113655

REPORT BY THE

Comptroller General

OF THE UNITED STATES

RELEASED

RESTRICTED — Not to be released outside the General Accounting Office except on the basis of specific approval by the Office of Congressional Relations.

Conduct Of DOE's Gasohol Study Group: Issues And Observations

GAO reviewed a number of allegations concerning the conduct of the Department of Energy's Energy Research Advisory Board Gasohol Study Group and found them of mixed validity. The most serious deficiencies GAO found were that

--the Study Group was not operated in accordance with the requirements governing Federal advisory committees and

--problems existed in the process used to select Study Group members and in relation to the technical quality of the Study Group's report.

To help improve the Department of Energy's advisory committee process GAO makes a number of recommendations to the Secretary of Energy.

113655

512360

EMD-80-128

SEPTEMBER 30, 1980

Request for copies of GAO reports should be sent to:

U.S. General Accounting Office
Document Handling and Information
Services Facility
P.O. Box 6015
Gaithersburg, Md. 20760

Telephone (202) 275-6241

The first five copies of individual reports are free of charge. Additional copies of bound audit reports are $3.25 each. Additional copies of unbound report (i.e., letter reports) and most other publications are $1.00 each. There will be a 25% discount on all orders for 100 or more copies mailed to a single address. Sales orders must be prepaid on a cash, check, or money order basis. Check should be made out to the "Superintendent of Documents".

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

B-200545

The Honorable Thomas A. Daschle
The Honorable Berkley W. Bedell
The Honorable Floyd J. Fithian
House of Representatives

As requested in your letters of May 21, 1980, June 25, 1980, and July 7, 1980, respectively, and in subsequent discussions with your offices, this report discusses a number of issues and observations surrounding the Department of Energy's Gasohol Study Group. It contains recommendations to the Department of Energy for improving various aspects of its advisory committee process.

As requested by your respective offices, we did not obtain official comments from the Department of Energy on this report. Unless you publicly announce its contents earlier, we plan no further distribution of this report until 7 days from the date of the report. At that time we will send copies to interested parties and make copies available to others upon request.

Comptroller General
of the United States

COMPTROLLER GENERAL'S REPORT TO REPRESENTATIVES THOMAS A. DASCHLE, BERKLEY W. BEDELL, AND FLOYD J. FITHIAN

CONDUCT OF DOE'S GASOHOL STUDY GROUP: ISSUES AND OBSERVATIONS

D I G E S T

The former acting director of the Energy Department's (DOE's) Office of Alcohol Fuels made 12 allegations concerning the establishment and conduct of the Energy Research Advisory Board's Gasohol Study Group.

GAO evaluated the validity of these allegations which fell into three areas

--nonadherence to requirements governing Federal advisory committees,

--concerns regarding the selection and qualifications of Study Group members, and

--problems with the technical quality of the Study Group's report. (See p. 1.)

NONADHERENCE TO REQUIREMENTS GOVERNING FEDERAL ADVISORY COMMITTEES

The first area concerned one allegation which contended that the manner and method in which the Gasohol Study Group carried out its business violated Federal and DOE advisory committee requirements. GAO found that DOE and the Energy Research Advisory Board did not follow the requirements governing advisory committees in their operation of the Gasohol Study Group.

Federal agency advisory committees are governed by the Federal Advisory Committee Act. Additional requirements are imposed upon DOE's advisory committees by the Department of Energy Organization Act applying the Federal Energy Administration Act of 1974. Each of DOE's advisory committees is required to have an approved charter, publicly announced meetings, detailed minutes of advisory committee meetings,

Tear Sheet. Upon removal, the report cover date should be noted hereon.

and representation of affected industry viewpoints and functions. The Gasohol Study Group did not follow any of these requirements. (See p. 5.)

DOE holds that the Gasohol Study Group was not an advisory committee and hence was not bound by the requirements of the legislation. DOE regards a subgroup of a chartered advisory committee as not being an advisory committee as long as the subgroup reports only to its parent advisory committee and not directly to DOE. DOE's policy, therefore, is to exclude subgroups from Federal Advisory Committee Act requirements. (See p. 9.)

GAO found, however, that DOE's policy regarding subgroups differs with the position of the lead Federal agency responsible for advisory committee matters--the General Services Administration (GSA)--as well as 12 other Federal departments GAO surveyed. GSA asserts that subgroups with members not part of the parent advisory committee are themselves advisory committees. Moreover, GAO found that the Gasohol Study Group provided advice directly to a DOE official and hence, even under DOE's interpretation of the Federal Advisory Committee Act, was subject to existing legislative requirements. (See p. 10.)

CONCERNS REGARDING THE SELECTION AND QUALIFICATIONS OF STUDY GROUP MEMBERS

In this second area, involving five allegations, GAO found insufficient evidence to support the contention that three Study Group members had conflicts of interest which prevented them from performing on the Study Group as objective scientists. GAO found that the fourth member named in the allegations is an employee of a corporation that has been an outspoken critic of gasohol and has a patented process for developing a potentially competing alternative fuel to gasohol. While an appearance of a conflict of interest is present in this instance, GAO does not believe it

is wrong to have such positions represented on advisory committees as long as they are balanced by a countering position. In this case, the balance was achieved to a certain extent with the participation of another member who represented an opposite viewpoint. (See p. 15.)

It was also alleged that the Study Group members did not include a representative of the alcohol fuels industry and did not have the financial expertise necessary to develop their cost projections. One member did have an association with the industry and another with fermentation technology; however, none of the members were involved with the business of ethanol production. Study Group members lacked formal credentials of financial expertise. However, most Study Group members contended they had considerable experience in developing plant and related cost analyses, thus providing them with sufficient capability to assess financial issues. In addition, GAO noted that the Study Group primarily drew on the financial analyses conducted by others in presenting cost projections in the report. Thus, the implication that such projections were being made by unqualified individuals seems to have less importance. (See p. 24.)

