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BY THE COMPTROLLER GENERAL

Report To The Congress

OF THE UNITED STATES

Energy Health And Safety Issues Need A Coordinated Approach

Energy-related accidents over the last few years and growing concern with health problems resulting from the production and use of energy have heightened public concern about the effectiveness of the Government's role in energy health and safety. Numerous Federal agencies are involved in energy health and safety but operate independently of each other.

GAO believes there is a need to establish a centralized focus on energy health and safety issues and concludes that the establishment of a President's Commission on Energy Health and Safety is the best means of accomplishing this.



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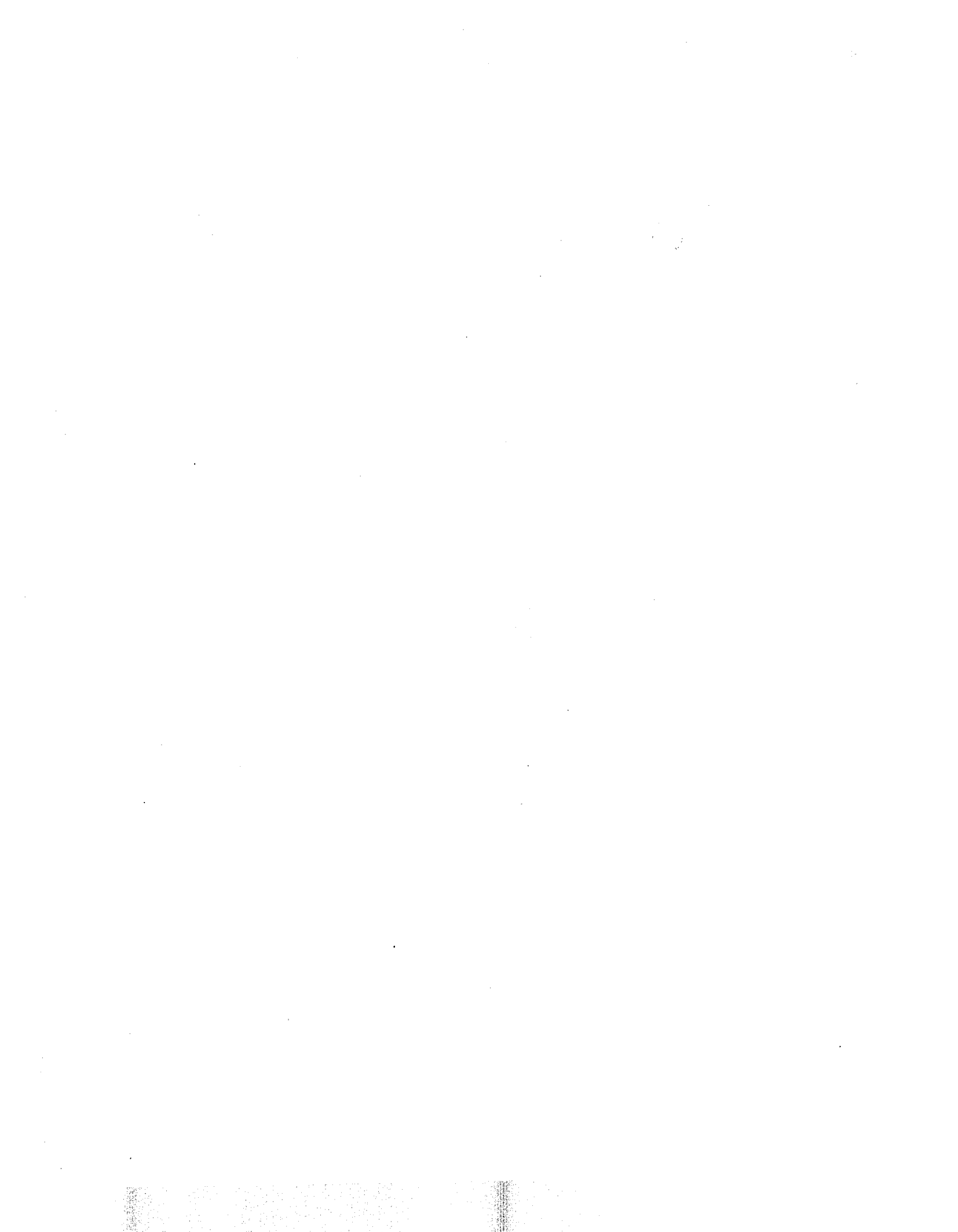
The President of the Senate and the
Speaker of the House of Representatives

This report discusses the numerous agencies involved in energy health and safety regulation and the lack of a centralized focus on energy health and safety issues. It recommends that the Congress establish an independent commission to examine energy health and safety problems and make recommendations for improvement.

We are sending copies of this report to the Director, Office of Management and Budget.

A handwritten signature in cursive script, reading "James B. Stute".

Comptroller General
of the United States



D I G E S T

Several energy-related accidents, such as propane truck and railcar explosions and the Three Mile Island incident, have heightened public concern about the effectiveness of the Government's role in energy health and safety. Other health and safety problems relating to coal combustion, high-voltage electrical transmission, and natural gas pipeline deterioration, among others, have long been under discussion.

Numerous agencies are involved in regulating energy health and safety, and for the most part, these agencies regulate independently of each other. The Federal Government has taken actions in the energy health and safety area but has not developed a coordinated approach to examine broad conceptual issues, such as the energy health and safety, economic, and environmental trade-offs of the various energy decisions.

ENERGY AREAS AND
RESPONSIBLE AGENCIES

GAO identified 20 Federal agencies and 1 interagency group which are responsible for regulating 7 energy health and safety areas. Also, GAO identified 48 separate energy health and safety regulatory functions which these agencies perform and which relate to energy transportation, receiving and storage, production, research and development, and use. These listings are not all inclusive but are intended to demonstrate that numerous agencies are involved in energy health and safety regulation. (See p. 3.)

The seven areas identified include liquefied energy gases safety, nuclear safety, environmental health, pipeline safety, dam safety, coal mining health and safety, and electric power

transmission line safety. Liquefied energy gases safety is regulated by 8 agencies, and 10 agencies regulate nuclear safety. Four agencies are involved in pipeline safety, four in dam safety, and three in energy-related environmental regulation. Two agencies each regulate coal mining health and safety and electric power transmission line safety. (See pp. 3 to 12.)

NEED FOR LEADERSHIP ROLE IN
DIRECTING AND COORDINATING
ENERGY HEALTH AND SAFETY

The numerous agencies involved in regulating energy health and safety act independently according to their missions, responsibilities, program goals, and administrative procedures. Thus, the potential for duplication of effort, lack of coordination, and gaps in regulatory coverage increases. Although some interagency groups and individual agency efforts are working to alleviate some of the problems, no mechanism has been formulated to coordinate the overall energy health and safety issues and programs. (See pp. 13 to 17.)

