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COMMITTEE PRINT

ENERGY INFORMATION NEEDS—STUDY BY THE GENERAL ACCOUNTING OFFICE

PREPARED AT THE REQUEST OF

HENRY M. JACKSON, Chairman

COMMITTEE ON INTERIOR AND INSULAR AFFAIRS
UNITED STATES SENATE

PURSUANT TO

S. Res. 45
A NATIONAL FUELS AND ENERGY POLICY STUDY

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SENATE RESOLUTION 45

NATIONAL FUELS AND ENERGY POLICY STUDY

This publication is a background document for the National Fuels and Energy Policy Study authorized by Senate Resolution 45, introduced by Senators Jennings Randolph and Henry M. Jackson on February 4, 1971, and considered, amended, and agreed to by the Senate on May 3, 1971.

The resolution authorizes the Senate Interior and Insular Affairs Committee, and ex officio members of the Committees on Commerce and Public Works and the Joint Committee on Atomic Energy, to make a full and complete investigation and study of National Fuels and Energy Policies.

This document is published to assist members of the Committee and other interested parties in their understanding of the issues inherent in the formulation of a long-term National Energy Policy which assures the continued welfare of the Nation, including balanced growth, safeguarding and enhancing the quality of the environment, and national security.

MEMORANDUM OF THE CHAIRMAN

To Members and Ex Officio Members of the National Fuels and Energy Policy Study (S. Res. 45, 92d Congress), Committee on Interior and Insular Affairs

In the course of the National Fuels and Energy Policy Study, the lack of an adequate Federal system for gathering and analyzing energy statistics has been increasingly apparent. The fact is that critical energy decisions have been based on incomplete and inaccurate information. The attempt to manage current fuel shortages without reliable data on major factors affecting demand and supply has emphasized the urgent need for a new approach to energy information in the Federal Government.

At my request, the General Accounting Office agreed last spring to study energy information needs and recommend steps to improve existing efforts in collecting, analyzing and reporting energy data. The results of the GAO study were formally presented to the Interior Committee on February 6, 1974, by Assistant Comptroller General Phillip S. Hughes. I have directed that Mr. Hughes' statement, which summarizes GAO's findings and recommendations, be published with the full report as a Committee Print for the benefit of Senators participating in the Energy Study.

The GAO report makes clear the need for a new energy information system to provide Federal policymakers, Congress, and the public with current, complete, and accurate energy data. The Committee is grateful for the cooperation of the Comptroller General and his staff in preparing this significant analysis of energy information needs.

HENRY M. JACKSON, *Chairman.*

STATEMENT OF HON. PHILLIP S. HUGHES, ASSISTANT COMPTROLLER GENERAL OF THE UNITED STATES, BEFORE THE COMMITTEE ON INTERIOR AND INSULAR AFFAIRS, UNITED STATES SENATE

Mr. Chairman and Members of of the Committee, in a letter dated April 6, 1973, you requested that the General Accounting Office undertake a study "to determine the feasibility of establishing, either within the Executive or Legislative Branches, a data bank which would provide current information, independently developed or verified, on the energy supply and demand picture." We are pleased to be here today to report our findings and to assist the Committee in any way that we can in its examination of energy data problems.

While this statement summarizes our findings, a more detailed report is attached. We believe the more detailed material will be useful to the Committee and suggest that it be included in the record following this statement for possible reference. I also wish to call the Committee's attention to the chart on page 9 of the detailed report showing, for major energy sources and 12 identified data categories, the agencies collecting data and the sources of the data. The size and complexity of the chart is somewhat symbolic of the present situation with respect to energy data collection.

First of all, to respond briefly and specifically to the question you asked us, we have concluded that it would be feasible to establish within the executive branch an energy information system containing current and valid information on energy supply and demand. To establish the type of system we envision, however, legislation will be required. We use the term "system" rather than "data bank" because only part of the data, in our judgment, will be in computers. We believe, moreover, that it will take a significant period of time—years—to develop an adequate system and that intervening steps are necessary to reach this goal. The remainder of this statement summarizes the existing situation, describes current data collection processes and problems, focuses on very recent activities in the Federal Energy Office and in the Congress, and sets forth our findings in support of the conclusion summarized above.

Our study of an inherently complex matter has been made more difficult by the fact that we have been attempting to analyze a rather rapidly moving target. Events of the last few months, while they underscored the pertinence and importance of the Chairman's letter of April 6, 1973, have also produced a frenzy of Government, industry, and public action and reaction which causes the energy situation and, most particularly, the energy data situation to change daily, if not hourly. We have endeavored however to keep our facts current and our analysis consistent with the current facts.

Background

Our study sought answers to the following questions:

—What Federal agencies collect energy data?
—What types of data are collected?
—What are the basic sources of data?
—How and to what extent is basic data verified?
—What uses are made of the data?
—What data gaps exist?

Our study focused on the five primary energy sources—oil, natural gas, coal, water, and nuclear energy—and on electricity, a secondary source. In addition to contacts with Federal agencies, we have reviewed legislation authorizing the collection of energy data, contacted industry and industry trade association representatives, and visited Canada to obtain information on the Canadian Government's energy data collection and analysis methods. We also examined some of the literature in the field. While we have not obtained formal agency comments on the study results, we have met with representatives of the key agencies and obtained their informal comments. A list of the agencies and other organizations contacted is included as Appendix II to the detailed study report.

Present Situation

Despite recognition over a decade ago of the fragmentation of energy data collection efforts, at the time we began our work in April 1973, there was no central agency in the Government responsible for directing or coordinating the collection of energy data. Neither was there any agency whose principal responsibility was the analysis of energy data, as such. Since April 1973, of course, there have been a series of actions, not all of them consistent or complementary, in our judgment.

In his April 1973 Energy Message, the President directed the Secretary of the Interior to strengthen his Department's capacity for gathering and analyzing energy data, and, at the same time, issued an Executive order creating a National Energy Office in the Executive Office of the President. In May, the Secretary of the Interior created an Office of Energy Data and Analysis with the responsibility for developing an energy information system and analytic capability. On December 4, the President expressed his intention to seek legislation to establish a Federal Energy Administration and, as an interim step, issued an Executive order creating a Federal Energy Office within the Executive Office of the President. The proposed legislation would transfer the Office of Energy Data and Analysis and several other agencies to the Federal Energy Administration. The Federal Energy Office and its successor agency, the Federal Energy Administration, are intended to become the focal point for the collection and analysis of energy data in the Government.

We have identified 45 bureaus, offices, divisions or administrations of 17 different agencies which are significant collectors or users of energy data. The principal collection agencies are the Bureau of Mines and the Geological Survey in the Department of the Interior, the Federal Power Commission, the Atomic Energy Commission, and the Department of Commerce. The Office of Oil and Gas of the Department of the Interior, the Bureau of Labor Statistics, the Cost of Living Council, and the Interstate Commerce Commission also collect energy-related data.

To further indicate the magnitude and scope of energy data collection, as of March 1973, 15 major Federal agencies were circulating 145 energy-related questionnaires to the States and the private sector, requiring 11 million responses and an annual response effort of about 3.6 million man-hours.

Thus, a large volume of data is being collected by a wide range of agencies. Until recently, however, the data was collected to meet needs of specific, long established programs or agencies rather than as part of a systematic assembling of energy data. For example, data collection by the Bureau of Mines, the largest collection agency, is, for the most part, responsive to that agency's mandate to encourage the development of the mining industry, which incidentally includes fossil fuels. Appendix III of the detailed report contains profile charts depicting the type of data collected, sources of data, reasons for collection and use of data, type and extent of verification, and timeliness of reporting.

For reference, the chart on page 9 of the study provides a means of reviewing the general situation. First of all, note the wide range of data collected and the dispersal of collecting agencies. Second, note the heavy reliance of the agencies on private industry as the source. Third, while not apparent from the chart, generally speaking, the data collected from private industry is unverified and the data itself and collection processes are not monitored. Only aggregate data is reported by the collecting agencies for the most part; individual company data is considered proprietary and held confidential. Finally, until the establishment of the Office of Energy Data and Analysis and, more recently the Federal Energy Office, none of the collecting agencies had a coordinating or consolidating responsibility.

A notable void on the chart is the absence of Government activity in the collection of oil reserve information. The only complete and current Federal Government information on both oil and natural gas reserves is determined by industry and reported in the aggregate through industry associations—the American Petroleum Institute and the American Gas Association. While the American Petroleum Institute is the only source for oil reserves, the Federal Power Commission does obtain information covering about 60 percent of the reported natural gas reserves from interstate gas pipeline companies. Also, in May 1973, the Federal Power Commission published its appraisal of natural gas reserves as of December 31, 1970.

Coal and uranium reserve estimates have been made over the years by the Geological Survey and State geological agencies. Current coal reserve estimates are determined by subtracting production from the original reserve estimates, which go back as far as 1928. Uranium reserves are estimated by the Atomic Energy Commission from raw data submitted by private companies.

On federally-owned lands, the Government primarily relies on leaseholders for reserve determinations, with no requirement that reserve estimates be reported. The one exception is the Naval Petroleum

Reserves where the Navy is charged with making independent estimates of reserves.

In summary, the salient points concerning Federal energy data collection are:

—For the most part, data is collected in conformity with individual agency missions and is only incidentally related to current energy problems.
—Until very recently, there was no central point of consolidation or analysis.
—Much of the data, including some of the most important, is voluntarily reported by the energy industries.
—There is little verification of data.
—With limited exceptions, only aggregate data is reported; company data is "confidential."
—The only complete and current information on oil and gas reserves, including reserves on Federal lands, is provided by non-Federal sources.
—Reporting of energy data is not timely.
—Terminology and definitions for reporting are not standardized.

Problem Areas

Voluntary Versus Mandatory Reporting

The Bureau of Mines—the largest collector of energy data—recently analyzed the effectiveness of its voluntary reporting system and concluded that voluntary, cooperative efforts have provided results superior to many mandatory systems. We do not believe that voluntary reporting provides the Executive Branch adequate assurance that needed data will be available. We do not believe that the Government, the Congress, and the public should be dependent on the voluntary and undefined cooperation of industry. Furthermore, voluntary reporting undoubtedly tends to extend the area of confidentiality, as well as to reduce the possibilities for standardization of terms and definitions.

Credibility

A problem closely related to voluntary reporting and to the lack of verification, as well as to confidentiality, is the matter of credibility. As long as the reporting of significant information by industry is voluntary and unverified, credibility questions will be raised even though the data may be entirely valid. Present Government inability to demonstrate convincingly the nature and extent of the shortage of energy producing resources is due, in large part, to the unavailability of independently verified data.

The lack of credibility also exists with respect to data collected for resources on federally-owned lands, particularly reserve data. Since something like 50 percent of our Nation's oil and gas reserves, 40 percent of its coal, and 50 percent of its uranium are on Federal lands, this is a significant shortcoming.

Greater provision for independent data verification is essential to improved credibility. Verification procedures will need to be carefully thought out to assure that objectives are achieved with the minimum costs.

The reserve area poses, however, a special problem in the area of data verification because of the potential for judgmental differences in evaluation of core samples and other geologic data. The potential for differences in judgment is a good argument for making such "raw data" widely available for examination and analysis. Greater standardization in terminology and techniques also would improve reserve estimates.

Perhaps the most effective approach to verification would be an on-site audit of books, records, and core samples or other geological data in support of reported data. Verification by this means would require access to records authority for the Federal Government which, for the most part, does not now exist. Actual use of direct access authority could be minimized through sampling and systematic cross-checking of reported data.