Overall, GAO found that the process used to select Gasohol Study Group members was highly personalized and non-systematic. Members were selected primarily on the referral of others without detailed knowledge of their backgrounds or financial interests. In addition, the process was clouded by competing groups within DOE striving to assure adequate representation of their respective viewpoints on the Study Group. (See p. 26.)

PROBLEMS WITH TECHNICAL REPORT QUALITY

In this third area, involving six allegations, GAO found three of these allegations had little merit, one was fully valid, and

Tear Sheet

the remaining two were partially valid. The three allegations having little merit were those concerning the Study Group's almost exclusive reliance on material previously published by Study Group members, its failure to cite the energy losses in the coal to methanol conversion process, and its failure to include plant construction costs in developing its methanol production costs. The fully valid allegation pertained to the report having no evidentiary basis for claiming that ethylene-derived ethanol was entering the gasohol marketplace thereby sacrificing the oil savings advantages of ethanol. Finally, the allegations that the report claimed excessively high energy consumption figures for the fermentation and distillation processes in its analysis of ethanol's energy balance, and that its projections of ethanol's production potential were unreasonably low, were partially valid. (See p. 32.)

GAO also found that the Study Group was generally conservative in its analyses. In instances where a range of possible data values was present, the Study Group usually adopted values that deemphasized gasohol's potential. Also, the Study Group's report generally failed to identify the wide range of opinions that were present in many areas of its analyses. Typically, it cited a consensus viewpoint without expressing differing viewpoints. GAO also noted that the Study Group's presentation of information related to methanol production from coal was misleading in that it implied that the Study Group had performed independent analyses of the subject. The methanol from coal section represented a synopsis of reports previously issued to DOE. (See p. 38.)

Finally, the Study Group was given the task of evaluating the adequacy of tax incentives for gasohol. Because it was composed of scientists and engineers, GAO believes it would have been better equipped to develop findings or recommendations in this area if the membership included special

expertise for dealing with such matters. (See p. 41.)

CONCLUSIONS

In light of these problems, GAO believes DOE needs to adopt changes in its policies and procedures for operating advisory committees in the future.

Challenges to the credibility of the advisory committee process, as occurred in the case of the Gasohol Study Group, seriously reduce the value of the advisory input provided. GAO believes that an effective means of assuring integrity in the process is to strictly comply with the legislative requirements governing advisory committees. In this connection, DOE should change its policy regarding advisory committee subgroups to conform to the position of the lead Federal agency on advisory committee matters--GSA--as to what constitutes an advisory committee under the Federal Advisory Committee Act.

GAO believes problems with the study group member selection process are at the heart of the allegations raised concerning possible conflicts of interest and inadequate qualifications on the part of Gasohol Study Group members. The current non-systematic process for selecting study group members increases the likelihood of controversy, as experienced in this case, and promotes internal DOE strife associated with naming members to study groups.

Finally, concerning the problems with technical report quality, GAO believes that as a matter of good reporting practice, the full range of valid scientific viewpoints on an issue should be present in a technical report such as the Gasohol Study Group report. In addition, GAO believes DOE's advisory committee reports should contain a description of scope and methodology so as to set forth any limitations of the advisory committee's analysis. In this manner, an advisory committee report's findings

Tear Sheet

and recommendations can be more objectively assessed and rationally used in the policy development process. (See p. 42.)

RECOMMENDATIONS

To enhance the integrity of DOE's advisory committee process, GAO recommends that the Secretary of Energy take those steps necessary to bring DOE's policy regarding advisory committee subgroups into conformity with the position of GSA as to what constitutes an advisory committee under the Federal Advisory Committee Act. In this connection, GAO believes the Secretary of Energy should revise DOE's regulations regarding advisory committee subgroups to require that such subgroups, when serving in the capacity of advisory committees themselves, (1) be chartered, (2) have meetings which are open to the public and announced in the Federal Register, (3) keep detailed minutes of completed meetings, and (4) make drafts or other documents prepared by the subgroups available for public scrutiny.

To correct weaknesses in the Energy Research Advisory Board's procedures for selecting study group members and reporting its findings, GAO recommends that the Secretary of Energy direct the Board's support office to:

--implement a more systematic basis for selecting members to its study groups, and,

--adopt the requirement that in preparing its reports it present (1) all valid minority viewpoints on the issues it is addressing in addition to the consensus viewpoint, and (2) the limitations of its analyses including a description of the review scope and methodology employed.

To insure that sound policies and practices for selecting members of subgroups to advisory committees and for reporting advisory committee findings are being

followed throughout DOE, GAO recommends that the Secretary of Energy undertake a DOE-wide review of its advisory committee activities. If the same problems evident on Energy Research Advisory Board subgroups are found during this review, GAO believes the Secretary of Energy should implement GAO's recommendations with respect to these advisory committees as well. (See p. 43.)

- - - -

At the request of Representatives Daschle, Bedell, and Fithian, GAO did not obtain official DOE comments on this report. (See p. 44.)