GAO identified some broad policy issues which should be addressed to determine the amount of emphasis that should be placed on energy health and safety regulatory matters. These issues involve

- the definition and focus of energy health and safety;
- the relationship among energy health and safety regulation, economic energy regulation, and environmental concerns, and
- the identification of activities and policies in place at the various levels of government and the intergovernmental relationships. (See pp. 17 to 19.)

ENERGY HEALTH AND SAFETY ISSUES
IN NEED OF FURTHER STUDY

Considering the number of agencies involved in regulating energy health and safety and the fact that the policy issues discussed above, for the most part, are not being addressed, GAO believes that further study of the issues is warranted. Furthermore, GAO believes that a centralized focus on all energy health and safety regulatory activities would be the best way to evaluate these issues. It would

- increase coordination, communication, and cooperation among agencies with energy health and safety responsibilities;
- identify and correct gaps in energy health and safety regulatory coverage;
- institutionalize energy health and safety; and
- provide a means by which to evaluate and analyze energy use trade-offs.
(See pp. 20 to 21.)

GAO examined several options by which to better organize Federal energy health and safety activities and identified four options which could have all or most of the advantages discussed above.

These are

- establishing a new agency,
- creating an interagency forum,
- instituting lead agency concept, or
- establishing an independent commission.
(See p. 21.)

CONCLUSIONS

GAO's analysis of these options indicates that at this time an independent commission would be the best means to

provide a centralized focus on energy health and safety issues. An independent commission would be relatively inexpensive and easy to establish, reorganize, and abolish. In addition, the disadvantages of establishing an independent commission appear to be less severe than those of the other three options. (See pp. 21 to 24.)

RECOMMENDATIONS
TO THE CONGRESS

The Congress should establish a President's Commission on Energy Health and Safety. Specifically, the Congress, among other things, should mandate that the Commission

- be established as an independent body free from agency influence;
- expire at the end of 5 years if not renewed by the Congress;
- report to the President and the Congress on its findings, conclusions, and recommendations concerning Federal energy health and safety affairs; and
- make recommendations for action to the President, the Congress, and the appropriate Federal agency heads. (See pp. 24 to 26.)

AGENCY COMMENTS

The Office of Management and Budget did not support any of the four options discussed in the report or the recommendation that the Congress consider establishing a President's Commission on Energy Health and Safety. (See app. I.) GAO's evaluation of these comments is contained in chapter 4, beginning on page 24.

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ABBREVIATIONS

DOE	Department of Energy
DOI	Department of the Interior
DOL	Department of Labor
DOT	Department of Transportation
EPA	Environmental Protection Agency
FERC	Federal Energy Regulatory Commission
GAO	General Accounting Office
ICC	Interstate Commerce Commission
LEG	Liquefied Energy Gases
LNG	Liquefied Natural Gas
MSHA	Mining Safety and Health Administration
MTB	Materials Transportation Bureau
NRC	Nuclear Regulatory Commission
OMB	Office of Management and Budget
R&D	Research and development

CHAPTER 1

INTRODUCTION

Energy-related accidents over the last few years and growing concern with health problems resulting from the production and use of energy have raised questions about the effectiveness of energy health and safety regulations. The 1978 propane truck accident in Spain and the 1978 derailment of a train carrying propane in Tennessee took several lives and caused much destruction, and the 1979 derailment of a Canadian train carrying propane and chlorine gas resulted in the evacuation of over 200,000 people. The March 1979 accident at the Three-Mile Island Nuclear Plant in Pennsylvania intensified concerns regarding the future of nuclear energy as a safe energy source and the long-term effects of low-level radiation. Other problems discussed include the health effects of burning coal to generate electricity, the health and safety aspects of high-voltage transmission lines, and the deterioration of gas pipelines.

In two prior reports, ^{1/} we identified numerous agencies involved in regulating energy health and safety and brought attention to the need for a centralized focus on energy health and safety issues. In both reports we recommended that the Congress consider establishing an Energy Health and Safety Regulatory Agency to provide the needed centralized focus on energy health and safety regulation.

Since no action was taken on our prior recommendation and since the Department of Energy Organization Act (P.L. 95-91), which did not consolidate energy health and safety functions, was enacted over 2-1/2 years ago, we decided that a reexamination of energy health and safety regulation would be appropriate. Although we did not identify specific energy health and safety problem areas, we found that numerous agencies still are involved in energy health and safety regulation. Also, no mechanism has been formulated to provide any centralized focus on energy health and safety problems and their relationship to energy economic and environmental concerns. The fact that energy and safety issues are regulated in most cases, independently of each other

^{1/}"Energy Policy Decisionmaking, Organization, and National Energy Goals" (EMD-77-31, Mar. 24, 1977) and "Liquefied Energy Gases Safety" (EMD-78-28, July 31, 1978).

makes it difficult for policymakers to compare the health and safety, economic, and environmental trade-offs of various energy decisions.

SCOPE OF REVIEW

We discussed organizational options with knowledgeable people in Federal, State, and local governments; special commissions; academia; consulting community; public interest groups; and the private sector. We identified several agencies, which perform numerous energy health and safety regulatory functions, and examined their roles and responsibilities. These listings are not all inclusive but are intended to demonstrate that numerous agencies are involved in regulating energy health and safety. We also analyzed energy health and safety studies that we identified and/or were provided us, as well as our reports which identified various energy health and safety problem areas.

CHAPTER 2

ENERGY AREAS AND

RESPONSIBLE AGENCIES

Numerous agencies are involved in regulating energy health and safety. These agencies regulate only limited aspects of energy health and safety and in most cases, do not deal with the broad encompassing conceptual issues, such as the definition and focus of energy health and safety; interface of energy health and safety, economic, and environmental regulation; and intergovernmental relationships.

We identified 7 energy health and safety areas which are regulated by 20 Federal agencies (5 independent agencies and 15 constituent agencies of 6 departments) and 1 interagency group. Also, we identified 48 separate energy health and safety functions which these agencies perform and which relate to energy transportation, receiving and storage, production, research and development, and use. As stated on page 2, these listings are not all inclusive.

These agencies are subject to the National Environmental Policy Act of 1969 (P.L. 91-190), which requires the agencies to prepare environmental impact statements on proposed Federal actions, which may significantly affect the quality of the human environment. Also, a number of agencies have specific energy health and safety duties and responsibilities other than those mandated by the act.

The seven energy health and safety areas we identified are liquefied energy gases (LEG) safety, nuclear safety, environmental health, pipeline safety, dam safety, coal mining health and safety, and electric power transmission line safety. We identified a number of different agencies involved in regulating these areas.