A sound system of data verification should be supported by a requirement that data furnished be certified as to its accuracy and provision made for appropriate sanctions if reported data proves inaccurate.

Confidentiality

During our study, officials of key data collection agencies advised us that the General Accounting Office could not be given access to confidential individual company data. We had a similar experience in 1969 which forced us to suspend our review of policies and practices in administering the oil and gas leasing programs for the Outer Continental Shelf. Confidentiality is a major concern of industry. While the problem is not a simple one to solve, we believe that the terms confidential and proprietary, as related to energy information, have been overused and that steps should be taken to restrict confidential data to the absolute minimum.

Timely Reporting

With few exceptions, energy data published by the Federal agencies is late, with time lags ranging from a month to 2 years. The Bureau of Mines runs 2 months late in its monthly reports on domestic petroleum supply. International petroleum data published by the Bureau of Mines and the Office of Oil and Gas, issued in March 1973, covered calendar year 1971.

We recognize there is a trade-off between timely data and verification but, in instances where timeliness is vital, verification on an after-the-fact basis would assure the continuing quality of data obtained.

Data Definitions

Efforts have been made by the Government and industry to set standards for data reporting. However, no authority exists to compel adoption of uniform energy terms and data published by Federal agencies tends to be contradictory and inconsistent. Our detailed report contains examples.

Data Gaps

We identified the following areas in which needed information is not available:

—Petroleum and petroleum products held by other than refiners and major terminal operators.

28-171 O - 74 - 2

—Petroleum product inventories held by large-volume consumers and retailers.
—Regional and local data on petroleum product inventories, distribution, and consumption.
—Data needed to make supply and demand analyses.

Some data covering the above areas is available but is fragmentary, late, or both. We understand that, in recognition of data gaps, the Federal Energy Office has presented 23 forms to the Office of Management and Budget for approval requesting industry data not otherwise available.

User Needs Study

A full-scale user needs study should be conducted as soon as possible to examine more carefully and precisely national data needs for short-term and long-term energy planning and decisionmaking. Such a study could also reduce the burden on industry and the public through elimination of unneeded reports.

Analysis

Until the establishment of the Office of Energy Data and Analysis and the Federal Energy Office in 1973, the myriad of programs and activities comprising the Federal energy effort evolved over the years without benefit of a formal national policy, and therefore without centralized direction or coordination. Perhaps the most crucial need is for analyses of energy data from the perspective of identified energy problems, rather than from the vastly different perspective of individual agencies and programs.

Canada's System

Comparison with the manner in which Canada deals with some of the problems is particularly useful since the major petroleum companies operating in the United States also operate in Canada.

In Canada, companies are required by law to submit periodic data to the Government on the production and distribution of crude oil and petroleum products, natural gas, coal, and electricity. The Canadian Government also requires submission of engineering and geologic data from companies drilling for oil and gas on the Outer Continental Shelf. Alberta, Canada's largest oil and gas producing Province, requires submission of core samples and other geologic data by companies during well drilling for use in making independent reserve estimates.

The Government has access to company records for purposes of verifying reported data.

Canada has developed a variety of practices with respect to confidentiality. Individual company data on production and distribution is kept confidential. Outer Continental Shelf data is kept confidential for 30 days if it relates to activity in known producing fields, and for 2 years for undiscovered fields. Disclosure practices with respect to other types of data vary similarly in accordance with the type of data and circumstances.

Recent Activity

Since the Administrator of the Federal Energy Office has just appeared before this Committee to inform it of the recent activity and

plans of his Office, we do not see any need to discuss recent Federal Energy Office activity. Mr. Simon appears to be aware of the shortcomings of the present arrangements for data collection and analysis, and determined to achieve prompt improvements in the situation. He clearly concurs in the need for mandatory reporting and for improved verification in many cases, and in the need to reexamine confidentiality.

On the legislative front, a range of bills would variously locate responsibility for data collection and analysis in the Federal Energy Administration, in a new Bureau of Energy Information in the Department of Commerce, or in a Council on Energy Policy. More directly important to the General Accounting Office, the proposals would place differing degrees of responsibility on the General Accounting Office for monitoring and evaluating energy data collection and analysis efforts.

S. 2776, a bill establishing a Federal Energy Administration, would provide the Federal Energy Administration with authority to require submission of energy data and with access to the records of companies furnishing such data. However, the bill also establishes a Council on Energy Policy to serve as a focal point for "the collection, analysis, and interpretation of energy statistics and data * * *." The General Accounting Office would be required to monitor both agencies and would have access to records generally paralleling that of the Federal Energy Administration and the Council on Energy Policy. We prefer the provisions of S. 2776 to those of a related House bill, H.R. 11793.

S. 2782, on the other hand, would establish a new independent agency in the Department of Commerce—a Bureau of Energy Information coequal with the Bureau of the Census—to handle the energy data collection job. While the new Bureau would have collection and access authorities paralleling those given the Federal Energy Administration and the Council on Energy Policy in S. 2776, the General Accounting Office access to records authority is not set forth.

S. 2782 also requires the Secretary of the Interior to independently compile and maintain an inventory of mineral fuel reserves and energy resources on Federal lands, including the Outer Continental Shelf. Also, the Secretary would be required, on request, to make onsite geologic and engineering inspections.

S. 2176, which passed the Senate in December, also would establish a Council on Energy Policy of the same sort as S. 2776 and S. 70, the Energy Policy Act of 1973, which passed the Senate some months ago. General Accounting Office responsibilities and authority would be comparable to those in S. 2776 and adequate for our needs.

Conclusions

Our conclusions are already evident, in many respects, from the foregoing discussion.

Legislation

Legislation is required to establish the comprehensive data system we envision. Such legislation should:

—Require reporting of needed energy-related information.
—Provide for certification of the accuracy of reported data and establish sanctions for nonreporting or incorrect reporting.

—Provide for access to records and other supporting documentation by those collecting data so that programs of data verification can be established.
—Provide for standardization of terms and definitions to insure reporting on a consistent basis.
—Assure that needed data is available to Government agencies.
—Provide for prompt and complete public disclosure, limiting "confidential" data to the minimum.
—Provide assurance of independent reviews of energy data collection by giving the General Accounting Office access to all reported data and to the records and supporting documentation of those reporting data.

With respect to organization, we believe primary responsibility for energy data collection should preferably be located where it is independent of policy development, administrative, and analytical functions. The proposed Bureau of Energy Information in the Department of Commerce best meets this specification. So located, the collection of energy data is less likely to be either influenced by or ignored because of overwhelming policy and administrative problems of the type confronting a Federal Energy Administration. Primary analytical responsibility could be located either in the Council on Energy Policy or in the Federal Energy Administration. Both agencies have much analytical work to do, whichever has the lead role.

Regardless of where primary or coordinating responsibility for collection and analysis of energy data is located, agencies having mission-related needs should continue to collect and analyze energy-related data where their individual needs require it and they have the capacity. However, their collection and analysis activity should be in conformity with a general plan which minimizes gaps and overlaps and conforms to general standards of priority, reliability, and timeliness.

It hardly seems necessary to say that public acceptance of the objectivity and validity of energy data is as vital as the reality of such objectivity and validity.

Department of Energy and Natural Resources

We are considering energy and energy data problems in an emergency climate. However, the problems we are dealing with are long-team problems which probably will be with us for decades. The best long-term organizational approach to their solution, in our judgment, is to establish a Department of Energy and Natural Resources which would have the scope and stability to deal with complex and long-term issues. There are major short-run advantages as well to the establishment of a Department of Energy and Natural Resources if the legislation could be enacted promptly. A separate organization in such a Department could be given responsibility for energy data collection with statutory provisions to insure its objectivity and appropriate insulation from the policy and operations of the Department.

Short-Run Improvements

A single reference source or directory should be developed. A comprehensive inventory of existing collection efforts, periodically updated, should identify the data and its source, frequency, timeliness,

and qualitatively describe its reliability. The Federal Energy Office could lead such a task, with cooperation from the Bureau of Mines and the Geological Survey.

As a final point, Mr. Chairman, I should like to emphasize that, while improved organization, the single reference director for energy information, a study of user needs, and a comprehensive data system are necessary steps toward better energy-related policies and programs, we should not delay in taking other clearly necessary smaller steps to improve energy data collection. The urgency of our energy problems dictates that decisions be made each day on the basis of the data now available. This data can be improved day-by-day by the use of verification techniques, timely collection, and greater standardization. Such day-by-day steps also move us toward our longer-run goals.

STUDY REQUESTED BY
CHAIRMAN, SENATE COMMITTEE ON
INTERIOR AND INSULAR AFFAIRS

Actions Needed To Improve Federal Efforts In Collecting, Analyzing, And Reporting Energy Data B-178205

UNITED STATES
GENERAL ACCOUNTING OFFICE

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-178205

The Honorable Henry M. Jackson
Chairman, Committee on Interior
and Insular Affairs
United States Senate

Dear Mr. Chairman:

In response to your request of April 6, 1973, here are the results of our study of actions needed to improve Federal efforts in collecting, analyzing, and reporting energy data. A summary of the study was provided in my testimony of February 6, 1974, before the full Senate Committee on Interior and Insular Affairs.

As agreed with your office, we did not obtain formal agency comments on a draft of the study. We did furnish, however, pertinent draft portions of the study to responsible officials of four key Federal agencies involved in energy data collection and the Federal Energy Office. Their comments and views were informally obtained by discussion and given consideration in finalizing the study.

Sincerely yours,

Phillip S. Hughes

Phillip S. Hughes
Assistant Comptroller General

Contents

28-171 O - 74 - 3

APPENDIX

ABBREVIATIONS

AGA	American Gas Association
API	American Petroleum Institute
FEA	Federal Energy Administration
FEO	Federal Energy Office
FPC	Federal Power Commission
GAO	General Accounting Office
OEDA	Office of Energy Data and Analysis

CHAPTER 1

INTRODUCTION

In April 1973 the Chairman of the Senate Committee on Interior and Insular Affairs requested that the General Accounting Office (GAO) give consideration to the whole approach to energy data collection in the Federal Government. The Chairman specifically asked that we consider whether a centralized energy data bank should be established either in the executive or legislative branch to provide current information independently developed or verified on the energy supply and demand picture. (See App. I.)

Since we initiated our study, the Middle East oil embargo, shortages in gasoline and heating oil, and rising prices for petroleum products have dramatically underscored the need for better information to guide Federal, business, and private decisionmaking and policy formulation in the energy area. Several organizational changes have been made or proposed to improve the executive branch's capability to meet the energy problem, and a substantial amount of energy-related legislation has been introduced, some of which deals directly with data collection.

All agree that the Nation's present energy problem requires that actions which affect energy be based on sound knowledge of essential facts. Such knowledge can be assured only if there are valid and reliable means for obtaining and analyzing energy data. To determine whether there are such means, we sought answers to the following questions.

--What Federal agencies collect energy data and what types of data do they collect?

--What are the sources of collected data?

--To what extent is data verified?

--What uses do Federal agencies made of collected data?

--What data gaps exist?

Keeping our information current has been complicated by changes in the executive branch's organization and approach to the energy problem, and by sharply increased data collection activity. However, we have attempted to take into consideration all recent actions, including those of the Federal Energy Office since its creation by Executive order in December 1973.

Virtually all of the Nation's energy demands are presently satisfied by five primary energy sources--oil, natural gas, coal, water, and nuclear energy--and by electricity, which is considered to be a secondary form of energy because it is produced through the conversion of a primary source. Estimates made by the Department of the Interior of the degree of United States reliance on the five primary energy sources are presented below.