Tear Sheet

Contents

ABBREVIATIONS

ACMO	Advisory Committee Management Office
Btu	British thermal unit
DOE	Department of Energy
ERAB	Energy Research Advisory Board
FACA	Federal Advisory Committee Act
GAO	General Accounting Office
GSA	General Services Administration
OMB	Office of Management and Budget

CHAPTER 1

INTRODUCTION

GAO reviewed the basis for 12 allegations made concerning the conduct of the Department of Energy's (DOE's) Energy Research Advisory Board (ERAB) Gasohol Study Group. 1/ The allegations were made by the former acting director of DOE's Office of Alcohol Fuels in a May 1, 1980, memorandum to the Secretary of Energy. 2/

The 12 allegations listed in the memorandum generally fall into three areas. One concerns the Study Group's nonadherence to requirements governing the operation of Federal advisory committees. Five others are directed at the selection and qualifications of Study Group members. The remaining six deal with various aspects of the technical quality of the Study Group's report. Each area is discussed in the chapters that follow.

BACKGROUND

The allegations were precipitated by an April 29, 1980, ERAB report entitled, "Report of the Energy Research Advisory Board on Gasohol." ERAB is one of a number of advisory committees DOE has chartered to provide expert advice on various elements of its programs and policies. In particular, ERAB was established in June 1978 to advise DOE managers on overall research and development supported by DOE. In accordance with this mission, ERAB has been directed by DOE to concern itself with long-range research and development policy matters and render advice on specific energy systems and related research programs as requested. ERAB reports to the Secretary of Energy through the Office of Energy Research, where a DOE staff support office for ERAB is maintained. ERAB is currently composed of 25 members representing private industry, academia, and science interest groups. In calendar year 1980, the costs of operating ERAB are expected to total $950,000 consisting primarily of contractor support costs, salaries for DOE's ERAB support staff, and travel and related expenses. Members of ERAB serve on a voluntary basis without pay.

1/Gasohol is a blend of 10 percent fermentation ethanol and 90 percent unleaded gasoline.

2/The memorandum is included as appendix 1.

In conducting its business, ERAB frequently establishes ad hoc subgroups to examine specific technical issues. Since its establishment, ERAB has formed 15 such subgroups--7 of which are still in progress. The Gasohol Study Group, which produced the report in question, was one of these subgroups.

The Gasohol Study Group was established by the chairman of ERAB following a request for information by the former Under Secretary of Energy at the November 1979 meeting of the full Board. The following seven individuals were selected as Study Group members.

Name	Affiliation
*Dr. David Pimentel (Chairman)	Cornell University
*Dr. Thomas Stelson 1/	Georgia Institute of Technology
*Dr. Richard Hinman	Pfizer, Incorporated
Dr. Charles Cooney	Massachusetts Institute of Technology
Dr. William Scheller	University of Nebraska
Dr. Jack Spurlock	Georgia Institute of Technology
Dr. Paul Weisz	Mobil Oil Corporation

*Member of ERAB

1/Dr. Stelson became Assistant Secretary for Conservation and Solar Energy on January 7, 1980, and is no longer an ERAB member.

Of these seven members, three were members of ERAB and four were selected from outside ERAB for specific service on this Study Group. In addition to the seven members of the Study Group, an outside consultant and a DOE official were selected to participate in the Study Group's efforts.

The assigned mission of the Gasohol Study Group was to respond to five questions related to the potential of gasohol. These questions were:

--What are the potential benefits of gasohol from both an energetic and economic perspective?

--What is the potential impact of gasohol production on agriculture, land use, and the environment?

--In addition to grain and other starches and sugars, are there other biomass sources available for gasohol production?

--What are the comparative benefits of ethanol production from grain and methanol production from coal?

--Are additional tax incentives needed for gasohol production?

The Study Group was asked to conduct its work quickly because its report was needed as input to DOE's efforts to develop a presidential gasohol policy and a position on major synthetic fuel legislation pending before the Congress at the time.

In accordance with the emphasis on quick reporting, the Study Group met for only 2 days, on December 10 and 11, 1979. During these meetings the Study Group developed its findings and reached general agreement on its reporting positions.

OBJECTIVES, SCOPE, AND METHODOLOGY

Our review was directed at evaluating the merits of each of the 12 allegations made concerning the establishment and conduct of the Gasohol Study Group. These allegations related to compliance with legislative requirements governing Federal advisory committees, Study Group member selections, and technical report quality. In conducting our review, we performed a number of general purpose review steps to obtain background information and establish an overall perspective on the validity of the allegations. We then supplemented these efforts with a number of other steps specifically oriented to the three individual issue areas.

To ensure that we obtained all the pertinent viewpoints and perspectives on the allegations in general, we interviewed each of the participants involved in the Study Group's efforts as well as those DOE officials directly responsible for administering DOE's gasohol program. Specifically, we discussed the allegations with

--the chairman of ERAB;

--each Study Group member, the Study Group consultant, and key DOE support staff;

--the former acting director of DOE's Office of Alcohol Fuels; and

--various members of the Office of Alcohol Fuels.

In addition, we made an indepth review of available minutes and transcripts of the Study Group and relevant ERAB meetings, various draft reports and the final report of the Study Group, and selected references used by the Study Group members in the preparation of their report. Further, we enlisted the assistance of an energy policy consultant and extensively used our previous work dealing with alcohol fuels.

Concerning the issue of the Study Group's nonadherence to established requirements governing Federal advisory committee activities, we reviewed applicable statutes, regulations, and legal opinions and interpretations. In addition, we held discussions with DOE's and 12 other Federal departments' advisory committee management officers, the Director of the Committee Management Secretariat in the General Services Administration (GSA)--the lead Federal agency responsible for administering Federal advisory committee activities--and the former Under Secretary of Energy.

Related to the issue of Study Group member selections, we reviewed papers previously written by Study Group members and available financial disclosure statements. In addition, we reviewed a number of documents discussing the activities of those corporations mentioned in the allegations, including annual reports and testimony of corporate officials. Finally, concerning the issue of report quality, we compared the findings of the Gasohol Study Group report with other reports on gasohol's potential and reviewed information on current activities in the alcohol fuels industry.