- Eight agencies regulate LEG safety.
- Ten agencies regulate nuclear safety.
- Three agencies are involved in environmental regulation.
- Four agencies are involved in pipeline and dam safety.
- Two agencies regulate coal mining health and

safety and electric power transmission line safety.

The table on page 5 summarizes the responsibilities of these agencies for each energy area. A discussion of them follows.

LIQUEFIED ENERGY GASES

LEG include liquefied natural gas (LNG), propane, and butane. While LEG could become an increasingly important part of U.S. energy supplies, their transportation and storage pose a danger to public safety. If LEG spill from their tanks, they expand and vaporize rapidly and become highly flammable and explosive. A major spill in a densely populated area--whether by accident, natural forces, or sabotage--could result in a catastrophe.

The Department of Transportation (DOT) and the Department of Energy (DOE) have major responsibilities for regulating LEG receiving, storage, and transportation with the Interstate Commerce Commission (ICC) and the Department of Defense having lesser roles.

The Department of Transportation Act of 1966 (P.L. 89-670) established DOT and gave it jurisdiction over flammable and other hazardous gases moving in interstate commerce other than by pipeline and safety jurisdiction over interstate pipeline movements of most liquid commodities including petroleum. DOT's authority was expanded and clarified by the Natural Gas Pipeline Safety Act of 1968 (P.L. 90-481) and the Hazardous Materials Transportation Act (P.L. 93-633) enacted on January 3, 1975. These acts provided DOT authority to promulgate regulations governing pipeline safety and the transportation of hazardous materials, respectively. In addition, the Pipeline Safety Act of 1979 (P.L. 96-129) amended the Natural Gas Pipeline Safety Act of 1968 (P.L. 90-481) to clarify and update pipeline safety provisions and to authorize appropriations to carry out DOT's pipeline safety programs during fiscal years 1980-81.

The authority to implement the provisions of these acts is divided among DOT's Materials Transportation Bureau (MTB), Federal Highway Administration, National Highway Traffic Safety Administration, Federal Railroad Administration and the U.S. Coast Guard. Specifically, DOT agencies perform the following LEG regulatory functions.

CHAPTER 3

NEED FOR LEADERSHIP ROLE

IN DIRECTING AND COORDINATING

ENERGY HEALTH AND SAFETY

As discussed in chapter 2, numerous agencies are involved in regulating energy health and safety. For the most part, these agencies regulate independently of each other according to their different missions, responsibilities, program goals, and administrative procedures. Although improvements have been made within some of the agencies' specific programs, no formal mechanism has been formulated to coordinate the overall energy health and safety issues and programs. The absence of such a mechanism increases the potential for duplication of effort, lack of coordination, and gaps in regulatory coverage.

We identified some recent Government actions which have been a positive step toward resolving energy health and safety regulatory problems. However, we also discovered some broad energy health and safety policy issues which should be addressed by a centralized body.

GOVERNMENT ACTIONS TO ADDRESS ENERGY HEALTH AND SAFETY

Both the executive and legislative branches of the Government have taken actions to help alleviate some of the energy health and safety problems. However, no centralized approach by which to address energy health and safety issues and concerns has been developed.

Department of Energy Organization Act

The Department of Energy Organization Act (P.L. 95-91) enacted on August 4, 1977, consolidated many energy regulatory and research and development (R&D) functions in DOE. However, the Congress left energy health and safety functions scattered throughout various Federal agencies and departments. A DOE official who participated in drafting the DOE Act told us that the congressional opinion, at that time, was that economic energy regulation should be separated from energy health and safety regulation, but an independent health and safety regulatory agency would not be feasible and beneficial.

- MTB prescribes LEG transportation regulations common to the various modes of transportation including regulations governing tank trailers carrying LEG.
- The Federal Highway Administration enforces MTB's regulations governing LEG highway transportation. It also investigates safety compliance of applicants seeking motor carriers' operating authority from ICC.
- The National Highway Traffic Safety Administration develops standards for the design, construction, and performance of motor vehicles or equipment carrying LEG.
- The Federal Railroad Administration enforces MTB's regulations for LEG railroad transportation and investigates safety compliance of applicants seeking railroad carrier operating authority from ICC.
- MTB selects waterfront LNG facilities' sites and prescribes and enforces safety regulations for LNG facilities serving interstate markets.
- The U.S. Coast Guard has broad authority to enforce both its own and MTB's regulations governing waterfront LNG facilities which include site selection as it relates to vessel traffic, security for the facility, and fire prevention and protection equipment. It regulates various aspects of design, construction, and harbor movement of LEG vessels. Also, the U.S. Coast Guard approves the design and inspects the construction of mobile offshore drilling units.

DOE's authority with respect to LNG safety is vested in Federal Energy Regulatory Commission (FERC) ^{1/} which can impose requirements beyond DOT minimum standards on facilities under its jurisdiction. This authority originates from the Natural Gas Act of 1938 (P.L. 75-688) which gives FERC the power to include as part of its certification procedures reasonable terms and conditions as public convenience and necessity may require. These "public convenience and necessity" and "public interest" standards have been interpreted by the courts to allow imposition of safety standards on the transportation of natural gas. To carry out its authority, FERC formulated comprehensive regulations

^{1/}For the purpose of this report, FERC also is used to refer to activities of its predecessor agency, the Federal Power Commission, whose duties were transferred to FERC on Oct 1, 1977.

complying with the National Environmental Policy Act of 1969 (P.L. 91-190) and establishing requirements whereby environmental aspects, including safety, of LNG facilities could be evaluated for all phases of any proposal--construction; operation, including transportation, unloading, storage, and regasification; and routine and emergency maintenance.

Other agencies are involved in LEG safety to lesser degrees. The Corps of Engineers, Department of Defense, has authority to regulate construction of bridges, wharves, and other activity or construction that affect navigable waters. In this capacity, the Corps issues permits for construction of waterfront LNG terminals when environmental impact statements are completed.

ICC has economic authority over interstate trucking and railroads and can consider safety matters when issuing its certificates. Although ICC certifies companies specifically for LNG transport, LNG also can be transported under an ICC authorization for the bulk transportation of petroleum products.

NUCLEAR SAFETY

Nuclear power supplied approximately 11 percent of the electricity generated in the United States for 1979. While this represents a relatively small percentage of the total U.S. generating capacity, nuclear power has been a major growth factor for U.S. electricity. Since 1972 nuclear facilities have accounted for over 50 percent of increased electricity output. However, its projected role after 1985 has been diminished in part because of powerplant safety considerations and waste disposal concerns. These concerns have been intensified as a result of the Three Mile Island accident.

