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UNRESOLVED ISSUES RESULTING FROM CHANGES IN DOE'S SYNTHETIC FUELS
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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON D.C. 20548

August 18, 1981

B-202463

The Honorable John D. Dingell
Chairman, Subcommittee on Oversight
and Investigations
Committee on Energy and Commerce
House of Representatives

Dear Mr. Chairman:

Subject: Unresolved Issues Resulting From Changes In DOE's Synthetic Fuels Commercialization Programs (EMD-81-128)

Your letter dated October 2, 1980, requested two reports. (See enc. II.) The first report on the Department of Energy's (DOE's) Alternative Fuels Program was issued on December 8, 1980, (EMD-81-16). As agreed with your office, this report examines changes in DOE's synthetic fuels programs for coal liquefaction, coal gasification, and oil shale.

During the period March 8, 1981, through July 20, 1981, we reviewed the administration's proposed synthetic fuels program by examining authorizing legislation, the previous and current administration's respective budgets, budget testimony, and various relevant program documents. Budget estimates in the report are current, according to DOE officials, as of July 20, 1981. We also obtained information on the proposals by interviewing DOE program officials in the Office of Energy Research and in the Offices of the Assistant Secretaries for Fossil Energy and Environmental Protection, Safety, and Emergency Preparedness. Pertinent officials at the Office of Management and Budget, the U.S. Synthetic Fuels Corporation (SFC), and Environmental Protection Agency (EPA) were also interviewed to obtain information on the proposals from their perspectives. We did not evaluate the individual merits of the administration's proposals but rather focused on aspects of the synthetic fuels program which may require congressional oversight if the proposals are adopted.

The DOE, under a congressionally sanctioned interim synthetic fuels program, has recently reached agreement to support three industry proposals aimed at commercial production of synthetic fuels. The Reagan administration proposes to eliminate DOE's synthetic fuels commercialization activities and transfer

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the interim program to the SFC which is consistent with the intent of the Energy Security Act of 1980 (P.L. 96-294). With the elimination of DOE commercialization activities, the administration is relying on industry, with assistance from the SFC, to develop synthetic fuels.

In addition, the administration proposes to eliminate DOE demonstration functions and cut back substantially on pilot plant activities. According to the administration, these activities are the responsibility of industry, using its own capital or applying for assistance from the SFC. Incentives have been or are proposed to be made available to industry for increased synthetic fuels investment. Incentives include tax credits, decontrolled oil prices, and a proposed reduction in regulatory impediments.

The administration views DOE's role in synthetic fuels as being limited to "long-term, high-risk, and high-payoff" research and development (R&D). However, in reviewing the program, we found that specific definitions do not exist for these terms. Instead, it appears that major program reductions have come from phasing out pilot plants and eliminating demonstration efforts, without a review of the remaining R&D efforts based on specific criteria or their relationship to eventual commercialization of advanced processes.

We believe DOE should establish specific definitions for these terms and direct that they be consistently applied to funding current and future R&D projects. Long-term could be defined in years to commercialization and remaining R&D assessed in light of that criteria. High-payoff criteria could include a range of production cost savings or greater efficiencies over commercially available technologies. Risk criteria could include scale-up and other technological risks, environmental risks, and economic risks to industry to perform the R&D. A review of remaining R&D based on well-defined criteria could assist the Congress in assuring that limited Federal funds are being applied consistently to meet the Government's objectives.

In the environmental area, we found that DOE's health and environmental research work associated with pilot and demonstration plants may also be reduced. Considering that SFC-sponsored projects could be the first commercial-scale plants built in the United States, DOE and EPA have expressed an interest in obtaining environmental research data from SFC-assisted projects. Project-specific environmental information is needed to direct DOE long-term R&D programs and also to assist EPA in setting emission standards. However, no agreements have been reached on environmental data issues involving the SFC, DOE, EPA, State environmental agencies, and project sponsors.

DOE and EPA officials we spoke with are uncertain of their roles legislated by Section 131(e) of the Energy Security Act, to be "consultants" to sponsors in their development of environmental and health-related emission monitoring plans. They have questions concerning how much weight their advice to the sponsors will be accorded by the SFC. Because the SFC must ultimately resolve any health and environmental monitoring plan disagreements that develop between project sponsors and DOE, EPA, and States, the SFC must establish guidance to all parties on its mechanism for approving monitoring plans.