CHAPTER 2

NONADHERENCE TO REQUIREMENTS GOVERNING FEDERAL ADVISORY COMMITTEES

One allegation presented in the May 1, 1980, memorandum to the Secretary of Energy concerns ERAB's nonadherence to requirements governing Federal advisory committees. Specifically, the allegation stated that the manner and method in which the Gasohol Study Group carried out its business contravened the requirements applicable to advisory committee activities, particularly those associated with assuring public participation in the advisory process. Our review confirmed that DOE and ERAB did not adhere to these requirements in their operation of the Gasohol Study Group. We found that this occurred largely because of a DOE legal interpretation that advisory committee subgroups generally are not considered to be advisory committees themselves and consequently are not bound by the legal requirements governing advisory committees. In addition to determining that DOE's interpretation was at odds with the commonly accepted Federal agency position on this question, we found the Gasohol Study Group performed as an advisory committee even under DOE's interpretation.

APPLICABLE LEGISLATIVE REQUIREMENTS

Federal advisory committees are governed by the provisions of the Federal Advisory Committee Act (FACA)--5 USC App. 1--which are implemented through Office of Management and Budget Circular A-63 (Revised). In addition, DOE's advisory committees are governed by section 17 of the Federal Energy Administration Act of 1974 (15 USC 776) and Section 624 of the Department of Energy Organization Act (42 USC 7234).

Section 3 of FACA defines advisory committees as

> "* * * any committee, board, commission, council, conference, panel, task force, or other similar group, or any subcommittee or other subgroup thereof * * * which is (A) established by statute or reorganization plan, or (B) established or utilized by the President, or (C) established or utilized by one or more agencies, in the interest of obtaining advice or recommendations for the President or one or more agencies or officers of the Federal Government, * * *."

FACA also sets forth a number of required advisory committee operating procedures. For example, before forming an advisory committee, each agency must publish timely notice of its intent to establish the committee in the Federal Register. Once formed, each advisory committee must:

--place on file with the appropriate agency head an approved charter for the committee which includes a description of the committee's official duties;

--open its meetings to the public 1/ and provide timely notice of the meetings in the Federal Register, and provide other types of public notice to insure that all interested persons are notified of such meetings;

--make available for public inspection any records, drafts, or other documents available to, or prepared by, the advisory committee; and

--keep detailed minutes of each advisory committee meeting.

In addition, FACA requires each agency to establish uniform administrative guidelines and management controls for advisory committees established by the agency. DOE's rules concerning advisory committees are found in part 707, title 10, Code of Federal Regulations. Relatedly, FACA directs each agency having advisory committees to designate an advisory committee management officer to exercise control over and supervise the establishment, procedures, and accomplishments of the agency's advisory committees.

To help Federal agencies implement the act, FACA established a Committee Management Secretariat within OMB. In accordance with its role, OMB issued Circular A-63 (Revised) which sets forth policies and principles as well as operating procedures for implementing FACA. Through Executive Order 12024, the Committee Management Secretariat function was transferred from OMB to GSA effective November 20, 1977. GSA is therefore now the lead Federal agency responsible for all matters relating to Federal advisory committees. In this role, GSA has proposed regulations 2/ concerning Federal advisory committee management that would replace OMB Circular A-63 (Revised).

1/However, section 10(d) of FACA provides for closing portions of advisory committee meetings for the same reasons meetings may be closed under the Government in the Sunshine Act (5 USC 552b).

2/The proposed regulations were published in the Federal Register dated August 21, 1980. Public comments are due by October 20, 1980.

Beyond these Government-wide requirements, DOE's advisory committees are also subject to the provisions of section 17 of the Federal Energy Administration Act of 1974 made applicable to DOE by section 624 of the DOE Organization Act. These provisions require DOE to ensure that industries or segments of industries affected by advisory committee activities have their points of view and functions reasonably represented on the advisory committee. In addition, section 624 establishes the conditions under which DOE may close its advisory committee meetings to the public. These conditions are more restrictive than those available to other Federal agencies under terms of FACA. While other Federal agencies may close a meeting under any of 10 conditions, DOE's advisory committee meetings may be closed only in the interest of national security or to protect trade secrets or confidential business information in research and development matters.

ADHERENCE TO REQUIREMENTS GOVERNING FEDERAL AND DOE ADVISORY COMMITTEES NOT ACHIEVED

Our review disclosed that DOE and ERAB, in their operation of the Gasohol Study Group, did not follow the requirements governing Federal and DOE advisory committees. DOE's Office of General Counsel contends that the Gasohol Study Group was not an advisory committee as defined in FACA and was not bound by any of the statutory provisions applicable to advisory committees. We found, however, that DOE's interpretation of the FACA definition of advisory committees is at odds with that of GSA's Committee Management Secretariat, as well as 12 other Federal departments. Moreover, we found that even under DOE's interpretation of FACA, the Gasohol Study Group was an advisory committee and should have been bound by FACA's and the DOE Organization Act's provisions.

Instances where requirements governing Federal and DOE advisory committees were not followed

The ERAB Gasohol Study Group was not established or conducted in accordance with the requirements governing Federal advisory committees. Many of the requirements of FACA were not followed. At the outset, the Study Group was established and members were selected without a charter, required of all advisory committees under FACA's provisions. Further, once the Study Group was formed and operating, public participation in the advisory process, a cornerstone of FACA

principles, was hampered in numerous ways. For example, DOE's ERAB support staff failed to announce the 2 days of Gasohol Study Group meetings in the Federal Register. The support office also failed to inform DOE's advisory committee management office (ACMO), which maintains lists of interested persons who have requested to be notified of such meetings.