The Nuclear Regulatory Commission (NRC) has major responsibility with respect to nuclear health and safety. The Environmental Protection Agency (EPA), DOE, several DOT agencies, and the Department of the Interior (DOI) also have certain nuclear health and safety responsibilities.

NRC remained an independent commission when DOE was organized pursuant to the Department of Energy Organization Act (P.L. 95-91). A DOE official who participated in drafting the DOE Act told us that the Congress believed that regulation of nuclear energy must be totally insulated from DOE production decisions. Specifically, NRC's major functions are to

--license and regulate both the construction and

operation of nuclear reactors and other nuclear facilities,

- regulate the licensed activities including assurance that nuclear facilities and materials are safeguarded, and
- regulate the decommissioning of nuclear facilities.

EPA is responsible for advising the President on radiation matters directly or indirectly affecting health, including guidance for all Federal agencies in formulating radiation standards. EPA makes recommendations to the President which, if approved, are published as guidance to the appropriate Federal regulatory agencies. This guidance is intended to assure uniformity and eliminate diversity in Federal radiation standards. EPA's authority does not allow for direct enforcement, but its guidelines and standards are to be implemented by the appropriate Federal regulatory agencies.

DOE has established its own criteria for protecting workers and the public from radiation hazards at Government laboratories and production facilities that process, use, and dispose of nuclear materials. In addition, DOE has responsibility for developing a program for the treatment, storage, management, and ultimate disposal of Federal nuclear waste and the establishment of facilities for these purposes. DOE also is responsible for nuclear material held by its research and development facilities.

We identified four agencies within DOT which have some nuclear regulatory authority. Specifically, these agencies perform the following functions.

- MTB develops and enforces safety standards governing carrier's equipment and the ability of personnel to handle radioactive materials. Also, MTB investigates accidents which occur during transportation of nuclear materials.
- The Federal Railroad Administration investigates railroad accidents occurring during the transportation of nuclear materials.
- The Federal Highway Administration investigates highway accidents occurring during the transportation of nuclear materials.
- The U.S. Coast Guard certifies seagoing barges weighing more than 100 gross tons to be used as floating nuclear plants.

The U.S. Geological Survey, DOI, also has a role in nuclear safety. It provides assistance to NRC by reviewing the geological makeup of nuclear reactor and waste disposal sites.

ENVIRONMENTAL HEALTH

EPA is the lead Federal agency with respect to environmental issues. However, the Department of Health and Human Services supports research on the health effects of chemical and physical environmental agents. Also, the Federal Interagency Energy/Environment Research and Development Program (see discussion on page 16) has involvement in environmental health issues resulting from the production and use of energy.

EPA is responsible for establishing and enforcing standards and regulations to protect the public from pollutants discharged into water and emitted into the air. This would include regulating energy-related pollutants such as fumes from burning coal, automobile emissions, and water pollution. In addition, EPA is responsible for issuing standards for radioactivity in the environment, including general environmental guidelines for particular industries and for allowable radiation doses to the public. Also, it provides guidance to Federal agencies affecting all forms of radiation protection in Federal activities.

The National Institute of Environmental Health Sciences and the Department of Health and Human Services provides a scientific information base, methodology, and staff to reach an understanding of the total impact of environmental factors on human health. Various by-products of energy use are considered as environmental problems. The Institute's program output is intended to assist both public and private organizations in developing and institutionalizing pollution control regulations. The Institute carries out its responsibilities by supporting basic and applied research on the consequences of human exposure to potentially toxic or harmful agents in the environment. As research conclusions are developed, the Institute provides its information to regulatory agencies, other Government agencies, the medical community, industry, and the general public for subsequent action.

PIPELINE SAFETY

Over half of the Nation's energy supply is transported through approximately 1.7 million miles of natural gas and other hazardous material pipelines. These volatile substances often are stored and transported near highly

populated areas. Thus, an explosion could result in loss of human life and much destruction to the surrounding area. We identified four Federal agencies which are involved in pipeline safety. These agencies and their responsibilities are discussed below.

Materials Transportation Bureau, DOT, is responsible for developing, administering, and enforcing a comprehensive and effective pipeline safety program. Its basic authority covers essentially all gas and hazardous liquids transported by pipeline. Included in MTB's responsibility is the establishment and enforcement of design, construction, operation, and maintenance regulations for pipelines both on State lands beneath navigable waters, as defined in the Submerged Lands Act (P.L. 83-31) and on the Outer Continental Shelf as defined in the Outer Continental Shelf Land Act (P.L. 83-212).

FERC has authority to regulate the pipeline transportation of natural gas pursuant to the Natural Gas Act of 1938 (P.L. 75-688). It has determined that it can impose safety standards under this authority. However, FERC does not have any policing authority once a certificate is issued. FERC assumes that as long as the facility is operated as described in the environmental impact statement, it will be safe.

DOI is responsible for granting rights-of-way across Government lands, other than military, for oil and natural gas pipelines. This authority includes rights-of-way for offshore pipelines on the Outer Continental Shelf. Also, DOI reviews and approves operators' plans for developing the Outer Continental Shelf, including construction of drilling platforms and related facilities.

The Corps of Engineers, the Department of Defense, becomes involved in pipeline safety only to advise DOT concerning natural gas pipelines which cross military properties.

DAM SAFETY

Hydroelectric generation is a clean and fairly safe source of energy. A number of dam leaks have occurred; however, the only major hydroelectric dam failure was the Idaho Teton Dam in June 1976. This one failure caused several million dollars in property damage and several fatalities.

Currently, a number of Federal agencies are involved in dam safety. FERC has jurisdiction over 664 private hydroelectric powerplants. Although FERC licenses and

inspects dams under its jurisdiction, it does not design, construct, or operate the projects. The Corps of Engineers; Water Power Resource Service, DOI; Tennessee Valley Authority; and other Federal agencies have jurisdiction over 159 other hydroelectric powerplants. These agencies are involved in the planning, design, construction, and operation of projects under their jurisdiction.

COAL MINING HEALTH AND SAFETY

Considering the expected increased usage of coal as an energy source, mining operations will increase. Consequently, mining health and safety issues will become more acute, and the agencies responsible for these issues will face greater challenges. The two agencies which have health and safety responsibilities for coal mining are the Department of Labor (DOL) and DOI.

The Mining Enforcement and Safety Administration was transferred from DOI to DOL and became the Mining Safety and Health Administration (MSHA) effective March 9, 1978. MSHA is responsible for

- developing, promulgating, and enforcing mine health and safety standards,
- conducting the appeal process for mine withdrawal orders,
- educating and training the mining industry, and
- providing funds to State enforcement agencies to enable them to conduct their own enforcement programs.