Energy source	Percent of total energy requirements
Oil	43.0
Natural gas	32.8
Coal	20.1
Water	3.8
Nuclear	.3

We limited our efforts to the Federal Government's role in collecting, analyzing, and reporting of data on the five primary energy sources and on electricity.

SCOPE OF REVIEW

Our work--performed principally at Federal agencies in Washington, D.C.--included a review of legislation authorizing the collection of energy data. We also obtained information from private organizations, including petroleum industry representatives, and industry trade associations, such as the American Petroleum Institute and the American Gas Association, involved in collecting or reporting data on energy. To gain insight into data collection and analysis being performed by foreign governments, we visited Canada and obtained information on its system of collecting, analyzing, and reporting energy data. In addition, in cooperation with the Congressional Research Service, Library of Congress, information was obtained by questionnaire from Federal agencies on their energy-related information and data activities.

We also gave consideration to two completed studies and one still underway of energy data collection. The completed studies were the Mitre Corporation's "An Examination of Fuel and Energy Information Sources" (sponsored by several Federal agencies, dated April 1971) and the American Management Systems, Inc. report on "Energy Data in the United States" (sponsored by the Office of Energy Data and Analysis, Department of the Interior, dated October 1973). The ongoing study of "Policies to Deal With the Energy Crisis", sponsored by the National Science Foundation, will include a brief review of the U.S. energy supply and demand data base.

We furnished appropriate sections of the study results to officials of four key energy data collection agencies--the Department of the Interior, the Department of Commerce, the Atomic Energy Commission, and the Federal Power Commission--and to officials of the Federal Energy Office. We met with these officials to obtain their comments on an informal basis so that we could give them appropriate consideration in finalizing the study results.

A list of Federal agencies and other organizations contacted by us is included as Appendix II.

CHAPTER 2

PRESENT SITUATION

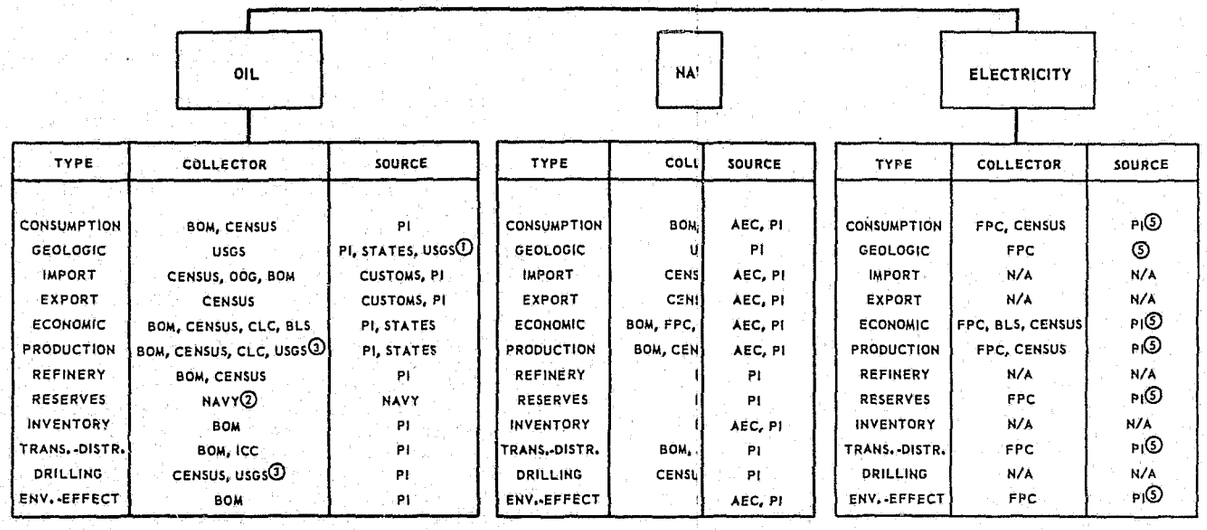
The Federal Government's involvement in the collection, analysis, and reporting of energy data has been fragmented and uncoordinated. Federal agencies which collect, analyze, and report data on energy do so either as an outgrowth of rather specific legislative charters or to fulfill particular agency needs. The fragmentation was recognized as early as 1962 in a report to the President by the Petroleum Study Committee which concluded:

> "Satisfactory information concerning petroleum reserves, productive capacity, and deliverability, and their expansibility under normal and emergency conditions is seriously lacking. * * * A great deal of fragmentary and sometimes contradictory data is available. * * * There is, in addition, a related inadequacy in analytic studies. * * *"

In response, the Bureau of the Budget organized a Petroleum Statistics Study Group consisting of membership from various Federal agencies. The interagency group issued a report in 1965 with specific recommendations for improvement of petroleum statistics. In 1966, the Bureau of the Budget delegated to the Department of the Interior focal agency responsibility for carrying out the recommendations. While benefits were derived from this work, particularly in identifying areas where the Government lacked adequate petroleum statistics and obtaining the cooperation of private industry in furnishing additional data regarding certain of the areas, the Federal agencies involved found it necessary in 1970 to subordinate this activity to other pressing concerns relating to the oil and gas industries, such as the Oil Import Program.

At the time we began our work in April 1973, there was no central agency in the Government responsible for directing or coordinating the collection of energy data. Since that time, the increasing seriousness of the Nation's energy problem has stimulated a number of organizational changes in the executive branch all of which affect energy data collection and analysis in one way or another.

In his April 1973 energy message, the President stated "If we are to meet the energy challenge, the current fragmente



TYPE	COLLECTOR	SOURCE
CONSUMPTION	BOM, CENSUS	PI
GEOLOGIC	USGS	PI, STATES, USGS①
IMPORT	CENSUS, OOG, BOM	CUSTOMS, PI
EXPORT	CENSUS	CUSTOMS, PI
ECONOMIC	BOM, CENSUS, CLC, BLS	PI, STATES
PRODUCTION	BOM, CENSUS, CLC, USGS③	PI, STATES
REFINERY	BOM, CENSUS	PI
RESERVES	NAVY②	NAVY
INVENTORY	BOM	PI
TRANS.-DISTR.	BOM, ICC	PI
DRILLING	CENSUS, USGS③	PI
ENV.-EFFECT	BOM	PI

TYPE	COLL	SOURCE
CONSUMPTION	BOM,	AEC, PI
GEOLOGIC	U	PI
IMPORT	CENS	AEC, PI
EXPORT	CENS	AEC, PI
ECONOMIC	BOM, FPC,	AEC, PI
PRODUCTION	BOM, CEN	AEC, PI
REFINERY	I	PI
RESERVES	I	PI
INVENTORY	I	AEC, PI
TRANS.-DISTR.	BOM,	PI
DRILLING	CENSU	PI
ENV.-EFFECT		AEC, PI

TYPE	COLLECTOR	SOURCE
CONSUMPTION	FPC, CENSUS	PI⑤
GEOLOGIC	FPC	⑤
IMPORT	N/A	N/A
EXPORT	N/A	N/A
ECONOMIC	FPC, BLS, CENSUS	PI⑤
PRODUCTION	FPC, CENSUS	PI⑤
REFINERY	N/A	N/A
RESERVES	FPC	PI⑤
INVENTORY	N/A	N/A
TRANS.-DISTR.	FPC	PI⑤
DRILLING	N/A	N/A
ENV.-EFFECT	FPC	PI⑤

KEY TO SELECTED ABBREVIATIONS:

1. PI – PRIVATE INDUSTRY
2. BOM – BUREAU OF MINES
3. BOR – BUREAU OF RECLAMATION
4. ENV. – ENVIRONMENTAL
5. OOG – OFFICE OF OIL AND GAS
6. USGS – U.S. GEOLOGICAL SURVEY

FOOTNOTES:

① OUTER CONTINENT
② NAVAL PETROLEU
③ FEDERALLY – OWN
④ INTERSTATE NATU
⑤ ADDITIONAL SOURC DEPARTMENT OF T
⑥ NUCLEAR PERTAIN

28-171 O - 74

MAJOR CATEGORIES, COLLECTORS, AND SOURCES OF ENERGY DATA

OIL

TYPE	COLLECTOR	SOURCE
CONSUMPTION	BOM, CENSUS	PI
GEOLOGIC	USGS	PI, STATES, USGS(1)
IMPORT	CENSUS, OOG, BOM	CUSTOMS, PI
EXPORT	CENSUS	CUSTOMS, PI
ECONOMIC	BOM, CENSUS, CLC, BLS	PI, STATES
PRODUCTION	BOM, CENSUS, CLC, USGS(3)	PI, STATES
REFINERY	BOM, CENSUS	PI
RESERVES	NAVY(2)	NAVY
INVENTORY	BOM	PI
TRANS.-DISTR.	BOM, ICC	PI
DRILLING	CENSUS, USGS(3)	PI
ENV.-EFFECT	BOM	PI

NATURAL GAS

TYPE	COLLECTOR	SOURCE
CONSUMPTION	BOM, CENSUS	PI
GEOLOGIC	USGS	PI, STATES, USGS(1)
IMPORT	CENSUS, FPC	CUSTOMS, PI
EXPORT	CENSUS, FPC	CUSTOMS, PI
ECONOMIC	BOM, FPC, CENSUS, BLS	PI
PRODUCTION	BOM, CENSUS, USGS(3)	PI, STATES
REFINERY	BOM	PI
RESERVES	FPC(4)	PI
INVENTORY	FPC	PI
TRANS.-DISTR.	BOM, FPC, ICC	PI
DRILLING	CENSUS, USGS(3)	PI
ENV.-EFFECT	FPC	PI(4)

COAL

TYPE	COLLECTOR	SOURCE
CONSUMPTION	BOM, CENSUS	PI
GEOLOGIC	USGS	STATES, USGS
IMPORT	CENSUS	CUSTOMS, PI
EXPORT	CENSUS, BOM	CUSTOMS, PI
ECONOMIC	BOM, CENSUS, BLS	PI
PRODUCTION	BOM, CENSUS, USGS(3)	PI, STATES
REFINERY	N/A	N/A
RESERVES	BOM, USGS	STATES, USGS, PI
INVENTORY	BOM	PI
TRANS.-DISTR.	BOM, ICC	PI
DRILLING	N/A	N/A
ENV.-EFFECT	BOM, USGS	STATES, USGS, PI

WATER (HYDROELECTRICITY)

TYPE	COLLECTOR	SOURCE
CONSUMPTION	FPC	(5)
GEOLOGIC	FPC	(5)
IMPORT	N/A	N/A
EXPORT	N/A	N/A
ECONOMIC	FPC	(5)
PRODUCTION	FPC	(5)
REFINERY	N/A	N/A
RESERVES	N/A	N/A
INVENTORY	N/A	N/A
TRANS.-DISTR.	FPC	(5)
DRILLING	N/A	N/A
ENV.-EFFECT	FPC	(5)

NUCLEAR(6)

TYPE	COLLECTOR	SOURCE
CONSUMPTION	AEC	AEC, PI
GEOLOGIC	AEC	PI
IMPORT	AEC	AEC, PI
EXPORT	AEC	AEC, PI
ECONOMIC	AEC	AEC, PI
PRODUCTION	AEC	AEC, PI
REFINERY	AEC	PI
RESERVES	AEC	PI
INVENTORY	AEC	AEC, PI
TRANS.-DISTR.	AEC	PI
DRILLING	AEC	PI
ENV.-EFFECT	AEC	AEC, PI

ELECTRICITY

TYPE	COLLECTOR	SOURCE
CONSUMPTION	FPC, CENSUS	PI(5)
GEOLOGIC	FPC	(5)
IMPORT	N/A	N/A
EXPORT	N/A	N/A
ECONOMIC	FPC, BLS, CENSUS	PI(5)
PRODUCTION	FPC, CENSUS	PI(5)
REFINERY	N/A	N/A
RESERVES	FPC	PI(5)
INVENTORY	N/A	N/A
TRANS.-DISTR.	FPC	PI(5)
DRILLING	N/A	N/A
ENV.-EFFECT	FPC	PI(5)

KEY TO SELECTED ABBREVIATIONS:

1. PI – PRIVATE INDUSTRY
2. BOM – BUREAU OF MINES
3. BOR – BUREAU OF RECLAMATION
4. ENV. – ENVIRONMENTAL
5. OOG – OFFICE OF OIL AND GAS
6. USGS – U.S. GEOLOGICAL SURVEY

FOOTNOTES:

(1) OUTER CONTINENTAL SHELF ONLY.