Additionally, neither detailed minutes nor an official transcript of the first day's meeting was prepared. A one-page summary document was prepared but did not include many of the items required for detailed minutes in OMB Circular A-63 (Revised), such as, copies of all reports received, a description of the extent to which the meeting was open to the public, and a certification of the minutes' accuracy by the Study Group chairman. On the second day, after learning of the Study Group's meetings, the ACMO took steps to insure that a verbatim transcript was prepared.

Finally, DOE's ERAB support office denied the DOE ACMO access to a draft of the Study Group's report. This occurred prior to a public meeting of the full ERAB where the draft report was scheduled to be considered. The Federal Register announcement of the ERAB meeting designated the ACMO as the contact for public inquiry. As the contact point, the ACMO was seeking the draft report to make copies available to the public to facilitate its participation. In commenting upon requests for access to the draft report the chairman of ERAB stated at an ERAB meeting,

> "* * * our reports are, obviously, public reports. However, in arriving at such reports there are all kinds of working papers and those, too, become public documents ultimately. But the question of when they become public documents is a matter of judgment and some uniform procedures."

He accordingly directed ERAB members to refer all requests to the DOE support staff.

A requirement of the Federal Energy Administration Act of 1974 was also not met. The Gasohol Study Group contained no representative of the alcohol fuels industry. While two of the members did have familiarity with the industry and the fermentation process associated with producing ethanol, none of the members were actually producing and marketing ethanol for use in gasohol.

Dispute over legal definition of advisory committees

Based on an opinion by DOE's Office of General Counsel, DOE's policy is that subgroups of advisory committees, such as ERAB's Gasohol Study Group, are not bound by the requirements governing advisory committees. The Office of General Counsel has since 1978 held that subgroups of advisory committees are not advisory committees as defined in FACA unless they were established to advise DOE directly. Hence, the Office of General Counsel's view is that FACA requirements are applicable to ERAB but not to the Gasohol Study Group. This view is held even though the Gasohol Study Group contained members that were not also members of ERAB. DOE's Office of General Counsel contends that application of the regulations to the Study Group would represent a needless duplication of the FACA safeguards since all the advice given by the Study Group to ERAB would be subject to the public scrutiny, comment, and criticism intended by FACA at the time of its consideration for endorsement by ERAB.

The controversy over the Gasohol Study Group is similar to controversies that have occurred over the application of advisory committee requirements to DOE advisory committee subgroups in the past. The first instance we noted where this issue arose occurred in late 1978 relating to subgroups of another DOE advisory committee, the National Petroleum Council. In this case, DOE's Office of General Counsel advised that FACA requirements were not applicable to subgroups of advisory committees. Another controversy arose in March 1979 concerning the ERAB Weapons Lab Study Group. In this instance, the DOE Office of General Counsel reaffirmed its position that the subgroup was not an "advisory committee" subject to FACA's requirements. However, one member of the full ERAB stated at the time that attorneys for his organization felt the DOE Office of General Counsel's arguments had no legal merit. He further stated that, in his opinion, the DOE argument was "simply an attempt to subvert the intent of FACA, in order to explain away a mistake."

We have also expressed previous concern over the use of subgroups. In a 1977 report, 1/ for example, we emphasized that such groups should not be used to circumvent FACA, unwittingly or otherwise.

1/"Better Evaluations Needed to Weed Out Useless Federal Advisory Committees," (GGD-76-104, April 7, 1977).

To help evaluate DOE's interpretation of FACA's applicability to subgroups, we discussed the issue with GSA's Committee Management Secretariat and surveyed 12 other Federal departments. The opinions of the officials surveyed were unanimously at odds with the DOE interpretation. In June 1980, GSA, as the lead Federal agency in this area, wrote the DOE advisory committee management officer and expressed the following viewpoint on establishing subcommittees of full advisory committees.

> "* * * the Committee Management Secretariat considers that any subcommittee which: has members other than members of the parent committee; or has functions which are other than, or different from, those of the parent committee; or which functions independently of the parent committee (for example makes recommendations directly to the agency rather than through the parent committee); requires a letter of consultation with the General Services Administration before establishment (and renewal), and a separately filed charter. * * * All subcommittees should follow the provisions of the Federal Advisory Committee Act * * * for the noticing and holding of meetings, etc."

A GSA official told us that this position has been expressed since 1977 in correspondence with agencies requesting advice. DOE was not one of these agencies. GSA has repeated its position in the regulations it has proposed to replace OMB Circular A-63 (Revised).

We also addressed this issue in a survey of ACMOs in 12 other Federal departments. In each case, the officials told us that all subgroups having members not included on the parent committee must be treated as separate advisory committees. To do otherwise they felt would be a violation of FACA, based on their interpretation of the act.

Gasohol Study Group was an advisory committee even under DOE's interpretation of FACA

In rejecting the position that subgroups of advisory committees are subject to FACA, DOE's Office of General Counsel has concluded that as long as a subgroup is not established or directly used by DOE for advice or recommendations, it is not an advisory committee. DOE's Office of General Counsel has emphasized the importance of this condition in its interpretation by stating that DOE officials should exercise

caution in keeping distance between themselves and the subgroups. Our review, however, disclosed that the conditions of DOE's interpretation of FACA were not adhered to in the case of the Gasohol Study Group. DOE officials were involved with the establishment and conduct of the Gasohol Study Group, and one official used the product of the Study Group's work prior to the product's review by ERAB. In this context, therefore, the Gasohol Study Group functioned as an advisory committee even under DOE's interpretation of FACA, and therefore should have followed FACA and DOE Organization Act requirements.