MSHA is required by law to conduct four regular inspections per year on active underground mines and two regular inspections per year of each active surface mine. When regular inspections disclose violations, MSHA prescribes time limits for correcting them and conducts followup inspections to insure correction.

The primary mining health and safety function for DOI's Bureau of Mines is to conduct research and development on the entire mining health and safety spectrum. It also develops a technical base for proper mining health and safety regulation. Although the Bureau also performs this research and development for non-energy mining, a large portion of it is for energy-related mining.

ELECTRIC POWER TRANSMISSION LINES

The effects on the health and welfare of humans, animals, and plant life of extra high-voltage transmission of electricity concern many people. Numerous studies, demonstrations, and experiments, both in the United States and in other countries, have been undertaken to determine these effects. While the majority of these studies, demonstrations, and experiments does not support the conclusion that extra high-voltage lines pose a direct threat to human health, there is a need for more research including an assessment of the potential long-term effects.

While DOE conducts and supports research on the use of extra high-voltage electric transmission lines, State agencies perform most of the regulatory work in siting these lines. In addition, FERC has authority over a small number of transmission lines originating from projects it licenses.

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Pursuant to the authority provided in the act for the appointment of eight Assistant Secretaries to provide a variety of functions, the Secretary of Energy has designated an Assistant Secretary for Environment to be responsible for environmental, health, and safety overview and assessment. The Assistant Secretary is to provide policy guidance to the Secretary of Energy to ensure that DOE is in compliance with existing environmental laws and to anticipate constraints that may be imposed on existing or new technologies by future environmental regulations. Although its focus was primarily environmental, it was intended that the office perform some analysis on the health effects of the various energy technologies.

Federal Mine Safety and Health Amendments Act of 1977

The Federal Mine Safety and Health Amendments Act of 1977 (P.L. 95-164) transferred the Mining Enforcement and Safety Administration from DOI to DOL and changed its name to MSHA. The primary rationale for the transfer was to reemphasize health and safety.

With production being the primary concern and DOI now being a "resource agency," it could not devote enough of its attention and resources to mining health and safety. One MSHA official stated that this situation created a conflict between what DOI was willing to commit for mining health and safety and for production. Also, several labor groups, major union organizations, and the majority of the miners strongly supported the move to DOL. As a result, all mining safety and health activities, that were previously in DOI, were placed in DOL, effective March 9, 1978.

Pipeline Safety Act of 1979

On November 30, 1979, the Pipeline Safety Act of 1979 (P.L. 96-129) was signed into law. The intent of the act, which amended the Natural Gas Pipeline Safety Act of 1968 (P.L. 90-481) was to improve DOT's enforcement and investigative powers with respect to its pipeline safety programs. It directs the Secretary of Transportation to establish and enforce standards with respect to the siting, construction, and operation of LNG facilities. The act provides a civil penalty of not more than \$1,000 for each day of violation and criminal penalties of not more than \$25,000 and/or imprisonment for a term not to exceed 5 years. In addition, the act directs the Secretary of Transportation to establish minimum Federal safety standards for the pipeline transportation of hazardous liquids, including petroleum and petroleum products.

Health Risk Assessment
Task Force

In April 1978, the Acting Assistant Secretary for the Environment, DOE, created a Health Risk Assessment Task Force to determine if DOE's Office of Environment should perform health assessments and to recommend organizationally where to house this function. The Task Force made the following recommendations in its August 15, 1978, report.

- A health effects assessment function should be established within the Office of the Assistant Secretary for Environment to produce reports on what is known, unknown, and uncertain regarding potential human health impacts of principal ongoing DOE programs and major policy issues.
- The health effects assessment function eventually should be housed permanently as a separate division within the Office of Environment coequal with the environmental divisions and operate independently from environment programs to assure continuity and intraagency cooperation.
- Additional study should be undertaken to identify specific health effects assessment capabilities within the National Laboratories.

As a result of these recommendations, the Office of the Assistant Secretary for Environment was reorganized and implemented most of the ideas expressed in the Task Force's recommendations.

Environmental Advisory
Committee

In December 1978, DOE established a 23-member Environment Advisory Committee to provide advice and recommendations on environmental, health, and safety aspects of DOE programs. In order to promote a balanced representation from various sectors, DOE selected its members from groups representing consumers, industry, the academic community, State and local governments, and professional and environmental organizations.

The Committee reports to the Secretary of Energy through the Assistant Secretary for Environment. It meets about four times a year and provides advice on

- environmental, social, economic, and institutional impacts of DOE programs;

- the preparation of environmental impact statements and assessments;
- health effects and environmental research and planning; and
- occupational health and safety matters within DOE's facilities.

Federal Interagency Energy/Environment Research and Development Program

In 1973, two Federal interagency task forces, representing 23 departments and agencies, were established to develop programs to meet goals of energy development and environmental protection. From these task forces, the Federal Interagency Energy/Environment Research and Development Program evolved, consisting of 17 agencies. The participating agencies, through the interagency program, plan, coordinate, and fund R&D on energy use and pollution control technology. The overall coordination and planning of the Interagency Program is the responsibility of EPA's Office of Research and Development.

State actions

Since other levels of government are often directly affected by energy health and safety issues, we consulted with the State governments of Massachusetts and California. These States each created an organization to analyze several energy-related problems in carrying out their prescribed responsibilities. The following sections describe the two organizations.

Energy Facilities Siting Council

The State of Massachusetts established an Energy Facilities Siting Council in 1974 to oversee the planning and construction of major electric, gas, and oil facilities in Massachusetts. The Council consists of four part-time cabinet officers and several citizens supported by a professional staff. It was intended to enable State agencies, citizen groups, and individuals to review and more meaningfully participate in important construction and siting decisions. The Council is primarily responsible for insuring that citizens of Massachusetts are provided with an adequate and reliable supply of energy, at reasonable cost, with minimum impact on the environment. Energy health safety issues are considered along with other environmental problems.

California Energy Commission

The California Energy Commission was created in 1975 and is composed of five Commissioners, an executive directorate, and approximately 550 professional staff members. The Commission is a regulatory agency, but it carries out its regulatory functions in a somewhat unique manner. It conducts extensive and varied research programs so that regulatory decisions are based on independent assessments of factors affecting energy production and use. The Commission also uses this analytical approach to recommend new policies and programs for itself, the Governor, and the legislature.

The Commission's regulatory powers are twofold in that it considers applications for approval of new thermal electric powerplant sites in California and sets energy conservation standards for the State. In performing its siting function, the Commission extensively examines health and safety issues. The Commission also urges full public involvement in its regulatory and policy planning activities.