(2) NAVAL PETROLEUM RESERVES ONLY.

(3) FEDERALLY – OWNED LANDS ONLY.

(4) INTERSTATE NATURAL GAS PIPELINE COMPANIES.

(5) ADDITIONAL SOURCES ARE: FEDERAL (TVA, BOR, CORPS OF ENGINEERS, AND THE POWER ADMINISTRATIONS OF THE DEPARTMENT OF THE INTERIOR) AND NON-FEDERAL (FPC – LICENSED) HYDROELECTRIC PROJECTS.

(6) NUCLEAR PERTAINS TO INFORMATION ON BOTH URANIUM ORE AND ENRICHED URANIUM.

28-171 O - 74

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organization of energy-related activities in the executive branch of the Government must be overhauled." To improve Federal organization of energy activities, the President directed the Secretary of the Interior to strengthen his Department's energy activities in several ways, including its capacity for gathering and analyzing energy data. At the same time, the President issued an Executive order creating a National Energy Office in the Executive Office of the President (Office of Energy Policy). The Director of the Office was to advise the President on all Federal energy programs, activities, and related matters.

Shortly thereafter, on May 7, 1973, the Secretary of the Interior created an Office of Energy Data and Analysis (OEDA) within the Department and assigned it the responsibility for developing an energy information system and analytic capability to assist Federal officials in making short-term and long-term energy policy. In a press release elaborating on the responsibilities of OEDA, the Assistant Secretary for Energy and Minerals, Department of the Interior, stated that OEDA would be the focal point for energy data and information within the Federal Government.

In a discussion in September 1973, the Acting Director, OEDA, indicated that OEDA's initial emphasis was being placed on development of a central data base for use in developing and using energy supply and demand models. Work was also progressing, however, on other fronts, including the publication in September 1973 of the first of a series of "Monthly Energy Indicators" reports. The reports--based largely on American Petroleum Institute and Bureau of Mines, Department of the Interior, information--are intended to highlight energy problems and contain trend data on oil, natural gas, and coal production and consumption, as well as other matters.

On December 4, 1973, the President announced that he would seek legislation establishing a Federal Energy Administration to deal with the energy emergency. Pending approval of his legislative proposal, the President issued an Executive order creating a Federal Energy Office (FEO) within the Executive Office of the President. The proposed legislation provides for the transfer of OEDA and several other agencies including the Offices of Oil and Gas, Energy Conservation, and Petroleum Allocation of the Department of the Interior; and the Energy Division of the Cost of Living Council to the

new agency. Pending action on the proposed legislation, OEDA and other unit heads were instructed to be responsive to the Administrator, FEO.

White House factsheets dealing with establishment of FEO indicated that it would become the focal point for the collection and analysis of energy data in the Government. One of its key responsibilities was listed as collect, evaluate, assemble, and analyze energy information on reserves, production, demand, and related economic data.

The remainder of this chapter summarizes the magnitude of Federal energy data collection effort essentially as it existed when FEO was created. Recent FEO activity relating to energy data collection, as well as various legislative proposals under consideration are discussed in Chapter 4.

MAGNITUDE OF FEDERAL ENERGY DATA EFFORT

During our work, we contacted 17 Federal agencies comprising 45 bureaus, offices, divisions, and administrations which are collectors or users of energy data. Others were identified but not visited because their volume of activity was relatively small.

The principal collection agencies are the Bureau of Mines and the Geological Survey in the Department of the Interior, the Federal Power Commission, the Atomic Energy Commission, and the Department of Commerce. Of these agencies, the Bureau of Mines is the most comprehensive collector of data. To a lesser extent, the Office of Oil and Gas, in the Department of the Interior, the Bureau of Labor Statistics, the Cost of Living Council and the Interstate Commerce Commission collect data directly related to energy.

As a further indication of the volume of data collection, our analysis of Office of Management and Budget information indicated that, as of March 1973, 15 major Federal agencies were circulating 145 questionnaires to the private sector and States requesting data related to energy. These questionnaires required some 11 million responses requiring an annual respondent effort of about 3.6 million man-hours.

Thus, a great deal of data is being collected by a wide range of Federal agencies. Such data is being collected, however, to meet the needs of specific programs or agencies, not as part of a systematic assembling of energy data. For example, the Bureau of Mines--the largest collection agency--has a broad and long-standing legislative mandate to encourage the development of the mining industry. It therefore collects data relative to some 90 different minerals among which happen to be fossil fuels.

Much of the data being collected is reported voluntarily by industry with little verification by Federal agencies. The data collected on individual companies is considered proprietary and held confidential by collecting agencies and, with limited exceptions, only aggregate data is reported. In addition, there are substantial time lags in the reporting of data and there is a lack of uniformity in reporting.

28-171 O - 74 - 4

For the primary energy sources and for electricity, the chart on page 9 shows for 12 major identified data categories the agencies collecting data and the source of the data. To provide more detailed insight regarding Federal energy data collection efforts, we have included as Appendix III, for the various agencies collecting data, agency profile sheets depicting the types of data collected, sources of data, reasons for collection, end-use of data, extent of verification, and timeliness of data reporting.

As shown by the chart, most of the data categories relate to energy supply. A deficiency illustrated by the chart is the absence of Government activity in the collection of oil reserve information.

The only complete and current Federal Government information on both oil and gas reserves is determined by industry and reported in aggregate form through industry trade associations, namely the American Petroleum Institute (API) for oil reserves and the American Gas Association (AGA) for gas reserves. API is the only source for oil reserves. With respect to natural gas reserves, the Federal Power Commission (FPC) does obtain gas reserve information from interstate natural gas pipeline companies; such information covers about 60 percent of reserves reported by AGA. Moreover, FPC did publish in May 1973 the results of its own independent appraisal and evaluation of natural gas reserves as of December 31, 1970.[1]

The situation differs with respect to coal and uranium reserves. Coal reserve estimates have been made over the

[1]The FPC report was entitled "National Gas Reserves Study." In essence, the FPC study involved independent reserve determinations by evaluation teams based on analysis of raw data for a statistical sample of 158 of the 6,358 gas fields considered by AGA in arriving at its December 31, 1970, estimate of natural gas reserves. FPC also made reserve estimates for 62 fields determined to have been omitted by AGA. FPC estimated natural gas reserves as 10 percent less than the AGA estimate. The FPC Study although not published until May 1973 is the first independent appraisal and evaluation of its type. FPC now is in the process of planning to update its reserves study to December 31, 1973.

years by the Geological Survey and State geological agencies. Current coal reserves are determined by subtracting cumulative production from the original reserve estimates. The earliest year of estimate still in use is 1928 and the latest, 1972. Uranium reserves are estimated by the Atomic Energy Commission based on raw data submitted by private uranium companies.

With specific regard to reserves on federally-owned lands, the Government primarily relies on leaseholders for any reserve determinations, with no requirement that reserve estimates be reported. One exception is the Naval Petroleum Reserves, where the Department of the Navy is charged with making independent estimates of reserves.

With respect to computerized storage and retrieval capacity, the Department of the Interior administers three computerized mineral data systems and has two in the developmental stage. In addition, while not an energy data system, the FPC has under development a computerized information system for regulatory purposes which will include data on natural gas and electricity.

Two extensive Interior systems are the Computerized Resources Information Bank (CRIB) administered by the Geological Survey, and the Mines, Energy, Resources, Information and Transportation (MERIT) System, administered by the Bureau of Mines. A less extensive system is the petroleum and natural gas data system, administered by Geological Survey. The planned systems--the Coal Resources Analysis Bank and the Minerals Availability System (MAS) will be operated by Geological Survey and Bureau of Mines, respectively. MAS will not contain data on energy-source fuels, but rather hard-rock minerals such a gold, silver, and tungsten. The purpose, content, sources of inputs, and descriptions of outputs of the CRIB, MERIT, and the petroleum and natural gas systems are contained in the agency profiles in Appendix III, page 50 for CRIB, page 46 for MERIT, and page 54 for the petroleum and natural gas data system.

In summary, the salient points of Federal energy data collection are

--much of the data is voluntarily reported by the energy industries;

--there is little verification by the Federal Government of the data reported;

--with very limited exceptions, only aggregate data is reported and individual company data is proprietary and held to be confidential;

--the only complete and current information on oil and gas reserves is provided by industry;

--the Government relies on leaseholders for information on reserves of energy-source fuels on Federal lands;

--reporting of energy data is not timely; and

--uniformity in energy terms is a problem.

CHAPTER 3

PROBLEM AREAS

This chapter discusses problem areas which we believe must be addressed if the Federal Government's capability for collecting and analyzing energy data is to be improved.

Following our discussion of these problem areas, we have included a brief description of Canada's energy data system and its approach to energy data problems.

VOLUNTARY VS. MANDATORY REPORTING OF DATA

Most of the data presently collected by the Federal Government is furnished voluntarily by private industry. There are instances where reporting of energy data is mandatory, but they are few in relation to the volume of data being collected. They include:

--FPC data collection on interstate production and distribution of natural gas and electricity.

--Office of Oil and Gas data collection on imports of crude oil and refined petroleum products.

--Geological Survey data collection on mineral fuels production on federally-owned lands, including the outer continental shelf.

--Cost of Living Council data collection on costs and prices of petroleum products.

--Bureau of the Census data collection on imports, exports and industry consumption of energy-source fuels.

--Interstate Commerce Commission data collection on interstate movement of energy-source fuels by rail, pipeline and water.

The Bureau of Mines--the largest collector of energy data on a voluntary basis--recently analyzed the effectiveness of its voluntary reporting system. The analysis concluded that Mines' experience over the years showed that

voluntary cooperative efforts of informed persons in industry working with technically qualified persons in Government have provided results superior to many mandatory reporting systems.

While Mines has undoubtedly enjoyed a good measure of success, voluntary reporting of energy data, in our opinion, does not provide the Federal Government with assurance that needed data will be available. The Government, the Congress, and the public are dependent on the voluntary and undefined cooperation of industry. Representatives of three major petroleum companies told us that while their companies were most willing to and do respond to requests for data from the Federal Government, they are reluctant to respond to requests when they cannot see the need for the data.

The primary condition under which data is voluntarily submitted is that individual company data be held confidential by the requesting agency and not disclosed outside of that agency. This condition, however, has the potential for adversely affecting the submission of data because industry can withhold reporting if disclosure is made. (Problems associated with the credibility and confidentiality of reported data are discussed more fully in the next sections of this chapter.)

CREDIBILITY OF DATA

Perhaps the single most important problem with energy data is the question of credibility. As long as much of the reporting of data by industry is voluntary and unverified, questions will be raised as to the credibility of the data, even though the data may be entirely valid.