The Gasohol Study Group was formed by ERAB following a request for information on gasohol's potential by the former Under Secretary of Energy at the November 2, 1979, meeting of ERAB. The specific questions the Study Group was asked to address were informally determined at a November 15, 1979, meeting in the Under Secretary's office. At this meeting potential members of the Study Group were also discussed. The former Under Secretary told us that he suggested a number of possible members and, in fact, insisted on the inclusion of Dr. Weisz from Mobil Oil Corporation, a non-member of ERAB. Other DOE officials including the former acting Director of DOE's Office of Alcohol Fuels also made efforts to have various individuals placed on the Study Group. Clearly then, DOE officials had a major role in establishing the Study Group and fixing its course, and thus failed to adhere to the "keep your distance" requirement established by DOE as a condition for excluding subgroups from FACA's purview.

The close contact of DOE officials with the Study Group was also apparent in the Study Group's activities. Both the former Under Secretary and the former acting director of the Office of Alcohol Fuels sat in on various parts of the Study Group's 2 days of meetings. The summary document of the first day's meeting in fact states that

> "* * * the entire Study Group reconvened to review its progress for the Under Secretary. The findings presented to the Under Secretary at the end of the first day included * * *."

Our review of the transcript of the second day's meeting also indicates that the former Under Secretary made comments to the Study Group members. For example, during a discussion of potential ethanol production levels, the record cites the former Under Secretary as stating that a figure being considered by the Study Group "seems like an awful lot to me." Study Group members told us, however, that the former Under Secretary's statements had not influenced their judgments.

Our review also disclosed that the Gasohol Study Group findings were used by a DOE official prior to their review and adoption by ERAB. Moreover, it is apparent that it was always the intention to use the Study Group's product prior to its submission to ERAB. In this manner, the Gasohol Study Group provided advice directly to DOE and in so doing did not adhere to DOE's condition for excluding subgroups from FACA's requirements.

On December 13, 1979, 2 days after the conclusion of the Study Group meetings, the Study Group chairman completed a draft report. At this point the draft report was only a product of the Study Group. ERAB endorsement could not have occurred until the next meeting of the full ERAB which was scheduled for February 1980. Nonetheless, on December 17, 1979, the former Under Secretary of Energy drafted a memo for the Secretary and Deputy Secretary in which he set forth a number of recommendations concerning DOE's gasohol strategy. In this memorandum the former Under Secretary cited the results of the Gasohol Study Group as the most important source of the recommendations he had developed. A second draft of the memo dated December 27, 1979, continued to cite the Study Group's findings as a basis for the recommendations developed, although in this version the former Under Secretary characterized the findings as preliminary and not yet reviewed by the full ERAB. The former Under Secretary told us he received a copy of the draft report from the then nominated director for the Office of Energy Research, the DOE office responsible for providing management support to ERAB. In addition, as discussed earlier, the former Under Secretary had also received a briefing from the Study Group.

Thus, the report and findings of the Study Group were communicated to, and used directly by, a DOE official prior to any consideration by the full ERAB. In fact, when the full ERAB eventually met to discuss the report in February 1980, one ERAB member suggested that because the report had already been used by DOE in the development of its gasohol policy, the report had already served its purpose and need not be adopted by the full ERAB.

It is also apparent from the deadline given the Study Group for completing its work that its product was from the outset intended to be used directly by DOE without ERAB endorsement. The former Under Secretary told us he requested that the Study Group report be put together very quickly so as to provide input to a DOE policy on gasohol needed for the President and to comment on the then pending synthetic fuels legislation. The President released his gasohol policy statement on January 11, 1980, and the

gasohol excise tax waiver was extended by the provisions of the Crude Oil Windfall Profit Tax Act of 1980 on April 2, 1980. In addition, the Energy Security Act was also being debated within the Congress at the time. Accordingly, the proposed functional statement for the Gasohol Study Group submitted to its members prior to their 2 days of meetings states that "The final report of this Study Group will be delivered to the Under Secretary no later than the week of December 24, 1979."

As discussed earlier, the next meeting of the full ERAB was not scheduled until February 1980. It is apparent, therefore, that ERAB's review and approval of the final Study Group report was only a formality in the process. The Gasohol Study Group was clearly intended to advise DOE officials directly, and in this manner was an "advisory committee" even under DOE's definition.

In addition to violating DOE's own requirements, the premature use of the Gasohol Study Group's findings is significant from a practical standpoint. Our review of the Study Group's efforts disclosed that the draft products used by the former Under Secretary in the preparation of his policy recommendations were different from the final report endorsed by ERAB. The Study Group's draft reports included findings and recommendations that could be characterized as more negative toward gasohol than the comparable presentations in the final report. While we could not determine the extent to which the former Under Secretary's recommendations affected DOE's gasohol policy or program, we believe the dangers of prematurely using reports such as the Gasohol Study Group report are evident by the changes that occurred to the Gasohol Study Group's draft report.

CHAPTER 3

CONCERNS REGARDING THE SELECTION AND QUALIFICATIONS OF STUDY GROUP MEMBERS

Five of the twelve allegations concern the possibility of conflict of interest on the part of certain Study Group members and whether the Study Group had the expertise to properly address the questions they had been requested to evaluate. Concerning the possibility of conflict of interest, it was specifically alleged that:

--The Study Group chairman (Dr. Pimentel) was a paid consultant to a major industry antagonist to gasohol (Mobil Oil Corporation), and had published papers in scientific journals that showed a prejudice against gasohol.

--Dr. Stelson was included as a Study Group member during the time he was undergoing confirmation to be Assistant Secretary for Conservation and Solar Energy. Consequently, Dr. Stelson (1) was absent and preoccupied much of the time and (2) might not have been able to participate objectively, given the potential of being influenced by high level DOE officials.