ENERGY HEALTH AND SAFETY POLICY ISSUES

Certain policy issues, which are not addressed collectively, should be analyzed to provide a better focus on energy health and safety issues and activities. Analysis of these issues, which are discussed below, will help determine the amount of emphasis that should be placed on energy health and safety regulation and its relationship to energy economic and environmental concerns. In addition, this analysis would help establish the parameters of energy health and safety, economic, and environmental regulation and provide the basis for studies that should be performed.

Definition and focus of energy health and safety

Energy health and safety is a subject open to various definitions without any clear consensus on its parameters and focus. Broadly defined, energy health and safety could include the health and safety of an oil field worker or of drivers on our Nation's highways. A more reasonable definition could refer to the protection of those exposed to the production, transportation, storage, and use of various hazardous energy sources. Also, in evaluating energy health and safety issues, one must determine how to divide the focus between health issues and safety issues. In addition, the amount of emphasis to be placed on public and worker safety must be decided.

In defining energy health and safety, one must distinguish between the two terms--energy health and energy safety. Such questions as the following must be answered. Can the same methodology be used to address energy health issues as are used to address energy safety concerns? Can the focus be placed separately on the two terms or concurrently on both? For example, should the health effects of mining coal, such as black lung disease, be evaluated independently of coal mining safety considerations?

Also, one should consider the proper focus to place on energy health and safety regulation. For example, a distinction should be made between public energy health and safety and occupational energy health and safety. Attempting to promote the energy health and safety of the worker and workplace differs in scope and complexity from attempting to accomplish the same thing for the citizen. To promote one or the other or both will require greatly diverse methodologies, skills, and resources.

Interface of energy health and safety, economic, and environmental regulation

Although this report mainly deals with energy health and safety regulation, it is imperative to consider economic and environmental concerns and how they interrelate to energy health and safety issues. All three areas and their relationships must be considered by policymakers when making energy production decisions.

In the past 10 to 15 years, the emphasis on environmental concerns has increased tremendously. Energy production and use decisions are governed by environmental laws such as the Clean Air Amendments of 1970 (P.L. 91-604), and the National Environmental Policy Act of 1969 (P.L. 91-190). Therefore, environmental concerns as well as economic considerations, must be considered in the production and use of energy sources.

Similarly, health and safety issues should be considered when making energy production decisions. The United States should be assured that energy production facilities and transportation systems operate safely and that the production and use of certain energy sources do not pose serious health problems.

Energy health and safety, economic, and environmental issues should be evaluated prior to making energy production decisions. By doing so, the trade-offs of the production decisions can be weighed, and the most economic choice which

satisfies health and safety and environmental standards can be made. For example, coal is relatively cheap in certain areas of the country. However, to use it as an energy source, expensive environmental constraints must be met, making it a less economical source of energy than other options. In addition, considerations should be made with respect to energy health and safety issues. For instance, building an LNG facility near a populous area may pose health and safety dangers which would not be a feasible option due to potential safety hazards. Such analyses prevail if the United States is to be assured of the least expensive energy under the safest and best environmental conditions.

Intergovernmental relationships

Energy health and safety issues have direct impacts on State and local levels of government. These levels of government may have more direct concern for energy health and safety issues because, in most cases, the energy facilities are located within their immediate jurisdictions. Thus, the citizens of that particular area are directly affected by the energy health and safety concerns of the energy facilities in their locality.

Considering how the States and localities may be affected by various energy production, transportation, and use decisions, the critical question becomes the role that the State and local governments should play in deciding what energy facilities are constructed within their jurisdictions. The Federal Government should work closely with the State and local governments to ensure that their input is obtained before energy decisions which would affect their jurisdictions are made.

CHAPTER 4

ENERGY HEALTH AND SAFETY ISSUES

IN NEED OF FURTHER STUDY

There are numerous agencies involved in energy health and safety regulation. We identified 20 different Federal agencies and 1 interagency group which perform 48 energy health and safety regulatory functions relating to energy transportation, receiving and storage, production, research and development, and use. However, these agencies, in most cases, did not deal with the broad conceptual issues such as examining the health and safety, economic, and environmental trade-offs of various energy decisions. Also, the fact that so many agencies are involved in energy health and safety regulation lends itself to potential problems of duplication of effort, lack of coordination, and gaps in regulatory coverage.

Considering the number of agencies involved in regulating energy health and safety and the fact that the policy issues discussed on pages 17-19 for the most part, are not being addressed, we believe that further study of the issues is warranted. Furthermore, we believe that the best way to evaluate these issues is to establish a centralized focus to oversee all energy health and safety regulatory activities.

We developed four advantages of having a centralized focus on energy health and safety regulation. Also, we analyzed four options, each of which could provide this centralized focus, and concluded that an independent health and safety commission may be the best option.

ADVANTAGES OF A CENTRALIZED FOCUS

A centralized focus on energy health and safety regulation would have the following advantages.

1. Coordination, communication, and cooperation among those with energy health and safety responsibilities could be better improved. A centralized body could identify what functions are carried out by the various agencies and suggest methods to help these agencies better coordinate their efforts.
2. Gaps in regulatory coverage could be better identified. For example, a centralized focus would result in awareness of the extent of regulatory health and safety coverage in a particular area, thus identifying what gaps exist.

3. Energy health and safety would be institutionalized, thus providing greater public and private sector identification with energy health and safety issues.

4. The evaluation and analysis of energy use trade-offs would be more effective. For example, the health and safety, economic, and environmental aspects of developing nuclear power as an energy source could be compared to using coal. Focus should be placed not only on the health and safety, economic, and environmental questions of nuclear power but also on the same aspects of substantially increasing the burning of coal.

ENERGY HEALTH AND SAFETY REGULATORY OPTIONS

We examined several options by which to better organize and focus on Federal energy health and safety activities. Four of these options could be structured to have all or most of the advantages discussed above. These options are

- establishing a new energy health and safety regulatory agency,
- creating an energy health and safety interagency forum,
- instituting the lead agency concept, and
- establishing an independent energy health and safety commission.

After evaluating these options, we believe that an independent energy health and safety commission may be the best means for achieving a centralized focus on energy health and safety. These options are discussed below.

Option 1: Establishing a new agency

A new energy health and safety agency easily could achieve all of the advantages of a centralized body. However, the disadvantages may very well outweigh the advantages. Creating a new agency would:

- Disrupt greatly the existing structures, processes, and programs. Reorganization would result in costly personnel and program shifts which initially would cause confusion in the existing agencies and the new agency.
- Dilute the coverage of general health and safety issues. For example, some DOT personnel who have

expertise in the transportation of all hazardous materials would be transferred to the new agency and would handle only the transportation of energy-related hazardous materials.

---Cause the problems that emanate from the traditional resistance to reorganization. For example, almost all of the officials with which we met did not think a new agency was the best way to solve energy health and safety problems and opposed reorganization.