Generally, the feeling among Federal officials that we talked to was that they had no reason to doubt the validity of data supplied. However, much of the public believes the present energy shortages have been contrived by industry for the purpose of raising prices and increasing profits. The Federal Government has been unable to demonstrate convincingly the nature and extent of the energy shortage, in large measure, because of the lack of independently developed or independently verified data.

This lack of credibility also exists with respect to data collected by the Federal Government on federally-owned lands.

Estimates indicate that much of the Nation's energy-source fuel reserves are on Federal lands including

--50 percent of the oil and gas,

--40 percent of coal, and

--50 percent of uranium.

Under the present system, the Government relies on leaseholders for information on reserves on Federal lands. The Department of the Interior--the Federal agency responsible for the management of resources on Federal lands--believes that the Government's interests in the development of federally-owned resources are served through the bonus system of leasing. Under this system, interested companies are free to conduct exploratory operations in areas being considered for lease. Bids are offered and the leasehold is awarded to the company offering the highest bid. In addition, companies are required to pay to the Government production royalties, which in the case of oil amounts to one-sixth of the value of the oil produced.

The Geological Survey, Department of the Interior, has recently taken a step toward independent determination of certain energy information related to mineral extraction on federally-owned lands. Effective January 1, 1974, the Survey is requiring operators of oil and gas wells on the outer continental shelf in the Gulf of Mexico to annually submit raw data from which it can independently determine the maximum efficient rate (MER) of production from each oil and gas well, rather than relying on the leaseholder to determine MER. The MER is the maximum rate at which wells can be operated without adversely affecting future production. Wells can be operated above the MER only by decreasing the ultimate yield. In addition, Survey officials told us that they also verify certain production data through onsite inspections of production meters and supporting documentation. The fact remains, however, that the Federal Government has been, and is continuing to rely on industry for energy reserve determinations on land owned by the Federal Government.

Greater provision for independent data verification is essential. Verification procedures will need to be carefully thought out and two interrelated questions answered. First, to what extent should data be verified? Second, how should data verification be accomplished? Most of the energy statistics presently being collected by the Government could be verified, but we believe the volume of data is such that statistical sampling techniques would be appropriate.

Of the several ways in which data verification can be accomplished, perhaps the most effective is onsite audit of books, records and other documentation, including core samples and other geologic data, in support of reported data. This would require access to records authority for the Federal Government, which for the most part, does not now exist. Also, reported data should be systematically cross-checked.

A special problem in data verification is the area of reserves. We were informed by petroleum industry representatives and officials of the Geological Survey that, given the same raw geologic data, two separate competent geologists could arrive at widely different estimates of reserves. In our opinion, the potential for wide variances in reserve estimates because of judgmental factors is a good argument for making the raw data widely available for examination and analysis. A greater degree of standardization extending to reserve terminology and estimation techniques and to related verification and sampling techniques would also improve reserves estimation.

As discussed in the footnote on page 8, there has been one instance where a Federal agency--FPC--made an independent estimate of gas reserves. In essence, the FPC study issued in May 1973 largely was based on independent reserve estimates made by evaluation teams for a statistical sample of the gas fields included in AGA's estimate of natural gas reserves as of December 31, 1970, and, as such, was a form of verification of the AGA reported natural gas reserves.

A sound system of data verification should be supported, in our opinion, by the requirement that, where possible, data furnished be certified as to its accuracy and provision made for appropriate sanctions if the reported data is proven inaccurate.

CONFIDENTIALITY OF DATA

At present, individual company data is held confidential and, with limited exceptions, only aggregate data is reported by the Federal Government. Confidentiality of data is a major concern of industry. In our discussions with petroleum industry representatives they unanimously stressed the proprietary nature of data and the need for it to be held confidential. Confidentiality of data, combined with the absence of data verification is at the root of existing credibility problems. Since individual company data remains confidential and cannot be disclosed even to other Federal agencies, problems can arise where one agency, having a need for certain data to meet its program responsibilities, is denied access by the collecting agency on the grounds of confidentiality.

Officials of key data collection agencies advised us during our work that GAO could not be provided access to confidential individual company data. We have faced similar denials in the past. In March 1969, the Geological Survey denied our Office full and complete access to records and information obtained from oil companies supporting economic valuations used in evaluating the reasonableness of bonus bids received in sales of outer continental shelf lands. As a result of the denial, our Office suspended its review of the policies and practices followed in administering the oil and gas leasing programs for submerged lands on the outer continental shelf.

The central issue to be resolved with regard to confidentiality is the degree to which reported information can and should be made available to other Federal agencies having a need for the data and to the public. Indications are that the terms confidential and proprietary, at least as they relate to needed energy information, have been overused and that the time is right to establish an energy information system which restricts confidential data to the absolute minimum.

TIMELY REPORTING OF DATA

The Federal Government lacks the apparatus for timely reporting of energy data. In the present energy situation, the Government must obtain timely data, particularly data necessary for fuel allocation.

28-171 O - 74 - 5

With few exceptions, energy data published by Federal agencies is late with time lags between the period of publication and the period for which the data is reported ranging from a month to a year. In one case, the time lag is 2 years. The Bureau of Mines--the most comprehensive energy data collector--in its monthly reports on domestic petroleum supply runs 2 months late in reporting. For example, the Bureau of Mines' report on "Crude Petroleum, Petroleum Products, and Natural Gas Liquids", which includes statistics on domestic gasoline production for the month of May--just prior to the start of the summer travel season when gasoline shortages can be expected to occur--is not published until August. Statistics on international petroleum supplies published by the Bureau of Mines and the Office of Oil and Gas are also untimely. Both agencies' latest reports were issued in March 1973 and covered calendar year 1971. International statistics are more difficult to collect than domestic data because of the variety of sources and diplomatic problems.

The Office of Oil and Gas publishes a weekly report on "Summary of Current Petroleum Industry Operations". The data contained in the report, however, is obtained from API. API has a less detailed reporting system than many of the Federal agencies reporting energy data, which enables it to collect and publish data on a weekly basis. The less detail stems from the fact that API does not canvass 100 percent of industry and does not publish comprehensive data. API's data, however, on selected key aspects of supply and refinery operations accounts for more than 90 percent of comparable volumetric data reported by the Bureau of Mines.

Given the urgency of the present energy situation, however, there is a trade-off which must be considered between timely data and verification. For example, fuel allocation decisions should be made on the basis of the most recent information available, accordingly it would be difficult if not impossible to verify this type of data prior to its timely submission. This does not preclude, however, verification on an after-the-fact basis as a means of assuring the quality of data obtained.

DATA DEFINITIONS

Standardization of energy terms and adherence to established definitions are essential for uniformity in the

collecting, analyzing, reporting, and interpreting of energy statistics. The proliferation of data collection and reporting that presently exists among Federal agencies and the fact that State regulatory agencies provide data to the Federal Government--which are subject to their own legal and administrative constraints--makes it imperative that such standardization be sought. The voluntary basis of much present data collection also tends to work against standardization.

As a result of the efforts of the interagency Petroleum Statistics Study Group created in 1965, API agreed in 1966 that it would assume responsibility for setting standards for the statistical reporting of domestic petroleum industry operations. In the same year, the Office of Oil and Gas, Department of the Interior, was designated by the Bureau of the Budget as the focal agency for coordination of petroleum statistics within the Federal Government.

In July 1969, API published "Standard Definitions for Petroleum Statistics" to provide a basis for the identification and evaluation of changes that need to be made in order to achieve standardization. API was hopeful that the definitions contained in the report would be adopted and used by all agencies engaged in the collection and publication of petroleum statistics. This API effort was useful and needed, but no authority exists to compel adoption of uniform energy terms.

Energy data published by Federal agencies continues to be contradictory and inconsistent. For example, the Geological Survey, in 1973 published professional paper 817, "Summary Petroleum and Selected Mineral Statistics for 120 Countries, Including Offshore Areas", which showed domestic proved recoverable oil reserves as of December 31, 1971, as 45.4 billion barrels. The API estimate published by the Bureau of Mines was 38.1 billion barrels, a difference of 7.3 billion barrels. Geological Survey staff who had prepared the estimate shown in the agency's 1973 report informed us that they had included 7.3 billion barrels of natural gas liquids (NGL) in the oil reserve estimate. The Survey's inclusion of NGL was not explained in its report.

Another example of inconsistency concerned data published by the Bureau of Mines and Geological Survey for 1971

as shown below. The difference again was Survey's inclusion of NGL in its published oil statistics with no accompanying explanation.

Item	Agency: Bureau of Mines	Agency: Geological Survey	Difference
Oil production (000 barrels)	3,453,914	4,100,700	646,786

ADEQUACY AND COMPLETENESS OF DATA

We have identified the following areas in which needed information is not available for policy and planning purposes:

--Petroleum and petroleum product inventories held by other than refiners and major terminal operators (secondary stocks).

--Petroleum product inventories held by large-volume consumers and retailers.

--Regional and local data on petroleum product inventories, distribution, and consumption.

--Value and economic data from which to make supply and demand analyses.

Some data is available on the Nation's supplies of energy, the most comprehensive being reported by the Bureau of Mines. Data on secondary stocks is available from selected Federal sources but is not complete or timely. For example, FPC collects data on the consumption of all fuels, including petroleum, used in the generation of electricity. The Bureau of the Census collects data on fuels consumed by selected manufacturing and industrial concerns, but such data is collected once every five years. The latest year for which such information is available is 1971.

The FEO, recognizing energy data gaps, has already submitted 23 requests for data from industry which is not otherwise available. Recent FEO activity is discussed in more detail in Chapter 4.

User needs study

A more systematic approach, however, is needed to identify the Government's needs for energy information. A full-scale user needs study should be conducted as soon as possible to determine more precisely the national data needs for short-term and long-term energy planning and decisionmaking. Such a study should determine:

--What data is needed.

--Who needs the data.

--How detailed the data should be.

--How current the data should be.

--The need for and extent of data verification.

--How confidential individual company data should be.

A user needs study would also indicate areas where the Government could reduce collection efforts through the curtailment of data requests. The Bureau of Mines collects a vast amount of data concerning the petroleum, natural gas, and coal industries. Because of the great deal of time involved in collecting and compiling this data, there is about a 2-month time lag between collection and publication of the monthly reports. We have concluded that the Bureau of Mines could collect and publish certain key data on a more timely basis and collect other data only quarterly or annually.

ANALYSIS OF DATA

Until the establishment of OEDA in May 1973 and the subsequent establishment of FEO in December 1973, there has been no focal point for continuously analyzing energy data.

The myriad of programs and activities comprising the Federal energy effort has evolved over the years without the benefit of a formal national energy policy, and therefore, without centralized direction or coordination. A December 1973 staff analysis ("An Assessment and Analysis of the Energy Emergency") prepared for the Senate Committee on Interior and Insular Affairs concluded that there is a need for greater data analysis.

The absence of effective energy data analysis was evident in October 1973 with the interruption of oil flows from the Middle East. At a time when the entire country was anxious to know what the effect of the interruption was on domestic oil supplies, four differing estimates by Federal sources--the Energy Policy Office, the Department of the Treasury, the Office of Oil and Gas and the Department of Defense--were made of the shortfall. The estimates ranged from 1.2 to more than 3 million barrels a day.

In addition, there was a lack of an analytical capability to assess the economic impact of the shortfall. In November 1973, to fill this void, two separate task forces were assembled, one in the Department of Commerce, and the other in the Department of the Treasury.

We identified the following additional areas in which analysis was inadequate:

--Analysis of products, small in volume but important to the energy picture, such as propane gas.

--Price elasticity analysis.