--A major industry opponent to gasohol (Dr. Weisz, Mobil Oil Corporation) was included as a Study Group member during the period of time when Mobil Oil Corporation was actively fighting gasohol while simultaneously promoting a process for developing a competing synthetic fuel. Another member (Dr. Hinman, a Vice President at Pfizer, Incorporated) was an antagonist to gasohol because his company was a major competitor for fermentation feedstock. The majority of the Study Group participants were, therefore, antagonists, not objective scientists.

Concerning Study Group member qualifications, it was alleged that:

--The Study Group failed to include representation of the alcohol fuels industry. Only one member, Dr. Scheller, could claim any substantial exposure to the industry.

--The Study Group membership lacked financial expertise, yet depended heavily on financial projections as a basis for their judgments.

Our review indicates that these allegations have mixed validity. In addition, we have several concerns regarding the manner in which the Study Group members were selected that were not specifically addressed in the allegations. A discussion of the allegations and our related concerns follows.

CONFLICT OF INTEREST ISSUES

Several of the allegations addressing Study Group membership concern the possibility that some Study Group members did not conduct themselves as objective scientists because they either had a conflicting interest or some other predisposition against the gasohol concept. As a result it was alleged that the Study Group was composed primarily of antagonists to gasohol. The allegations were individually directed at Dr. Pimentel, Dr. Stelson, Dr. Weisz, and Dr. Hinman. As discussed below, while we found certain aspects of the allegations to be correct, we generally found insufficient evidence to confirm the overall validity of these allegations.

Dr. Pimentel

Concerning Dr. Pimentel, the allegation states that he was a paid consultant to an oil industry antagonist to gasohol, had published previous material negative to the practical potential of gasohol, the inference being that he could not be expected to perform objectively as the Study Group chairman. While the factual material cited in the allegation is substantially correct, we can find no evidence that Dr. Pimentel conducted himself as Study Group chairman in a manner other than as an objective scientist.

Dr. Pimentel is a professor of insect ecology and agricultural science at Cornell University. Much of Dr. Pimentel's research experience has been in the fields of entomology, environmental resource management and pollution, and energy and land resources in the food system. Related to gasohol production, he has written papers on energy production from agriculture, but his greater expertise has been in energy inputs to agriculture. He has served on numerous other scientific panels, including those of the President's Science Advisory Council, the National Academy of Sciences, and the Office of Technology Assessment. In addition, he is a member of ERAB. ERAB requires all its

subgroups to be chaired by an ERAB member. Dr. Pimentel's extensive background in agricultural sciences, therefore, made him a likely choice for Study Group chairman.

As noted in the allegation, Dr. Pimentel served on a one-time basis as a paid consultant to the Mobil Oil Corporation. However, the circumstances of this consultancy have led us to attach minimal significance to it. Dr. Pimentel was called on by Mobil to review a proposal submitted to it regarding agricultural production for fuels. According to Dr. Pimentel and Mobil Oil Corporation officials, he worked on this assignment 4-1/2 days between August and October 1979 and received less that $2,500. This relationship was not disclosed on Dr. Pimentel's voluntary financial disclosure form submitted to DOE. However, because consulting work less than 5 days in duration during any year is exempted from the disclosure requirement, such reporting was not required. Dr. Pimentel explained the work he had done for Mobil at a public meeting of ERAB in February 1980 prior to ERAB's endorsement of the study. The ERAB chairman was not initially aware of Dr. Pimentel's work for Mobil, but had he known, he told us he would not have considered it as a conflict of interest.

It was also alleged that Dr. Pimentel's previous publications indicated a bias against gasohol that again could raise questions concerning his objectivity. Our review disclosed that Dr. Pimentel has written papers in which he voiced concerns about the environmental impact of large-scale energy from agriculture and silviculture programs. In this connection, Dr. Pimentel's previous papers address potential land degradation, overuse of crop and forest residues, and other constraints on the volume of ethanol that can be produced from crops and forest biomass. In accordance with those concerns, Dr. Pimentel has noted in his publications that "about one-half of all the solar energy captured by plants in the United States is already being harvested in the form of food," and that "clearly we are already obtaining greater gains from biological solar energy conversion through agriculture and forestry than we will ever gain from biomass conversion to energy." Another paper concludes that "expectations of large increases in energy supply from energy farming are unrealistic because of existing constraints of land and water resources." On the other hand, Dr. Pimentel has also emphasized the value of developing fuels from biomass in the United States.

While the validity of these concerns can be scrutinized and questioned, other scientists have expressed similar views and they appear to be based on scientific judgment. Accordingly, there is insufficient evidence to fairly characterize Dr. Pimentel as an antagonist to gasohol who would perform

his duties as Study Group chairman in a manner other than as an objective scientist. The general feeling of other Study Group participants supports this view. They told us that Dr. Pimentel performed admirably as Study Group chairman. He was said to show no apparent biases at the meetings and to have worked skillfully in resolving differences between the Study Group members.

Dr. Stelson

The specific allegations concerning Dr. Stelson state that his nomination as DOE Assistant Secretary for Conservation and Solar Energy could have subjected him to DOE top management influence and thus prevented him from acting as an independently minded scientist. In addition, it was contended that Dr. Stelson's preoccupation with the confirmation process caused him to be absent from the Gasohol Study Group meetings much of the time, thereby minimizing his contribution to the Study Group's efforts. We found that while the allegations were for the most part factually correct, the conclusions drawn from those facts are questionable.

Dr. Stelson is currently the DOE Assistant Secretary for Conservation and Solar Energy. At the time of his selection to the Gasohol Study Group he was the Vice President for Research at the Georgia Institute of Technology and a member of ERAB. His background is in civil engineering, but as a generalist, he has had a long-standing interest in biomass energy. In accordance with ERAB's policy to name as many ERAB members as possible to its study groups and considering Dr. Stelson's general background in the area, he was selected as a Gasohol Study Group member.