The enclosure contains recommendations addressing our concerns. Specifically, we recommend that the Secretary of Energy:

--Establish specific definitions for long-term, high-risk, high-payoff programs and direct that they be consistently applied to funding current and future R&D projects.

We also recommend that the Chairman of the Synthetic Fuels Corporation:

--Publish proposed guidance for implementation of Section 131(e) of the Energy Security Act. The proposed guidance should include:

1. Who should initiate the contacts between project sponsors and DOE, EPA, and State agencies;

2. When the initial contacts should occur; and

3. How the SFC will negotiate and reach agreement on acceptable environmental monitoring systems.

--Invite comments on the proposed guidance from all interested parties including DOE, EPA, and State environmental agencies.

--Publish final guidance, after confirmation of a Board of Directors, which considers the comments.

At the request of your office, we did not obtain official agency comments. In addition, unless you publicly announce its contents earlier, we do not plan further distribution of this report until 30 days from the date of its issuance. At that time we will send copies to interested parties and make copies available to others upon request.

Sincerely yours,

Milton J. Socolar

Acting Comptroller General
of the United States

Enclosures - 2

ENCLOSURE I

BACKGROUND

On June 30, 1980, with the passage of the Energy Security Act, the Congress authorized a substantial financial and planning assistance program designed to spur development of alternatives to imported oil. As part of this effort, the Congress intended to accelerate the development of synthetic fuels in the United States. In an effort to achieve a "fast start" the act authorized an interim program, which is being implemented using existing Federal departments, particularly DOE, while awaiting the establishment of the Synthetic Fuels Corporation (SFC).

The interim program at DOE was funded at over $5.5 billion. This funding is broken down as follows:

--$3 billion for incentives to develop synthetic fuels for defense needs (Defense Production Act). Incentives would be in the form of loan guarantees, purchase commitments, and price guarantees.

--$2 billion for incentives to produce synthetic fuels from oil shale, tar sands, coal-oil mixtures, coal, and hydrogen production by electrolysis (Federal Nonnuclear Energy Research and Development Act). Incentives were available in the form of loan guarantees, purchase commitments, and price guarantees.

--$.5 billion for synthetic fuel feasibility studies and cooperative agreements. Feasibility study grants are intended to accelerate assessment of the technical and economic feasibility of proposed commercial synthetic fuel plants by funding such efforts as preliminary designs and environmental monitoring and analysis. Cooperative agreements are intended to advance projects from the feasibility state of construction and operation by performing activities such as arriving at final designs, developing project financing, finalizing necessary permits, and in certain cases, assisting in actual plant construction. The $.5 billion was to be made available in two rounds of awards, with $.2 billion in the first round and $.3 billion in the second.

DOE ROLE IN COMMERCIALIZATION WILL END

DOE's Office of Resource Applications issued solicitations on October 15, 1980, for the $5 billion in loan guarantees, purchase commitments, and price guarantees made available by the Defense Production Act and the Federal Nonnuclear Energy Research and Development Act. With respect to the Defense Production Act awards, in January 1981, three proposals were selected for negotiations.

Subsequently, one project was dropped because it was not considered to be close enough to commercialization. The two remaining proposals are commercial oil shale projects, one sponsored by Union Oil of California and the other by Tosco Corporation. DOE, on July 29, 1981, awarded Union Oil a price guarantee for its shale oil production with a maximum Government liability of $400 million. The contract also gave the Department of Defense the option to purchase the total shale oil production. On August 6, 1981, DOE announced agreement to provide the Tosco Corporation a $1.1 billion loan guarantee.

Ten proposals have emerged from the initial DOE qualification screening for projects bidding for funding under the Nonnuclear Act. In addition to these 10 proposals under the Nonnuclear Act, DOE, on August 6, 1981, awarded a $2.02 billion conditional loan guarantee to Great Plains Gasification Associates for assisting in constructing a high-Btu coal gasification plant.