--Demand analysis, that is, consideration of factors impacting upon and causing changes in demand.

CANADA'S SYSTEM OF DATA COLLECTION

Much the same type of energy production and distribution data is collected in Canada as is collected in the U.S. However, in Canada a single agency--divorced from energy policy and decisionmaking--collects the data.

Comparison with the manner in which Canada deals with some of the problems is particularly useful since the major petroleum companies operating in the U.S. also operate in Canada.

Mandatory reporting

Companies are required by law to submit periodic data to the Government on the production and distribution of crude oil and petroleum products, natural gas, coal, and electricity. The Canadian Government also requires companies drilling for crude oil and natural gas on the outer continental shelf to submit engineering and geologic data. The Province of Alberta, Canada's largest crude oil and natural gas producing Province--accounting for 89 percent of proved oil reserves and 78 percent of proved gas reserves--requires core samples taken by companies during well drilling and other related geologic data necessary to make an independent determination of oil and gas reserves.

Verification of data

The Government has access to company records for purposes of verifying reported data.

Confidentiality of data

Generally, individual company data on production and distribution is held confidential. In other areas, however, there are varying time limits on Government maintenance of data confidentiality. Outer continental shelf data is kept confidential for 30 days when it relates to activity in known producing fields, and for 2 years for undiscovered fields. Alberta maintains core samples and other related geologic data from newly discovered crude oil and natural gas fields as confidential for 1 year. Advanced energy technology data, such as oil sands development, is kept confidential by Alberta for 5 years.

Energy reserves

Alberta annually calculates and publishes oil, gas, and coal reserve estimates based on well and drilling records, core samples, and other engineering and geolgic data which industry is required to furnish. Annual public hearings are held on oil and gas reserve estimates at which industry is given the opportunity to comment on the estimates.

CHAPTER 4

RECENT EXECUTIVE AND

LEGISLATIVE ACTIVITY

In recent weeks, FEO--in recognition of the need for improved data for use in arriving at policy decisions with regard to fuel allocation and other matters--has announced a number of actions designed to improve energy data collection. Several legislative proposals which deal with energy data collection and analysis are also under consideration and the executive branch appears to concur in the need for legislative action to improve energy data collection and analysis.

Key recent developments are discussed in the following sections, followed by our evaluation of certain of the alternative courses of action now being considered.

RECENT FEO ACTIVITY

In testimony before a Subcommittee of the Joint Economic Committee on January 14, 1974, the Administrator, FEO, described the three elements of an "integrated mandatory reporting system" for petroleum products in the process of being implemented as follows:

--Reports of expected refining operations during the coming quarter and of expected inventories and shipments to each state for coming months.

--A weekly reporting system for all refiners, major bulk terminal operators, and pipeline companies. Thus, FEO will be going directly to industry for production, yields, and stocks information and no longer rely on aggregate data furnished by API.

--Monthly reports certified by company officials of refiners, pipeline companies, and bulk terminal operators. FEO audit teams, assisted by the Internal Revenue Service will make continuous field checks of

reported information, with every major refiner to be audited at least partially four times each year.

The Administrator stated that the system would be operational in 6 weeks and that sufficient legal authority existed under both the Economic Stablization Act of 1970, as amended, and the Emergency Petroleum Allocation Act of 1973 to require that reports be filed and enforce legal sanctions if they are not filed.

The Administrator also expressed the view that more explicit energy data collection authority would be desirable with mandatory reporting required. He went on to state that tailored sanctions and enforcement provisions would be more appropriate than current authorities, and that expansion of mandatory reporting to other fuels, such as coal and uranium, would be a necessity in months ahead and may not be practical under existing authorities.

Throughout his testimony, the Administrator, FEO indicated an awareness of the inadequacies of the existing energy data system. He also indicated an awareness of several of the key problem areas in energy data collection discussed in Chapter 3 of this report. He appears to concur in the need for a system of data verification and cross-checking; the need for better information on reserves, secondary stocks of petroleum, and regional supply and consumption patterns; and the need to deal with the whole question of public disclosure of energy data collected by the Government.

In summary remarks concluding his testimony, the Administrator stated:

> "We have already made substantial progress in our energy data system. Under the authorities we now have, we will implement mandatory reporting requirements for the petroleum industry. And, under authorities which we are now evaluating, and would hope to work closely with Congress in finally formulating, to develop the broad-based energy information systems needed not only to deal with our current problems but with the challenges in the decade ahead."

On January 30, 1974, we discussed FEO's current activity with the Assistant Administrator for Economic and Data Analysis and Strategic Planning and the Deputy Assistant Administrator for Analysis (formerly the Acting Director, OEDA). They told us of specific FEO actions other than those discussed by the Administrator in his testimony. These actions included the publication of a weekly petroleum situation report, the development of an econometric model for forecasting national petroleum supply and demand, and the development of a petroleum import reporting system using Government sources. The petroleum import reporting system--now in full operation--consists of the collection of import data on petroleum and petroleum products on a daily basis by Bureau of Customs agents. Information is obtained on such things as country of origin, quantities imported, and means of transportation. The data is processed by FEO into its weekly management reports with about a two-day lag between date of import and reporting. The FEO officials stated that FEO also has under development a separate system to obtain similar information from importers which will provide greater detail on petroleum products.

Actions underway and planned by FEO are so recent that we have not had the opportunity to evaluate them adequately. In summary, FEO from all outward appearances, is moving to assert itself as the key focal agency for collection and analysis of energy data in the Federal Government. The Administrator, FEO, in his testimony has shown an awareness of key problems and appears to be developing approaches designed to solve them.

LEGISLATIVE ACTIVITY

Several legislative proposals which include substantive provisions relating to energy data collection and analysis are under active consideration by the Congress. Depending on which legislative approach is adopted, primary responsiblity for data collection and analysis will rest with the Federal Energy Administration, a new Bureau of Energy Information in the Department of Commerce, or a Council on Energy Policy. The proposals place differing degrees of responsibility on the General Accounting Office for monitoring and evaluating energy data collection and analysis efforts. Pertinent provisions of the bills are briefly summarized below.

Federal Energy Administration

S. 2776 and H.R. 11793, bills which deal with the establishment of a Federal Energy Administration (FEA) and which have been reported out by the respective Committees on Government Operations, would provide FEA with authority to require submission of energy data and access to records of companies furnishing such data. The Senate bill would require GAO to monitor continuously the data collection and analysis functions of FEA and provide our Office with the same access to records authority as that provided FEA.

The House bill also would require GAO to review and evaluate FEA's operations but would limit our access to records authority to books, documents, papers, records, or other recorded information in the possession or control of FEA.

S. 2776 would also establish a Council on Energy Policy which would serve as a focal point for "the collection, analysis, and interpretation of energy statistics and data necessary to formulate policies for wise energy management and conservation and to anticipate social, environmental, and economic problems associated with existing and emerging energy technologies". Our Office would be required to monitor and evaluate the operations of the Council and would be provided access to records authority extending to both public and private sources.

Bureau of Energy Information, Department of Commerce

S. 2782 and H.R. 11903 would deal differently with the problem by establishing a new independent agency to serve as the focal point for energy data collection. The bills, referred respectively to the Senate Interior and Insular Affairs and House Interstate and Foreign Commerce Committees, would establish a National Energy Information System, to provide, among other things, for the improved collection, organization, standardization, coordination, and dissemination of energy information. A Bureau of Energy Information (Bureau) would be established as a mainline component of the Social and Economic Statistics Administration of the Department of Commerce, coequal with the Bureau of the Census. The Bureau would be given authority to require the reporting of energy

data and access to records and other supporting documentation of those reporting data.

One new and unique feature of the bills worthy of specific mention is the requirement that the Secretary of the Interior independently compile and maintain a current inventory of mineral fuel reserves and natural energy resources on federally-owned lands, including the outer continental shelf. In addition, the Secretary, when requested, would be required to make onsite geological and engineering inspections relative to reserve information required to be reported.

Both bills would place on GAO a responsibility for review and evaluation of the procedures and activities of the Bureau. The bills are not clear, however, regarding GAO access to records authority for information obtained by the Bureau which may be confidential or proprietary in nature, as well as to the records of those furnishing the data.

Council on Energy Policy

S. 2176, which would provide for a national fuels and energy conservation policy, contains a provision to establish a Council on Energy Policy. The Council would, among other things, serve as a focal point for the collection, analysis, and interpretation of energy statistics. The authorities provided to the Council and GAO under this bill regarding energy data are identical to those discussed previously with regard to the Senate Committee on Government Operations bill to establish a Federal Energy Administration (S. 2776). S. 2176 passed the Senate on December 10, 1973, and has been referred to the House Interstate and Foreign Commerce Committee. The provisions in S. 2176 regarding establishment of a Council on Energy Policy are similar to the provisions of S. 70, the Energy Policy Act of 1973, which passed the Senate on May 10, 1973, and also has been referred to the House Interstate and Foreign Commerce Committee.

EVALUATION OF RECENT DEVELOPMENTS

The executive and legislative initiatives summarized above are the clearest possible indication that, under existing authorities and institutions, viable systems for the collection of adequate and credible energy data on which to base policy decisions do not exist. One clear fact is that FEO is moving to establish itself as the focal point for collection, analysis, and dissemination of energy data. Provisions in legislative proposals establishing a statutory basis for FEO as the Federal Energy Administration would tend to support FEO's action.

While a newly created Federal Energy Administration could function in an effective manner as the key data agency, we believe that it could encounter problems in establishing itself as a credible focal point for Federal energy data collection. For example:

--FEA is being established to deal with an energy emergency. Given the urgency of energy problems, FEA will be devoting its efforts to policies and programs designed to alleviate the problem and may not have the time or manpower to develop a program for improvement of energy data collection.

--FEA would not only be the key data collection agency, it also would be deeply enmeshed in energy policy analysis. Thus, it would be open to allegations of manipulating data to justify predetermined policy objectives. Current credibility questions concerning the magnitude of the Nation's energy problem underscore the need for public confidence that reporting of energy data is independent and bias-free.

--FEA would have limited life under various legislative proposals of from one to two years unless extended by legislation.

In our opinion, the potential conflict resulting from placement of policy formulation and basic data collection in the same agency also would be applicable to other organizational entities which may be created by legislation, such as a Council on Energy Policy and an Energy Research and Development Administration.

In contrast, the legislative proposals to establish a new Bureau of Energy Information in the Department of Commerce would alleviate the potential problems discussed above. Such an agency would have greater opportunity to establish itself as an objective, independent gatherer of energy data, primarily because it would provide a desirable separation between the principal gatherer of energy data and statistics and the principal analyzer of such statistics for purposes of delineating policy options.

Assuming the data gathering and reporting function is centralized in a new agency, the Federal Energy Administration, if created, should have a strong staff of analysts for the purpose of providing the Administrator with the information needed for policy decisions. Moreover, considering the emergency nature of certain FEA programs--particularly fuel allocation--and the related need for timely data, it is likely that FEA would have to be the collecting agency for certain types of essential data. In any event, the basic data needs of FEA should be given priority in view of its responsibility for formulating policies to deal with the energy emergency.

Our overall conclusions regarding the direction improvements in energy data collection and analysis in the Government should take are discussed in more detail in the following chapter.

CHAPTER 5

CONCLUSIONS

LEGISLATION NEEDED TO ESTABLISH A COMPREHENSIVE FEDERAL ENERGY INFORMATION SYSTEM

Major improvements are essential both in collection and analysis of energy data. Activity is already underway in both the executive branch and the Congress to make existing programs less fragmented and uncoordinated. Many Federal agencies have been collecting a large volume of energy-related data as an outgrowth of broad legislative mandates or to fulfill particular program needs. This data comprises a wide range of information which can be utilized in developing a comprehensive Federal energy information system. However, there are gaps in the data being collected; time lags are not consistent with current national requirements; the data is unverified for the most part; and the individual data collection efforts need to be integrated into a coordinated system which meets the Nation's needs.