---Result initially in a less effective agency due to reorganization "growing pains." For example, one expert stated that it took 8 to 10 years for EPA to become a credible agency.

---Result in less recognition and appreciation of energy health and safety problems at the local level. Local problems might receive less attention from a large federally based agency.

Option 2: Creating an interagency forum

In an interagency forum, several agencies attempt to work together to achieve common purposes or objectives. For example, in the interagency Energy/Environment Research and Development Program, 17 Federal organizations cooperate in solving energy and environmental problems.

An interagency forum would have many of the advantages discussed previously. In addition, it would not disrupt the existing organizations, processes, and structures and would be relatively inexpensive to operate since existing organizations would be used. However, the interagency forum concept also has its disadvantages. It would

---present very real time and staff constraints for the agencies that would be participating;

---present difficulties in reaching a general or common consensus among participating agencies in their decisionmaking process;

---not succeed without top management commitment from the participating agencies, and such a commitment from so many diverse organizations would be extremely difficult to obtain; and

---not have any centralized regulatory authority to implement its recommendations.

These disadvantages would be difficult to overcome. Therefore, we do not believe that this option would provide the desired strong Federal focus on energy health and safety issues.

Option 3: Instituting lead agency concept

Under the lead agency concept, a single agency is designated to take primary responsibility for focusing on a specific issue. The lead agency directs and is supported by other agencies that have common interests. For example, EPA is the lead agency for establishing standards and providing guidance to all Federal agencies on radiation problems. Similar to interagency forums, the lead agency concept would not disrupt existing organizations and would be relatively easy to implement with no significant increases in expenditures. The disadvantages of this concept that could make it an unworkable option are as follows:

- The participating agencies will probably have other competing interests which would receive priority over the primary area that is the focus of the lead agency. For example, this could be particularly troublesome where the lead agency may have a particular energy health and safety interest (nuclear, for instance), and stress this interest over the energy health and safety concerns of the other agencies.
- "Turf" problems could arise among the participating agencies, as they fulfill the specific tasks in reaching the general lead objectives.
- The lead agency may be unable to effectively pursue a specific issue because it does not have regulatory control over the participating agencies.

Option 4: Establishing an independent commission

The independent commission is based on the following concepts. A commission may have any number of members and is usually supported by an executive directorate that manages a professional staff carrying out the activities of the commission. It can be isolated from the direct influence of the political processes. Also, the commission can be directed to address specific problems and issues, or have broad authority to define and address the energy health and safety issues it wishes to pursue.

Creating an independent commission to address energy health and safety problems is similar to establishing a new agency in that all of the advantages discussed on pages 20

to 21 could be achieved. However, a commission would be on a much smaller scale which should help avoid the majority of pitfalls that may be found in creating a new agency. Also, it would not disrupt any existing organizations and would be relatively inexpensive since a small staff would be required. In addition, a commission would be relatively easy to establish, reorganize, or abolish and well suited to solicit input from State and local governments and citizens.

The disadvantages of the commission appear to be less severe than those of the other three options.

--It is a collegial body requiring a consensus of commission members to reach a decision.

--It does not have the authority to force action but can only make recommendations.

However, this last disadvantage could also be an advantage since only well supported recommendations are likely to be made or adopted.

An example of a successful commission is the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (National Commission) and its successor, the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research (President's Commission). The Congress established the former Commission in July 1974 and decided to elevate it to a President's Commission when its life expired in November 1978. In commenting on the legislation prior to enactment, the Senate Committee on Human Resources stated that the National Commission had done an excellent job and its authority had to be expanded beyond the Department of Health and Human Services biomedical research programs.

RECOMMENDATIONS TO THE CONGRESS

We recommend that the Congress establish a President's Commission on Energy Health and Safety. Considering the success achieved at a relatively low cost by the biomedical research commission discussed above, we believe that the energy health and safety commission should be similarly established and organized. Specifically, the Congress should mandate that the President's Commission on Energy Health and Safety:

---Be established as an independent body free from agency influence. Independence is important to allow the Commission to make recommendations on energy and safety issues that may be contrary to current

DOE and other agency policy. DOE's primary emphasis is on energy research, development, and production. The independent commission can better assure equal consideration of energy health and safety issues so that DOE policies and programs can be revised to resolve the health and safety issues, where possible, and to be balanced with energy economic and environmental considerations.

- Consist of a small number of members appointed by the President. These members should be representative of all energy areas and be selected from Federal, State, and local government agencies, industry, academia, consumer groups, and the consulting community.
- Have an executive directorate, a relatively small staff, and an appropriate number of support staff. The executive directorate, which would be responsible to the Commission, would manage and direct the activities of the professional staff members who perform the research, evaluation, and analysis. A small staff should be able to perform the various and diversified tasks without creating a large bureaucratic institution at considerable cost.
- Expire at the end of 5 years if not renewed by the Congress. This sunset provision will ensure that the Commission will not continue unless the Congress evaluates the Commission's activities and determines that it serves a useful purpose in addressing energy health and safety problems. This also would be an appropriate time for the Congress to consider whether a separate agency should be created with a centralization of energy health and safety responsibilities.
- Conduct high-level assessments and syntheses of energy health and safety issues inherent in the research, development, and regulation of energy at the Federal level. The Commission should perform or direct its own research on energy health and safety issues, as well as synthesize and evaluate all research done by others on such issues.
- Report to the President and the Congress on its findings, conclusions, and recommendations concerning Federal energy health and safety affairs. The Commission also would report on actions that were taken by the appropriate agencies, based on the recommendations that the Commission made. The purpose of this reporting process is to ensure that significant energy health

and safety issues are brought to the attention of officials at the highest level of government.

- Make recommendations for actions to the President, the Congress, and appropriate Federal agencies. Also, the agencies should be required to state in the Federal Register if they plan to implement these recommendations, or why they choose not to. This procedure would force the responsible agencies to consider each of the energy health and safety problems identified by the Commission and to take a position on them.

AGENCY COMMENTS AND OUR EVALUATION

The Office of Management and Budget (OMB), by letter dated April 24, 1980, provided comments on a draft of this report. (See app. I.) OMB did not support any of the four options discussed in the report including the recommendation that the Congress consider establishing the President's Commission on Energy Health and Safety. OMB stated that

- energy health and safety is not a good organizational concept;
- report solutions do not appear to be in response to any problems expressed by the Congress, the President, or other sources;
- the Federal Advisory Committee Act of 1972 (P.L. 92-463) requires that advisory committees be chartered for no more than 2 years; and
- it would be incongruous to place the President's Commission on Energy Health and Safety outside the President's budget.

Organizational concept

OMB stated that energy production and use must take into account a number of factors besides health and safety issues such as environmental effects, employment levels, consumer prices, and national security. In addition, OMB said the need to coordinate research on health effects is not limited to those effects related to energy. Therefore, OMB concluded that energy health and safety is not a meaningful organizational concept.