The Office of Resource Applications was also responsible for administering the program to issue awards for feasibility studies and cooperative agreements. From the first round of awards, DOE funded 103 feasibility studies and 11 cooperative agreements totaling approximately $200 million of Federal funds. Technologies funded involved projects in coal liquefaction, coal gasification, oil shale, biomass, tar sands, solid waste, unconventional gas, and peat.

On August 1, 1980, Resource Applications issued solicitations for a second round of feasibility studies and cooperative agreements. This time $270 million of the remaining $300 million in Federal funds was being made available. A solicitation for the remaining $30 million was issued on November 10, 1980, for funding direct combustion projects. On June 5, 1981, the $300 million second phase was rescinded. The administration believed that committing this $300 million would do little to expand syntnetic fuel production and would not be cost-effective.

The Office of the Assistant Secretary for Resource Applications, which was responsible for these efforts, was eliminated on February 24, 1981. The temporary synthetic fuel functions of this Office and personnel were transferred to the Assistant Secretary for Fossil Energy.

Aside from the interim program, DOE had a very small commercialization effort supported by the Office of Resource Applications. Resource Applications staff attempted to assist industry by supplying them information, answering their questions, working with other agencies, and working with State and local officials. The major item funded in fiscal year 1981 was $1.325 million in grants given to Colorado and Utah for the purpose of studying and/or planning for potential economic, environmental, and social

consequences of shale development and for establishing related management expertise. For fiscal year 1982, no funds were requested for DOE's synthetic fuels commercialization efforts.

The transfer of DOE's interim program to the SFC is consistent with the intent of the Congress. Legislation authorizes the transfer of DOE's interim program and the uncommitted remaining funds to the SFC upon its activation. The transfer of this program, DOE's major commercialization effort, to the SFC would eliminate DOE's role in commercialization.

PHASE OUT OF DOE'S PILOT AND DEMONSTRATION PLANTS

In addition to the elimination of the commercialization role of DOE, the administration has proposed to eliminate DOE's demonstration plant program and phase out the existing pilot plant program. In doing so, the administration supports an approach whereby industry would be relied upon to construct pilot and demonstration projects by private financing or through support from the SFC.

Demonstration plants are considered the last phase of development of a process prior to commercialization. These billion dollar plants are used to demonstrate and validate the economic, environmental, technical, and productive capacity of a near-commercial plant using commercial-size components which, if successful, could minimize risks in accelerating industry implementation. In fiscal year 1981, DOE provided $432.9 million to fund five demonstration plants. The total cost of the five plants would amount to over $5.7 billion with the Government's share being over $4 billion. Two of these plants were direct liquefaction processes and three were coal gasification processes.

Pilot plants, the step before demonstrations, are to (1) determine whether the process works with commercial-type (not commercial-size) components, (2) estimate the economics of a commercial-size plant, (3) test and evaluate the critical parameters of scale-up, and (4) acquire engineering data needed to design a large demonstration or near commercial-size plant. DOE has been funding five pilot plant activities (four in liquefaction and one in gasification), providing over $140 million in fiscal year 1981.

Although there are exceptions, pilot and/or demonstration plants generally are built prior to commercialization of new synthetic fuel technologies. These plants test out the technology and economics, and offer an opportunity for environmental and health effects studies. Should DOE not be involved, industry, with or without SFC support, will be responsible for advancing processes.

Because of project cost and technical risks associated with scaling up new processes, however, it is uncertain whether this will occur. Several hundred million dollars may be required to build a pilot plant and well over a billion dollars may be required for a demonstration plant of the size being considered.

Problems also exist in obtaining SFC financing for pilot and demonstration plants. Regarding pilot plants, the SFC is precluded from funding plants which do not have commercial-size components. The problems concerning demonstration plant funding include (1) the low priority of joint venture financing, (2) the SFC's high production goals, and (3) the large overall cost of synthetic fuel demonstration plants.

First, it is questionable as to how competitive a project would be if joint venture funding is requested from the SFC. Joint venture funding would likely be requested for demonstration plants since they are considered to have greater technical risks than commercially available synthetic fuel processes and are currently uneconomic at the scales being proposed. The legislation establishing the SFC specifies that joint venture authority is lower priority than (1) price guarantees, purchase agreements, and loan guarantees; and (2) loans, in that order.