For the long run, we need to start now to establish a fully integrated comprehensive energy data system building, where possible, on existing data collection systems and programs. Data collected should be based on a careful review of the needs of data users, giving priority to the data needs of Government users responsible for energy-related policy decisions. In addition to assuring the relevance of data collected, a user needs study would help avoid duplication and would be an appropriate place to consider the cost/benefit relationship in data collection.

We envision an energy information system as one in which supervision and responsibility is centralized rather than the collection function. Maximum use should be made of existing data being collected by Federal agencies, since it is likely that such agencies would continue to collect such data to meet their own program responsibilities. Those responsible for the development of a more comprehensive system should make provision for additional data collection efforts as necessary and insure that duplication of effort is avoided.

General responsibility for developing the comprehensive system should be placed in an organization within the executive branch which has the opportunity to establish itself as a professional, objective, independent gatherer of energy information. The organization should be responsible for data collection and technical analysis, without any responsibility for an involvement in energy policy analysis or formulation. These responsibilities should rest with other agencies more directly involved in planning or administering energy-related programs.

Legislation is required to establish the comprehensive data system we envision. Such legislation should:

--Require reporting of needed energy-related information.

--Provide for certification of the accuracy of reported data and establish sanctions for nonreporting or incorrect reporting.

--Provide for access to records and other supporting documentation by those collecting data so that programs of data verification can be established.

--Provide for standardization of terms and definitions to insure reporting on a consistent basis.

--Assure that needed data is available to Government agencies.

--Provide for prompt and complete public disclosure, limiting "confidential" data to the minimum.

--Provide assurance of independent reviews of energy data collection by giving GAO access to all reported data and to the records and supporting documentation of those reporting data.

The legislative proposals summarized in Chapter 4 deal to some degree with most of the key areas outlined above. Only the proposals to establish a Bureau of Energy Information, however, would provide clearly the separation we believe desirable between the focal point for gathering energy data and the policy and operating agencies.

Previously, we discussed problems which could arise over the long run if primary responsibility for energy data collection and analysis is placed in the Federal Energy Administration. Energy-related problems will be a national, indeed a worldwide, concern for years to come. The need to insure valid, comprehensive, and timely data on which to base energy-related policy decisions requires a long-term organizational solution. Of equal importance is the need for public acceptance of the objectivity and independence of the organization gathering energy data.

All of the legislative proposals would create new organizations to deal with energy problems and provide new authorities to improve energy data collection. Although this legislation is being considered in an emergency climate, the energy and related natural resources problems we are dealing with are long-term problems. The best long-run approach to their solution, in our judgment, is to establish a Department of Energy and Natural Resources which would have the scope and permanence to deal with complex issues that will be with us for decades. Establishment of a Department of Energy and Natural Resources has obvious short-run advantages as well, if the legislation could be enacted promptly.

If a Department of Energy and Natural Resources were created, we believe a separate organizational entity for the collection of energy data could be placed in such a Department with statutory provisions to insure its objectivity and independence by insulating it from energy planning, policy formulation and administration.

SHORT-RUN IMPROVEMENT OF FEDERAL ENERGY INFORMATION GATHERING

A useful first step to alleviate current confusion and aid in long-range development of a more comprehensive information system would be to develop a single reference source or directory for energy data presently being collected. A comprehensive inventory of existing energy data collection efforts could be quickly taken, with provisions made for periodic updating. The directory compiled from the inventory, as a minimum, should identify the data and its source, frequency of publication, timeliness, and contain a qualitative description of data reliability. The several studies of energy data collection--including this one--that have been completed or are underway should facilitate this task.

FEO would be a logical choice to lead initial development of a reference directory. However, the cooperation and involvement of the Bureau of Mines and the Geological Survey will be essential in view of their existing large-scale energy data collection efforts.

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As a final point, we would emphasize that, while development of a single reference directory for energy information, study of user needs, and a comprehensive data system are necessary steps toward improved energy-related policies and programs, the need for these steps should not be used as an excuse for delaying clearly necessary ad hoc actions to improve energy data collection. The urgency of our energy problems dictates that decisions concerning the Nation's energy problems be made each day on the basis of the data now available. This data can be improved day-by-day by use of verification techniques, timely collection, and greater standardization. Such day-by-day steps will also move us toward our longer-run goals.

APPENDIX I

United States Senate

COMMITTEE ON
INTERIOR AND INSULAR AFFAIRS
WASHINGTON, D.C. 20510

April 6, 1973

The Honorable Elmer B. Staats
Comptroller General of the United States
General Accounting Office
Washington, D. C.

My dear Mr. Comptroller General:

As you know, the Senate Interior Committee is conducting a study of National Fuels and Energy Policy authorized by the 92nd Congress.

In the course of this study, it has become increasingly apparent that the Federal government is making energy decisions on the basis of information which is less than adequate. Serious questions have been raised about the accuracy and completeness of available statistics on energy supplies and the extent of energy requirements. The problems with heating oil supplies this winter and the impending shortages of gasoline, which should have been foreseen last year, highlight the need for better information.

Accordingly, I would appreciate it greatly if your Office would undertake for the Committee a study to determine the feasibility of establishing, either within the Executive or Legislative Branches, a data bank which would provide current information, independently developed or verified, on the energy supply and demand picture.

Sincerely yours,

Henry M. Jackson
Chairman

HMJ:ggl

APPENDIX II

LIST OF ORGANIZATIONS CONTACTED

FEDERAL AGENCIES

ATOMIC ENERGY COMMISSION
- Office of the General Manager

COST OF LIVING COUNCIL
- Energy Division

DEPARTMENT OF AGRICULTURE
- Forest Service
- Rural Electrification Administration

DEPARTMENT OF COMMERCE
- Bureau of the Census
- Bureau of Economic Analysis
- Maritime Administration
- National Bureau of Standards
- National Technical Information Service
- Office of Energy Programs
- Office of Environmental Affairs

DEPARTMENT OF DEFENSE
- Defense Supply Agency
- Office of Naval Petroleum and Oil Shale Reserves

DEPARTMENT OF THE INTERIOR
- Bureau of Land Management
- Bureau of Mines
- Bureau of Reclamation
- Geological Survey
- Office of Coal Research
- Office of Energy Data and Analysis
- Office of Oil and Gas

DEPARTMENT OF LABOR
- Bureau of Labor Statistics

DEPARTMENT OF THE TREASURY
- Oil Policy Committee

ENVIRONMENTAL PROTECTION AGENCY
- Office of the Administrator
- Office of Air and Water Programs

APPENDIX II

FEDERAL AGENCIES (continued)

ENVIRONMENTAL PROTECTION AGENCY (continued)
Office of Categorical Programs
Office of Enforcement and General Counsel
Office of Planning and Management
Office of Research and Monitoring

EXECUTIVE OFFICE OF THE PRESIDENT
Council on Environmental Quality
Federal Energy Office
Office of Emergency Preparedness
Office of Energy Policy
Office of Science and Technology

FEDERAL POWER COMMISSION
Bureau of Natural Gas
Bureau of Power
Office of Economics
Office of the Executive Director

FEDERAL TRADE COMMISSION
Bureau of Economics

INTERSTATE COMMERCE COMMISSION
Bureau of Accounts
Bureau of Economics

NATIONAL SCIENCE FOUNDATION
Division of Advanced Technology Applications

OFFICE OF MANAGEMENT AND BUDGET
Energy and Science Division
Statistical Policy Division

SECURITIES AND EXCHANGE COMMISSION
Division of Corporation Finance

TENNESSEE VALLEY AUTHORITY
Office of Power

STATE REGULATORY AGENCIES

OKLAHOMA CORPORATION COMMISSION

TEXAS RAILROAD COMMISSION

APPENDIX II

INDUSTRIAL CORPORATIONS

CONTINENTAL OIL COMPANY

GULF OIL CORPORATION

TEXACO, INC.

PRIVATE ORGANIZATIONS

AMERICAN GAS ASSOCIATION, INC.

AMERICAN MANAGEMENT SYSTEMS, INC.

AMERICAN PETROLEUM INSTITUTE

EDISON ELECTRIC INSTITUTE

NATIONAL COAL ASSOCIATION

NATIONAL PETROLEUM COUNCIL

RESOURCES FOR THE FUTURE, INC.

THE CHASE MANHATTAN BANK
Energy Economics Division

THE FORD FOUNDATION
Energy Policy Project

THE MITRE CORPORATION

FOREIGN GOVERNMENTS

CANADA
Statistics Canada
Department of Energy, Mines, and Resources
Alberta Energy Resources Conservation Board

APPENDIX III

ENERGY DATA PROFILE
ATOMIC ENERGY COMMISSION

ENERGY SOURCE

Nuclear

TYPE OF DATA COLLECTED

--Reserves (uranium ore)

--Geologic

--Production

--Consumption

--Drilling and exploration expenditures

--Distribution

--Inventory

--Value (uranium costs and prices)

--Import and Export

SOURCE OF DATA

--Electric utilities

--Uranium mining and milling companies

--Reactor manufacturers

REASONS FOR COLLECTING DATA

For use in regulating the nuclear power industry.

END USE OF DATA

External--Data is published for general use.

Internal--Data is used in developing nuclear power standards, forecasting growth, and for other policy and program purposes.

VERIFICATION OF DATA

Data supplied by private industry are verified by AEC calibration of electrical logging equipment, independent chemical and radiomimetic determination of uranium content of drill hole samples (core, cuttings, etc.), field checking and sampling by AEC personnel, and cross checking of AEC calculations with private industry.

TIMELINESS OF REPORTING

Data is 1 to 5 months old when published.

APPENDIX III

ENERGY DATA PROFILE
COST OF LIVING COUNCIL

ENERGY SOURCE

Petroleum and petroleum products

TYPE OF DATA COLLECTED

--Price and cost

--Production

SOURCE OF DATA

--Petroleum companies

--Retail and wholesale petroleum outlets

--Independent petroleum producers

REASONS FOR COLLECTING DATA

For use in administering economic stabilization programs.

END USE OF DATA

External--Data is used by other Federal agencies for developing policies regarding price and cost stability.

Internal--Data is used to (1) set ceiling prices on petroleum products and (2) determine if ceiling prices are equitable.

VERIFICATION OF DATA

Under the Economic Stabilization Program, the Internal Revenue Service has the responsibility for making compliance checks and field investigations.

TIMELINESS OF REPORTING

Data is 6 to 60 days old when published.

APPENDIX III

ENERGY DATA PROFILE
DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

ENERGY SOURCE

--Petroleum and petroleum products

--Natural gas

--Coal

--Electricity

TYPE OF DATA COLLECTED

--Import

--Export

--Consumption (quantity and cost of fuel and electric energy used in manufacturing, mining, and industrial processes)

--Transportation and distribution

--Economic

--Drilling

--Production

--Refinery

SOURCE OF DATA

--Private industry

--Import and Export documents (filed with Bureau of Customs, Department of the Treasury)

REASONS FOR COLLECTING DATA

To serve as a center for collecting, compiling, analyzing, and publishing a broad range of general purpose statistics dealing with economic, social, and demographic data.

APPENDIX III

END USE OF DATA

To provide data to Federal, State and local governments, and to the private sector.

