumption and expenditures in nonresidential buildings. The survey was conducted in 1979 at a cost of $1.6 million and in 1983 at a cost of $1.2 million. It collected data from owners, managers, and utility companies on energy used in 6,222 nonresidential buildings. The 1979 survey was EIA's first attempt to collect data on a statistical sample of nonresidential buildings. The 1983 survey will provide comparative data for these buildings.

According to the Acting Director, Energy End Use Division, because of budget reductions, EIA has not updated the universe of nonresidential buildings from which the NBECS samples were selected. The two surveys that have been performed were based on 1970 census data. EIA needs to update the universe for the next survey to incorporate changes to some of the primary characteristics of the universe, such as the buildings' size and location.

Budget reductions have also caused EIA to change its data collection procedures for NBECS. In 1979, EIA used personal interviews to collect survey data. In 1983, it used telephone interviews which are less expensive but, according to the Acting Director, also less reliable than personal interviews. She also said that EIA has not had sufficient funds to verify NBECS responses and, when needed, to obtain more detailed information.

EIA's long range plans are to conduct the survey about every 3 years to ensure that the data collected are both current and useful. However, the next survey, planned for 1986, may be delayed because of budget reductions. According to the Acting Director, about $270,000 would be needed in fiscal year 1984 to plan for the 1986 survey. However, funding was not included in the fiscal year 1984 budget, and no funds were included in EIA's fiscal year 1985 budget request. EIA estimated that it would cost about $1 million to update the universe to the 1980 census data and an additional $1.5 million to conduct the next survey.

The Acting Director said that with additional funds EIA could study the feasibility and worth of gathering information on other nonresidential energy use, such as nonresidential transportation, street lights, and water and sewer systems. According to the

Acting Director, nonresidential transportation alone accounts for about 13 percent of total energy consumption. The Acting Director told us that because of limited funds, the feasibility studies to plan and estimate the cost for this improvement will not be conducted.

Industrial Energy Consumption Survey

EIA currently does not perform the Industrial Energy Consumption Survey although industrial consumption accounts for about 40 percent of total U.S. energy consumption. From 1978 through 1981, EIA funded an energy supplement to the Census Bureau's Annual Survey of Manufacturers from which EIA obtained industrial energy consumption data.[1] This survey was discontinued in 1981 due to EIA's budget reductions.

EIA is considering whether to conduct an Industrial Energy Consumption Survey in 1986. EIA estimated that it would cost about $1.6 million to plan the survey, develop a universe, and implement the survey. The survey would measure energy consumed for industrial processes exclusive of the energy used to heat and light the buildings, which is measured by NBECS. According to the Acting Director, Energy End Use Division, planning for this survey is being done in fiscal year 1984 for which EIA allocated $230,000. If plans proceed, an additional $100,000 will be needed to develop a universe. No funds for this survey were included in EIA's fiscal year 1985 budget request.

In addition, EIA's industrial survey project manager said that manufacturers are concerned that the survey will be a burden to complete. EIA is obtaining industry, public, and government agencies' input in designing the survey questionnaire.

State Energy Data System

The State Energy Data System (SEDS) produces annual end-use sector estimates of energy consumption by state from data collected by other EIA surveys and data systems. After we completed our audit work, the Department of Energy submitted to the Congress

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[1]In 1980, EIA initiated its own survey. However, the survey, which cost $1.8 million, was cancelled after data collection was started because the Office of Management and Budget determined that the collection was unnecessary and therefore unduly burdensome.

EIA's fiscal year 1985 budget request, which proposes the elimination of SEDS.

Our review showed that prior to this proposal, changes had already occurred in SEDS because of budget reductions. In September 1983, EIA suspended EIA Form 172, Sales of Fuel Oil and Kerosene, because of budget reductions and concern about the quality of the data and respondent burden. As a result, data was not collected for calendar year 1983. By 1985, EIA plans to update the survey's universe and continue conducting the survey for calendar year 1984. In September 1983, EIA also terminated EIA Form 174, Sales of Liquefied Petroleum Gases and Ethane, because of budget reductions and concern about the quality and usefulness of the data. Together, EIA Forms 172 and 174 collected data on 40 percent of petroleum products consumed.

Energy Emergency Management Information System

The National Energy Plan of 1977[2] called for the development of a management information system providing federal, state, and local governments with up-to-date information on energy supplies and consumption for use during energy emergencies. From 1978 through 1982, EIA developed and maintained the Energy Emergency Management Information System (EEMIS), which was designed to meet the requirements of the National Energy Plan. The system obtained energy data from existing EIA data systems and consolidated it into one data base. The system could produce 44 statistical reports on energy supplies and demand. Users could obtain access to this data by using computer terminals or requesting the statistical reports from EIA.

In January 1983, EIA replaced EEMIS with its recently completed Integrated Petroleum Supply (IPS) System. According to the analyst responsible for EEMIS, the decision to make this change was reached prior to the fiscal year 1981 budget reductions. However, as noted below, there are some differences in the data provided.

The IPS System, like EEMIS, is designed to store and process data on crude oil and petroleum supplies. However, it does not contain any of the EEMIS data on energy consumption and demand data

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[2]The National Energy Plan, Executive Office of the President, April 29, 1977.

such as fuels purchased by electric power plants, actual and projected sales volumes by state for petroleum products, and wholesale and retail sales volumes and prices for petroleum products. However, some of these data are collected through other EIA surveys.

The IPS System provides users with access to its data through computer terminals. Although the IPS System can produce a variety of statistical reports on crude oil and petroleum supplies, at the time of our review, it could not produce any of the 44 statistical reports that EEMIS produced. EIA is developing computer software for the IPS System to produce 26 of the 44 EEMIS reports by June 1984. Eighteen of the 44 EEMIS reports will not be produced--7 because the data they contained are no longer collected and 11 because EIA believes the reports are not useful or because the IPS System can provide essentially equivalent reports.

Middle Distillate Monitoring Program

Section 242 of the Emergency Energy Conservation Act of 1979 (Public Law No. 96-102) required EIA to monitor supply and demand levels for middle distillates in each state at the refining, wholesale, and retail levels. The Middle Distillate Monitoring Program was established to meet this requirement by monitoring and periodically reporting on the supply and demand for middle distillate petroleum products such as kerosene, heating oil, and diesel fuel.

Section 242 expired on July 1, 1983. EIA, nevertheless, as part of its overall responsibilities to maintain data on energy resources, monitors and reports on the supply of middle distillates, but not all data is reported at the state level. According to EIA's Director, Petroleum Supply Division, all petroleum products flow through about 3,000 refiners, bulk storage terminals, natural gas plants, pipeline companies, importers, and tanker and barge companies. EIA collects petroleum supply data, including data on middle distillates, from these sources.

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As arranged with your office, unless you publicly announce the contents of this report earlier, we plan no further distribution until 7 days from the date it is issued. At that time we will send copies to interested parties and make copies available to others upon request.

Sincerely yours,

J. Dexter Peach
Director