Second, the SFC is by law production-oriented. While the act has other goals besides production, such as technical diversity, ambitious production goals of 500,000 barrels per day by 1987 and 2,000,000 barrels a day by 1992 have been established. In view of the production goals, it is uncertain how competitive a demonstration plant, which might produce the equivalent of 20,000 barrels per day, would be against a commercial project, which could produce the equivalent of more than 50,000 barrels per day with less technical risk. It is possible, however, in order to meet the technical diversity goal, that the SFC could fund a demonstration plant.

Finally, legislation requires that if a joint venture is to be approved, sponsors must finance at least 40 percent of the initial project cost estimate plus cost overruns. Project sponsors may be unable or unwilling to risk up to 40 percent of the plants' costs plus any overruns because of the technical risks and because the plants are not considered to be economic at the demonstration scale. To date, only one private sponsor of DOE/industry demonstration plants and one private sponsor of DOE/industry pilot plants has applied to the SFC for assistance. The applicants are requesting loan guarantees for up to 75 percent of the projects' estimated costs to build commercial-size plants.

Although it may be difficult to attract sponsors willing and able to accept the higher risks, new technologies (such as direct liquefaction and some newer gasification processes) which are not commercially available and have only operated on a small scale

to date nonetheless hold promise of improvements over the existing synthetic fuel technologies commercially available. For example, some direct liquefaction technologies are expected to (1) be able to use eastern coal, (2) be potentially 15 to 20 percent less capital intensive and less costly, and (3) be more efficient in terms of resources used. In addition, the newer technology processes could be more environmentally benign because their advanced lead time allows for more research to define health effects and consider more control options.

Thus, while the newer technologies hold promise of benefits over existing technology, the risks and costs of such ventures and emphasis on the production goals of the SFC may delay or preclude them from being developed. In that case, existing technology would be relied upon for synthetic fuels production. This could lead to a lack of technical and natural resource diversity.

DOE'S NEW FOCUS--
LONG-TERM R&D

After elimination of DOE commercialization efforts and demonstration plants, DOE is left with what the administration terms "long-term, high-risk, and potentially high-payoff" R&D. This primarily includes performing basic or generic research at universities or national laboratories and developing new processes at a small-scale that offer significant advantages over processes now in the pilot or demonstration stage. About $128 million was requested for fiscal year 1982 by the administration for these types of activities.

The remaining R&D appears consistent with the administration's view that Government activities should normally end at the "proof of concept" level (before pilot plant). At that point the administration believes industry is in a better position to select processes for advancement than the Government and should normally be responsible for further developing the processes. The administration believes that, with the recent decontrol of oil prices, tax incentives, and proposed regulatory relief, industry will further develop the processes.

However, in reviewing the remaining R&D program, we found that while DOE is calling its remaining efforts long-term, high-risk, high-payoff R&D, specific definitions do not exist for these terms. Also, DOE was unable to tell us specifically how the remaining activities fit into these categories, information which would be useful to the Congress in assessing changes in DOE's R&D program, and also for use in allocating limited Federal funds.

While phasing out pilot plants and eliminating demonstration plants so that R&D is performed only to the point of "proof of concept" may involve long-term R&D, DOE has not reviewed its R&D

to relate it to a time frame for commercialization. From the information we obtained, it appears that the major reductions came from just phasing out or eliminating pilot and demonstration efforts, without a review of the remaining R&D efforts based on specific criteria or their relationsnip to eventual commercialization of advanced processes.

We believe DOE should establish specific definitions for long-term, high-risk, high payoff programs and direct that they be consistently applied to funding current and future R&D projects. Long-term could be defined in years to commercialization and remaining R&D assessed in light of that criteria. High-payoff criteria could include a range of production cost savings or greater efficiencies over commercially available technologies. Risk criteria could include scale-up and other technological risks, environmental risks, and economic risks to industry to perform the R&D. A review of remaining R&D based on well-defined criteria could assist the Congress in assuring that limited Federal funds are being applied consistently to meet the Government's objectives.