We agree with OMB that energy production and use decisions involve factors other than those related to health and safety and that the need to coordinate research on health effects is not limited to energy

related issues. However, we believe that the establishment of the President's Commission on Energy Health and Safety has merit because numerous agencies independently regulate energy health and safety activities and, for the most part, do not address broad energy policy issues. The establishment of the Commission is a good way to provide a centralized focus on energy health and safety and other related issues. For example, as stated on pages 18 to 19, the Commission should not limit itself to examining energy health and safety activities, but should expand its scope to include analyses of the health and safety, economic, and environmental trade-offs of various energy production and use decisions. In addition, the Commission's studies would not displace the activities of existing organizations but would provide additional energy health and safety information to decision-makers.

OMB also stated that there is no apparent advantage in attempting to rationalize the health and safety trade-offs inherent in one energy technology with the dissimilar tradeoffs of another energy technology because the issues associated with each energy source are often unique to that source. As an example, OMB pointed out that the risks inherent in transporting gasoline are more clearly related to those of transporting other hazardous materials than to the radiation hazards of a nuclear reactor.

While we agree with the thrust of these comments, they nevertheless do not negate the merits of a President's Commission because, even in dealing with a single problem area such as the transportation of hazardous materials mentioned by OMB, several independent agencies are involved. The establishment of the Commission would provide a centralized focus on the various transportation health and safety issues encountered by these various agencies.

Constituency

OMB stated that it does not appear that the report was in response to any problems expressed by congressional, presidential, Federal agency, or public sources. It added that a congressional constituency is essential for organizational change in order to neutralize the resistance that confronts any proposal for change.

Although the report is not in response to any congressional request, it is our basic statutory responsibility to keep the Congress informed of important issues which require attention or action. The fact that energy health and safety issues have not yet generated an institutional or public response does not lessen the need to monitor and

analyze the problems associated with the emerging issue. The Commission approval, which we support, could fill this gap at a relatively low cost and without disrupting existing organizations.

Federal Advisory Committee Act of 1972

OMB said the President's Commission on Energy Health and Safety appears to be an advisory committee making it subject to the provisions of the Federal Advisory Committee Act of 1972 (P.L. 92-463). The act requires that advisory committees be chartered for no more than 2 years rather than the 5 years specified in the report. However, the act also states that if an advisory committee is established by an act of the Congress, its life can be for any duration specified in the act. For example, the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research, which is subject to the act, was mandated to have a 4-year duration.

President's budget

OMB stated that it would be incongruous to have the President's Commission on Energy Health and Safety outside the President's budget and not subject to his review. We agreed with OMB's comment and deleted that recommendation from the report.

EXECUTIVE OFFICE OF THE PRESIDENT

OFFICE OF MANAGEMENT AND BUDGET

WASHINGTON, D.C. 20503

Mr. Allen R. Voss
Director, General Government
Division
General Accounting Office
Washington, D.C. 20548

APR 24 1980

Dear Mr. Voss:

This letter responds to your request for comments on the GAO draft report entitled, "Further Study of Energy Health and Safety Needed at the Federal Level." Your report discusses the functions of various agencies involved in energy health and safety regulation, and recommends establishment of a President's Commission on Energy Health and Safety.

Safety and health hazards are inherent in many aspects of contemporary life--transportation, energy production and use, manufacturing and even in the home. Because of the pervasiveness of health and safety risks, governmental attention to them presents certain issues as to what the Federal role should be and how government activities can best be organized and coordinated. Your report assumes that health and safety should be linked with energy as subjects to be joined or coordinated through one of several arrangements.

For the reasons listed below we do not support any of the four options discussed in your draft report including the recommended independent Commission.

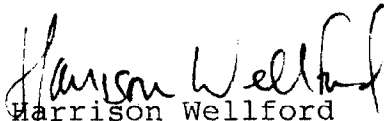
- ° Energy production and use must take into account a number of factors besides health and safety effects. Environmental effects, employment levels, consumer prices and national security come to mind. Consequently, a focus on the interaction of energy with health and safety is only one of many factors to be considered. To isolate this factor for separate organizational attention could lead to incomplete analysis and inappropriate conclusions. In short, we are not convinced that the premise of your report--that energy health and safety is a meaningful organization concept--is valid.

- ° The health and safety issues associated with each energy source are often unique to that source and must be dealt with in that own context. There is no apparent advantage in attempting to rationalize the health and safety trade-offs inherent in one energy technology with the dissimilar trade-offs of another energy technology. It appears to us, for example, that there is more need to relate coal mine safety to other mine safety than to pipeline safety or dam safety. The risks inherent in transporting gasoline is more closely related to those of transporting other hazardous materials than to the radiation hazards of a nuclear reactor.
- ° There is a valid need for interagency coordination of research on human health effects resulting from risks encountered in various aspects of society such as food, workplace, environment or consumer products, as well as risks associated with energy. This will help minimize duplication and promote the sharing of findings. Some of this research touches on the energy cycle such as radiation effects caused by a nuclear plant accident or the effect of coal combustion on persons with respiratory problems. However, the need to coordinate health effects research is not limited to those related to energy.
- ° Several important interagency coordination efforts are already well underway to increase the effectiveness and reduce the cost of human health and safety regulation and its supporting research. These coordination efforts address hazards arising from the energy cycle, but are not arbitrarily limited to that source. These efforts are being conducted by the Toxic Substances Task Force chaired by the Council on Environmental Quality, the Chemical Carcinogenic Coordinating Committee of the U.S. Regulatory Council and the National Toxicological Program of the National Institutes of Health.
- ° The alternative solutions outlined in your draft report do not appear to be in response to any problem expressed by congressional, Presidential, Federal agency or public sources. It has been our experience in working with Congress on organizational proposals that a constituency for the change is essential in order to at last neutralize the resistance that inevitably confronts any proposal for change regardless of its merits.

- ° Several specific comments are offered concerning your recommended option of establishing a President's Commission. If it were to be pursued as described, it would appear to be an advisory committee. As such, it would be subject to the provisions of the Federal Advisory Committee Act including the requirement that it be chartered for no more than two years rather than the five years referred to in your report.

The notion of reinforcing the independence of the Commission by providing that its budget "by-pass" Presidential budget review is, in our opinion, mistaken. It would be incongruous, to say the least, to have a President's Commission outside the President's budget and not subject to his review. Moreover, independence from the Presidency would deprive the Commission of valuable leverage in working with the agencies and in being able to get responsive attention from them.

Sincerely,



Harrison Wellford
Executive Associate Director
for Reorganization and Management

(308430)





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