VERIFICATION OF DATA

Import and Export data--The Customs inspector verifies information on Customs' documents with information on shippers' documents.

Industry data--No independent verification. Checks are made for mathematical accuracy, consistency, and completeness.

TIMELINESS OF REPORTING

Data is 1 month (import and export data) to 2 years (Censuses of Mineral Industries and Manufacturers) old when published.

APPENDIX III

ENERGY DATA PROFILE
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

ENERGY SOURCE

--Petroleum and petroleum products

--Natural gas

--Coal

TYPE OF DATA COLLECTED

--Production

--Consumption

--Value

--Refinery

--Transportation

--Stocks

--Distribution (coal)

--Reserves (coal)

SOURCE OF DATA

--Private industry

--State regulatory agencies

--Other Federal agencies

REASONS FOR COLLECTING DATA

As part of a broad legislative mandate to encourage the development of mining and mineral industries.

END USE OF DATA

External--Reports are published for general use.

Internal--Data is used as input for the MERIT[1] computerized information retrieval system.

VERIFICATION OF DATA

No formal verification system. However, data submitted is examined for mathematical accuracy, completeness, and consistency.

TIMELINESS OF REPORTING

Petroleum and natural gas

--Monthly data is 60 days old when published.
--Annual data is 9 months to 1 year old when published.

Coal

--Weekly data is 1 week old when published.
--Quarterly and annual data is 4 to 9 months old respectively, when published.

[1]MERIT is a storage and retrieval data bank into which is put the energy data collected by the Bureau of Mines. Other inputs include State regulatory agencies and the American Petroleum Institute. The purpose of MERIT is to fulfill Mines' as well as other Federal agencies' needs for energy data. MERIT has multiple uses, including the generation of monthly reports and statistical tables published by Mines. Historical data is contained, in some cases, to 1960. MERIT is maintained, updated, edited, and corrected utilizing Mines' automatic data processing facilities in Denver, Colorado.

ENERGY DATA PROFILE
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

INTERNATIONAL PETROLEUM STATISTICS

ENERGY SOURCE

Petroleum and petroleum products

TYPE OF DATA COLLECTED

--Production

--Import

--Export

--Refinery output

--Consumption

--Value (retail prices for petroleum products)

NOTE: All data reported by country.

SOURCE OF DATA

--U.S. Embassies and other Government agencies

--Foreign trade publications

--Contacts with officials of oil companies and foreign governments.

REASONS FOR COLLECTING DATA

To collect and publish international petroleum statistics for Federal Government and industry use.

END USE OF DATA

Data is tabulated and published in a report known as the "International Petroleum Annual".

APPENDIX III

VERIFICATION OF DATA

No formal verification system.

TIMELINESS OF DATA

Data is approximately 15 months old when published.

APPENDIX III

ENERGY DATA PROFILE
DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY
CRIB SYSTEM

ENERGY SOURCE

--Coal

--Uranium

--Oil shale

(CRIB system also conatins data on non-energy minerals)

TYPE OF DATA COLLECTED

--Production

--Geologic

--Reserve (Coal reserve data is reported by Bureau of Mines and uranium reserve data is collected by AEC)

--Resource

SOURCE OF DATA

--State regulatory agencies

--Bureau of Mines publications

--Geological Survey geologists

REASONS FOR COLLECTING DATA

To organize, analyze, and summarize mineral resource information.

END USE OF DATA

External--No recurring reports produced. However, data is made available to any interested user in the form of reports, tables, and maps.

Internal--Data is collected, processed, and stored in the CRIB system.

VERIFICATION OF DATA

No formal verification system.

TIMELINESS OF REPORTING

Varies depending upon timeliness of input sources.

ENERGY DATA PROFILE
DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

MINERAL PRODUCTION ON FEDERALLY-OWNED LANDS

ENERGY SOURCE

--Petroleum

--Natural gas

--Coal

(Records are also maintained on non-energy source minerals)

TYPE OF DATA COLLECTED

--Production (including production royalties)

--Well (wells drilled, wells completed, wells active or shut-in)

--Leasehold (date of lease award, number of acres leased, annual lease rental)

--Mine (number of mines, production)

SOURCE OF DATA

Private industry

REASONS FOR COLLECTING DATA

Supervision of operations incident to the prospecting, development, and production of minerals on Federal lands.

END USE OF DATA

External--Reports are published for use by other Federal and State agencies and private industry.

Internal--Data are used to compute royalties.

APPENDIX III

VERIFICATION OF DATA

No formal verification system. However, production meters are inspected through onsite visits and producer production reports are checked against purchaser records.

TIMELINESS OF REPORTING

Data is collected monthly but summary production reports are only published annually.

APPENDIX III

ENERGY DATA PROFILE
DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY
PETROLEUM AND NATURAL GAS DATA SYSTEM

ENERGY SOURCE

--Crude oil

--Natural gas liquids

--Natural gas

TYPE OF DATA COLLECTED

--Production

--Geologic

--Reservoir engineering

--Commodity analysis (oil, gas, brine)

--Field and pool descriptions

SOURCE OF DATA

--State regulatory agencies

--Bureau of Mines

--Federal Power Commission

--Geological Survey

--International Oil Scouts Association

--Oil and gas field descriptions from scientific and technical publications

REASONS FOR COLLECTING DATA

To organize, analyze, and make special studies of petroleum and petroleum resources.

END USE OF DATA

External--No periodic reports but file available to Government and public. Any studies made will be published.

Internal--Resource assessments, scientific and engineering studies.

VERIFICATION OF DATA

No formal verification system. File contains no proprietary data.

TIMELINESS OF REPORTING

Continual file updating as new information becomes available, generally by spring following the calendar year.

ENERGY DATA PROFILE
DEPARTMENT OF THE INTERIOR
OFFICE OF OIL AND GAS

ENERGY SOURCE

Petroleum and petroleum products

TYPE OF DATA COLLECTED

Import (crude oil, unfinished oil, finished petroleum products)

SOURCE OF DATA

Importers of petroleum and petroleum products

REASONS FOR COLLECTING DATA

To issue allocations and licenses for importation of petroleum and petroleum products and to determine total oil imports.

END USE OF DATA

External--Data is published monthly and annually.

Internal--Data is used in determining and collecting oil import fees.

VERIFICATION OF DATA

No formal verification system. However, data on the import allocation application is checked for completeness.

TIMELINESS OF REPORTING

Data is 3 to 6 months old when published.

APPENDIX III

ENERGY DATA PROFILE
DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS

ENERGY SOURCE

--Petroleum and petroleum products

--Coal

--Natural gas

--Electricity

TYPE OF DATA COLLECTED

Value (price information by units of sales and cost to the consumer)

SOURCE OF DATA

--Private industry

--Public utilities

REASONS FOR COLLECTING DATA

To compute consumer price index (CPI) and wholesale price index (WPI).

END USE OF DATA

External--Data is used by industry, labor organizations, and Federal and State governments for varied purposes.

Internal--Data is used to compute CPI and WPI.

VERIFICATION OF DATA

--BLS obtains electricity and natural gas rates from public utilities and compares them with rate schedules on file with appropriate regulatory agencies.

--BLS obtains coal and fuel oil price data from private industry without verification.

APPENDIX III

TIMELINESS OF REPORTING

Information on the WPI is released by BLS about 1 week to 10 days after the close of the month and CPI after about 3 weeks. The data is 2 months old when published.

APPENDIX III

ENERGY DATA PROFILE
FEDERAL POWER COMMISSION
BUREAU OF NATURAL GAS

ENERGY SOURCE

Natural gas

TYPE OF DATA COLLECTED

--Financial

--Supply

--Distribution

--Storage (underground)

--Import and Export

SOURCE OF DATA

--Interstate natural gas pipeline companies

--Independent natural gas producers

REASONS FOR COLLECTING DATA

Regulation of the interstate aspects of the natural gas industry.

END USE OF DATA

External--Reports are published for general use concerning the interstate natural gas industry.

Internal--Data is used for (1) regulating the operation of interstate natural gas pipeline companies and (2) regulating the sale of natural gas by independent producers.

VERIFICATION OF DATA

--Financial data is audited by FPC's Office of Accounting and Finance.

--Staff audits are made of information in support of data reported by interstate gas pipeline companies.

TIMELINESS OF REPORTING

Data is 1 month to 1 year old when published.

FUTURE PLANS

FPC is developing a fully automated regulatory information system which will include data on natural gas.

APPENDIX III

ENERGY DATA PROFILE
FEDERAL POWER COMMISSION
BUREAU OF POWER

ENERGY SOURCE

Electricity

TYPE OF DATA COLLECTED

--Financial

--Value (retail power rates and rate changes)

--Consumption (fuels consumed in generating electricity)

--Stocks (fuels used in generating plants)

--Power system (generation, energy received and delivered, and energy peaks)

--Environmental (air and water quality control data)

SOURCE OF DATA

--Regional Electric Reliability Councils

--Electric Utilities

REASONS FOR COLLECTING DATA

Regulation of the interstate aspects of the electric power industry.

END USE OF DATA

External--Reports are published for general use concerning the electric power industry.

Internal--Data uses include (1) confirming and approving proposed rates for the sale of electricity and (2) regulating the rates and services of public utilities selling electricity in interstate commerce at wholesale.

APPENDIX III

VERIFICATION OF DATA

--Financial data is audited by the FPC's Office of Accounting and Finance.

--No formal verification system for other data. However, data is checked for consistency and reasonableness.

TIMELINESS OF REPORTING

Data is 2 to 12 months old when published.

FUTURE PLANS

FPC is developing a fully automated regulatory information system, which will include data collected on electric power.

APPENDIX III

ENERGY DATA PROFILE
FEDERAL POWER COMMISSION
BUREAU OF POWER

ENERGY SOURCE

Hydroelectric

TYPE OF DATA COLLECTED

--Financial

--Environmental (water quality, public health, land development, recreation at the licensed project)

--Power system (energy generated and delivered by the power system)

SOURCE OF DATA

FPC-licensed hydroelectric power plants

REASONS FOR COLLECTING DATA

Conservation and development of U.S. water resources and licensing of non-Federal hydroelectric plants.

END USE OF DATA

External--Reports are published for general use concerning hydroelectric projects.

Internal--Data is used in (1) determining issuance of permits and licenses for the construction of non-Federal hydroelectric plants and (2) reviewing the future development of river basin systems.

VERIFICATION OF DATA

--Financial data audited by FPC's Office of Accounting and Finance.

--No formal verification system exists for other data. However, before a license for construction of a project is issued, plans are evaluated.

APPENDIX III

TIMELINESS OF REPORTING

Data is 2 months to over a year old when published.

FUTURE PLANS

FPC is developing a fully automated regulatory information system which will include data on hydroelectricity.

APPENDIX III

ENERGY DATA PROFILE
INTERSTATE COMMERCE COMMISSION

ENERGY SOURCE

--Coal

--Petroleum

--Natural gas

TYPE OF DATA COLLECTED

--Rail shipment (Data includes (1) origin and destination of shipment; (2) type and quantity of commodity transported; and (3) sales revenue.)

--Pipeline movement

--Water carrier

--Financial

SOURCE OF DATA

Private industry

REASONS FOR COLLECTING DATA

To assist in arriving at regulatory decisions regarding transportation rates and transportation services.

END USE OF DATA

External--Reports are published for general use.

Internal--Data is used to (1) protect the public against unreasonable rates and (2) exercise a broad surveillance of the services provided by regulated carriers.

VERIFICATION OF DATA

Mathematical verification of financial data.

TIMELINESS OF REPORTING

Data is 1 month to a year old when published.

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END