ENVIRONMENTAL EFFORTS ASSOCIATED WITH SYNTHETIC FUELS PROGRAMS

There are no large commercial-size synthetic fuels plants operating in the United States and consequently little information exists on the dangers of emissions from large-scale projects. However, health and environmental research sponsored by DOE on synthetic fuel pilot and demonstration projects has shown that some emissions and products are toxic, potentially carcinogenic or in some species teratogenic (causing malformations). The health and environmental research data developed by DOE programs is used by Fossil Energy and other technology developers to examine various process modifications and control technology options to mitigate the potentially harmful emission effects. The DOE health and environmental research budget is being reduced to coincide with the reduction in the Department's technology work at pilot and demonstration projects. However, it is possible that DOE could obtain needed process or project-specific data from SFC-supported synthetic fuel projects, but the extent of DOE access to this data has not been defined.

DOE health and environmental research programs

Prior to February 24, 1981, DOE's health and environmental research and environmental compliance activities were the responsibility of the Assistant Secretary for Environment. Three offices dealt with environmental issues of synthetic fuel emissions and reported to the Assistant Secretary. The offices were: (1) the Office of Health and Environmental Research; (2) the Office of Environmental Compliance and Overview; and (3) the Office of Environmental Assessments.

ENCLOSURE I

On February 24, 1981, DOE's Assistant Secretary for Environment was abolished, reportedly for the purpose of streamlining DOE. The environmental program offices were relocated within the Department. The Office of Health and Environmental Research was made part of the Office of Energy Research, an office responsible for conducting research Department-wide. The Office of Environmental Compliance and Overview and the Office of Environmental Assessments were transferred to a new Assistant Secretary for Environmental Protection, Safety, and Emergency Preparedness. With the change in administrations and Federal energy policies, all three offices experienced budget cuts. The reduction or elimination of technology work at pilot and demonstration projects reduces or eliminates the environmental analysis of those projects.

The Office of Health and Environmental Research had been budgeted, by the previous administration, at $31.3 and $51.8 million in fiscal years 1981 and 1982, respectively, for synthetic fuel research work on coal gasification, coal liquefaction, and oil shale projects. These amounts were reduced to $29.4 million in fiscal year 1981 and are proposed to be reduced to $31.6 million in fiscal year 1982.

The Office of Health and Environmental Research sponsors such work as chemical characterization of emissions and products, and long-term health and environmental effects studies. For example, research sponsored by this Office determined that a chemical class of compounds in the high boiling fraction of coal liquid products, known as primary aromatic amines, were largely responsible for the mutagenicity and carcinogenicity observed in animals. With this information, the Office of Fossil Energy examined various mitigation procedures such as product hydrotreating which might be required in commercializing processes. Another example of research work sponsored by this Office determined the toxicity of acridine, a waste component from coal gasification and coal liquefaction. Acridine was found to be teratogenic to crickets as treatment of cricket eggs with the substance resulted in a duplication of cricket head structures.

In fiscal year 1982, the Office of Health and Environmental Research plans to focus primarily on the health, safety, and environmental effects of generic and technology-specific synthetic fuel processes. Generic research provides information on the potential health and environmental effects across synthetic fuel technologies. The Office's work on acridine is an example of generic research which applies to liquefaction and gasification technologies. Technology-specific research provides data on the health and environmental effects of synthetic fuel facilities of a particular type, e.g., direct liquefaction. Project-specific work will be curtailed as DOE pilot plant and demonstration plant activities are reduced or eliminated.

The fiscal year 1981 total budget for the Office of Environmental Compliance and Overview and the Office of Environmental Assessments changed relatively little from the total budget of about $50 million authorized by the previous administration. However, the budget totals are facing a proposed reduction from $65.2 million to $49.6 million in fiscal year 1982. Work performed by these offices often involves more than one technology; hence the total office budget figures are given.

The Office of Environmental Compliance and Overview, in fiscal year 1982, plans, among other functions, to provide guidance and review specific DOE actions for compliance with the National Environmental Policy Act and other related environmental statutes and regulations. This Office's goal is to assure that Department actions meet national environmental protection goals while developing energy resources.

The Office of Environmental Assessments, in fiscal year 1982, plans to analyze the impact on DOE programs of environmental legislation such as the Clean Air Act, the Clean Water Act, and the Surface Mining Control and Reclamation Act. The same Office will perform studies to identify potential environmental concerns associated with energy technologies and monitor Fossil Energy's efforts to deal with the concerns. According to program officials, work has been performed to provide data bases for Fossil Energy's R&D work as well as to provide other Federal agencies and industry with information on the state of the technologies.

Data from environmental and health research and assessment studies sponsored by DOE's environmental offices was provided to the Department's technology R&D offices, such as Fossil Energy, and to other Federal organizations such as EPA and the National Institute for Occupational Safety and Health. R&D offices are supplied that data to assist in developing systems for reducing the hazards of synthetic fuel production and to set technology development priorities. EPA is using the results of DOE studies in establishing environmental Pollution Control Guidance Documents and environmental standards. 1/

With DOE reducing or eliminating its environmental research work at pilot and demonstration projects, DOE's R&D program and

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1/A "Pollution Control Guidance Document" is a generic reference to an EPA document which is a compendium of pollution controls for a specific synthetic fuels technology. Guidance is not established by regulation and compliance by organizations is strictly voluntary. Standards are enforceable rules limiting the discharge of pollutants to the environment promulgated by legislative authority such as the Clean Air Act.

EPA may be losing a source of project-specific environmental data. They will, however, continue to receive generic and process-specific data needed to continue the Department's R&D work.

Acquiring environmental data from SFC projects

As allowed by Section 175(b) of the Energy Security Act, all actions of the SFC, except for the construction and operation of SFC construction projects, are exempt from the environmental impact statement requirements of the National Environmental Policy Act (NEPA). Under NEPA, Federal agencies are required to prepare statements detailing the environmental impacts of proposed major Federal projects. As a result of the NEPA requirements and other legislation authorizing DOE environmental R&D work, DOE has sponsored a number of health and environmental research programs as well as compliance testing programs on synthetic fuel pilot and demonstration projects, resulting in the accumulation of an environmental data base on process emissions.

While an environmental data base has been established, it is, according to DOE officials, by no means complete. Considering that SFC-sponsored projects could be the first commercial-scale plants built in the United States, DOE officials believe that project environmental information should be available to add to the data base.

DOE and EPA officials are seeking assurance from the SFC that project sponsors will allow them access to environmental data and access to plant facilities to perform health and environmental research. However, to date, no agreement has been reached on this issue, partly because of DOE, EPA, and SFC differences in interpreting Section 131(e) of the Energy Security Act. This section states:

> "Any contract for financial assistance shall require the development of a plan, acceptable to the Board of Directors, for the monitoring of environmental and health related emissions from the construction and operation of the synthetic fuel project. Such a plan shall be developed by the recipient of financial assistance after consultation with the Administrator of the Environmental Protection Agency, the Secretary of Energy, and appropriate State agencies." (emphasis added)

This section has resulted in questions by DOE and EPA officials we talked with as to what their role is concerning the sponsors' monitoring plan, their access to environmental data, and how much authority or weight their advice to the sponsors will be accorded by the SFC. Currently, it is unclear who should initiate the contacts between the sponsors and EPA, DOE, and State agencies; when the

initial contacts should occur; and how the SFC will negotiate and reach agreement on acceptable environmental monitoring systems. SFC officials we interviewed, while recognizing responsibility to approve the environmental and health-related emission monitoring plans of project sponsors, believe they should become involved only if an agreement cannot be reached between DOE, EPA, States, and project sponsors on the plans. They believe that DOE and EPA should first indicate to the sponsor their data needs and their requirements for the monitoring plans. While the act states that the sponsors should consult with the agencies, SFC officials did not believe these agencies are precluded from initiating the contacts in order to expedite reaching agreement with the sponsors on the monitoring plans and data needs of the agencies. They do not believe that the SFC should be in the business of providing environmental guidance to the sponsors.

DOE and EPA officials we talked to, however, believe that the law requires the sponsors or the SFC to initiate the contacts with their agencies and that the SFC should take the lead in providing guidance to the sponsors concerning the agencies' access to environmental data and overall roles in the approval of the sponsors' monitoring plants. One EPA official stated that it would be inefficient for EPA to work with every SFC applicant, particularly since the EPA does not know what the SFC policy will be concerning the approval of monitoring plans.

DOE officials told us that they are waiting for either the SFC or the project sponsors to consult with them. They have informed SFC officials of their desire to obtain access to the project sponsors' plant to perform health and environmental research. However, no agreements have been reached to date. SFC officials indicated to us their preference for DOE to negotiate their desires with project sponsors prior to SFC involvement.

Because the SFC is required to approve the environment and health-related emission monitoring plans, we believe that it has the ultimate responsibility for defining an acceptable monitoring plan. However, we also believe DOE and EPA have a responsibility to officially communicate their needs for project emission data to the project sponsors and the SFC. This exchange of information should occur prior to any SFC project selections. EPA staff have drafted initial guidelines on their data needs and have also drafted optional guidelines for the SFC to consider in approving monitoring plans. They plan to provide the guidelines on their data needs to the SFC for endorsement and distribution to project sponsors. However, as SFC officials have again indicated to us, they prefer that EPA negotiate with the sponsors on a case-by-case basis referring only disagreements to the SFC for resolution. According to EPA, this operating procedure was implemented just after the recent confirmation of the current Chairman of the SFC.

On July 9, 1981, in testimony before the Subcommittee on Fossil and Synthetic Fuels of the House Committee on Energy and Commerce, the Chairman, SFC, indicated that no policy matters will be dictated until the Corporation has a Board of Directors. However, we believe that the SFC is not currently precluded from publishing and should publish proposed guidance concerning Section 131(e) of the Energy Security Act which requires sponsors to consult with DOE, EPA, and States in the development of acceptable environmental and health-related emission monitoring plans. In addition, the SFC should give DOE, EPA, States, and other interested parties the opportunity to comment on their roles and needs. Assuming a Board of Directors is in place, the final guidance should be published after consideration of the comments and should indicate DOE, EPA, and State agency roles in consulting with project sponsors. This would include general guidance concerning:

--Who should initiate the contacts between the sponsors and DOE, EPA, and State agencies;

--When the initial contacts should occur; and

--How the SFC will negotiate and reach agreement on acceptable environmental monitoring systems.

CONCLUSIONS

The administration is placing more reliance on industry to develop synthetic fuels. It proposes to end all DOE commercialization activities, the major portion of which could be transferred to the SFC consistent with the intent of the Energy Security Act.

In addition to ending DOE's role in commercialization, the administration has proposed to eliminate DOE demonstration plants and to phase out its pilot plant activities. If DOE is not to be involved, industry, with or without SFC support, will be responsible for advancing new synthetic fuels technologies. However, it is uncertain whether this will occur because of project costs and technical risks associated with scaling up new processes. Several hundred million dollars may be required for a pilot plant and well over a billion dollars may be required to build a demonstration plant of the size being considered.

Problems also exist in obtaining SFC financing for pilot and demonstration plants. The problem in the pilot plant area is that the SFC is precluded from funding plants which do not have commercial-size components. The problems concerning SFC funding of demonstration plants include (1) the joint venture funding, the funding likely to be requested for demonstration plants, has lower priority than other incentives; (2) the SFC has to meet ambitious production goals of 500,000 barrels a day by 1987 and 2 million barrels a day by 1992, and demonstration plants do not contribute as heavily toward those goals as full-size commercial

plants; and (3) project sponsors may be unable or unwilling to risk the required 40 percent of the initial estimated plant cost plus cost overruns because of the technical risks and because the plants are not considered to be economic at the demonstration scale.

After elimination of DOE commercial efforts and demonstration plants, DOE is left with what the administration terms "long-term, high-risk, and potentially high-payoff" R&D. However, in reviewing the remaining R&D programs, we found that specific definitions do not exist for these terms. Also, DOE was unable to tell us specifically how the remaining activities fit into these categories. Such information would provide the Congress and the administration more information on the remaining proposed R&D program upon which to base decisions concerning the allocation of limited Federal funds. From the information we obtained, it appears that the major budget reductions came from just phasing out pilot and demonstration efforts, without a review of the remaining R&D efforts based on specific criteria or their relationship to eventual commercialization of advanced processes.

We believe DOE should establish specific definitions for long-term, high-risk, high-payoff programs and direct that they be consistently applied to funding current and future R&D projects. R&D based on well-defined criteria could assist the Congress in assuring that limited Federal funds are being applied consistently to meet the Government's objectives.

In the environmental area, we found that as DOE curtails pilot and demonstration plant activities, DOE's emission characterization work associated with these projects may also be curtailed. Should this occur, DOE and EPA may be losing a source of project-specific environmental data for which both have expressed a need. Considering that SFC-sponsored projects could be the first commercial-scale plants built in the United States, the environmental information from the plants is needed to direct DOE R&D and assist EPA in setting emission standards. However, no agreements have been reached on the environmental data which DOE and EPA might obtain, partly because of DOE, EPA, and SFC differences in interpreting Section 131(e) of the Energy Security Act. This section has resulted in questions by DOE and EPA officials as to what their role is concerning the sponsors' monitoring plan, their access to environmental data, and how much authority or weight their advice to the sponsors will be accorded by the SFC.

Because the SFC is required to approve the environmental and health-related emission monitoring plans, we believe that it has the ultimate responsibility for defining an acceptable monitoring plan. However, we also believe DOE and EPA have a responsibility to officially communicate their needs for project emission data to the project sponsors and the SFC. This exchange of information should occur prior to any SFC project selections.

The Chairman, SFC, has indicated that no policy matters will be dictated until the Corporation has a Board of Directors. However, we believe the SFC is not currently precluded from publishing, and should publish proposed guidance concerning Section 131(e) of the Energy Security Act which requires sponsors to consult with DOE, EPA, and States in the development of acceptable environmental and health-related emission monitoring plans.

RECOMMENDATIONS

We recommend that the Secretary of Energy

--Establish specific definitions for long-term, high risk, high-payoff programs and direct that they be consistently applied to funding current and future R&D projects.

We recommend that the Chairman, Synthetic Fuels Corporation

--Publish proposed guidance for implementation of Section 131(e) of the Energy Security Act. This proposed guidance should include:

1. Who should initiate the contacts between the project sponsors and DOE, EPA, and State agencies;
2. When the initial contacts should occur; and
3. How the SFC will negotiate and reach agreement on acceptable environmental monitoring systems.

--Invite comments on the proposed guidance from all interested parties including DOE, EPA, and State environmental agencies; and

--Publish final guidance, after confirmation of a Board of Directors, which considers the comments.

ENCLOSURE II

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CONGRESS OF THE UNITED STATES
HOUSE OF REPRESENTATIVES
SUBCOMMITTEE ON ENERGY AND POWER
OF THE
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE
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October 2, 1980

The Honorable Elmer B. Staats
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441 G Street, N.W.
Washington, D. C. 20548

Dear Mr. Staats:

The Department of Energy and Related Agencies Act (P.L. 96-126) authorized the Department of Energy to award $200 million for synthetic fuel feasibility studies and cooperative agreements. The Act also authorized $2 billion for financial incentives such as loan guarantees, price supports, and purchasing agreements.

The Department of Energy has announced the first group of awards for synthetic fuel feasibility studies and cooperative agreements as authorized by P.L. 96-126. DOE plans to select the second group within the next few months. Solicitations for financial incentives are expected to be issued soon.

Noting the magnitude of the funds involved and the importance of these efforts, I would appreciate the assistance of the General Accounting Office to review and report on the initial phase of the alternative fuels programs -- that is the awards for $200 million in feasibility and cooperative agreements. This report should present GAO's findings on management policy issues as well as the effectiveness of the issued awards. In order to have an impact on the awarding of the financial incentives, this report should be completed before the end of November 1980.

In a more detailed review, I would like you to address the broader issue of DOE's effectiveness in commercializing synthetic fuels from coal, oil shale tar sands and other synthetic fuels as defined in the Energy Security Act. This report should discuss how on-going DOE activities to the Nation's production goals from synthetic fuels of 500,000 barrels per day of oil equivalent by 1987 and 2 million barrels per day by 1992.

Your comments should be made available to assist the newly created Synthetic Fuels Corporation since it could experience similar problems. I am also concerned that near-term commercially viable and less costly technologies relating to heavy oil refining and residual conversion may be overlooked in a haste to create liquid synthetic fuels from coal and oil shale. Your review and comments on this possibility would be helpful.

Your attention is appreciated. If you should have any questions, please contact Roger Staiger or Michael Barrett of the Subcommittee staff.

Sincerely,

John D. Dingell
Chairman

(306265)