As stated correctly in the allegation, at the time of Dr. Stelson's participation in the Study Group he was in the midst of his confirmation process. The President had announced his intention to nominate Dr. Stelson on October 30, 1979. Dr. Stelson was selected to be a member of the Gasohol Study Group in November 1979 and the Study Group met for its only meetings on December 10 and 11. Dr. Stelson was confirmed by the Senate on December 20, 1979, and sworn into office January 7, 1980.

The allegation that Dr. Stelson was absent from the Study Group's 2 days of meetings much of the time also seems to have some basis. We discussed Dr. Stelson's presence at the Study Group's meetings with the other Study Group members. Estimates of his presence ranged from about 25 percent of the time to about 70 percent of the time. Dr. Stelson on the other hand recollected to us that he was present almost

all the time. It is impossible, however, to substantiate any estimate because of the lack of written record.

Thus, the factual content of the allegations seems generally correct. However, we found little evidence to substantiate the conclusion that Dr. Stelson could not, as a result of his status, perform as an objective scientist or contribute to the Study Group.

As discussed earlier, there is an inadequate written record to assess the contribution of Dr. Stelson to the Study Group's activities. A transcript was available for the second day but not the first. The second day transcript shows only limited participation by Dr. Stelson in the Study Group's debate. However, most of this discussion concerned a topic--ethanol's energy balance--which was out of Dr. Stelson's area of expertise so a high-level of participation should not have been expected.

Dr. Stelson appears to have made a contribution to the Study Group's consideration of cellulose feedstocks for producing ethanol. This section of the report was written by a subcommittee of the Study Group 1/ during the first day's meeting. While other members appeared to have provided more major technical input to this section, Study Group members told us that Dr. Stelson did make an important contribution concerning economic issues.

In commenting on the allegation, Dr. Stelson denied to us that he was in any way preoccupied with his confirmation process or influenced not to participate as an objective scientist. He told us his nomination and confirmation process was extremely uneventful and required almost no activities on his part. Moreover, he told us that while he is highly loyal to the solar energy program, he was not especially concerned with the outcome of the then ongoing efforts to confirm him.

We found no evidence to dispute Dr. Stelson's claim. While he was in the midst of his confirmation process, we do not believe there is sufficient information to

---

1/The full Study Group which itself was a subgroup of ERAB, broke up into working subcommittees which concentrated on specific aspects of the gasohol issue.

demonstrate that this adversely affected his judgment or significantly reduced his contributions to the Study Group.

Dr. Weisz and the role of Mobil Oil Corporation

The allegation asserts that the inclusion of Dr. Weisz of the Mobil Oil Corporation on the Study Group was improper because Mobil has been a major industry opponent to gasohol and is developing a competing synthetic fuel. While Dr. Weisz' inclusion on the Study Group gives an appearance of a conflict of interest, it should be recognized that selecting Study Group members with strong and established viewpoints is not necessarily an improper action if those members are balanced with members having countering points of view. On the Gasohol Study Group, this balance appears to have occurred to a certain extent with the inclusion of a gasohol advocate.

Initially, we noted two somewhat minor factual errors in this allegation. The allegation states that Dr. Weisz was the Director of the Mobil Research and Development Corporation (a wholly owned subsidiary of the Mobil Oil Corporation). Instead, he is the Manager of the Central Research Division of the Mobil Research and Development Corporation. The allegation also incorrectly defines the "Mobil process" as a process to convert coal to methanol. The patented "Mobil process" is for converting methanol to gasoline.

Concerning the view that the Mobil Oil Corporation is opposed to widespread gasohol use, it is valid that Mobil has frequently challenged the merits of gasohol compared to other synthetic fuel alternatives and has cautioned the Government against encouraging its production. Mobil Oil, in accordance with its policy to speak out on energy problems and proposed solutions, is on record in numerous forums as expressing reservations about gasohol on various scientific and technical grounds. For example, the Vice President for Planning, Mobil Research and Development Corporation, in testimony on August 24, 1978, before the House Committee on Science and Technology, made the following statements:

> "--Despite the fact that ethanol fuel has become a very popular idea recently * * * we believe it has considerably less potential as an alternative fuel than methanol.
>
> --* * * with current technology, substantially more energy in the form of petroleum fuels is

consumed in the distillery than is produced in the final product.

--Of the two common alcohols, methanol from coal can be produced more cheaply, reliably, and in greater quantities than ethanol from grains or other biomass sources.

--Conversion of alcohols to gasoline eliminates many technical and economic problems associated with using them as motor fuels. Mobil's efforts in this area have led to a new process that efficiently converts alcohols to high octane gasoline."

In this testimony, the Mobil Vice President also stated that it would be unwise for the Government to encourage grain alcohol production using current technologies. Further, he urged that near-term research and development emphasis be devoted to fuels from oil shale and coal.

The actions of other major oil companies have demonstrated a more favorable position on gasohol. At least eight are presently marketing gasohol, while Mobil is not. We believe other representatives of the oil industry could have been obtained that would have presented less troubling appearances.

Dr. Weisz has also published material with conclusions similar to Mobil's. In one paper, for example, he states that even with improved plant designs, the production of grain alcohol currently consumes more high grade fuel than it generates. In another paper entitled "Analysis Of A Dream: Biomass", Dr. Weisz concluded that "except perhaps for unusual and small-scale opportunities, the prospect of fuels from a sustained fuels-dedicated agricultural effort remains for some time in the future." Dr. Weisz' papers also outline conditions under which more positive results could be achieved.

A number of Dr. Weisz's technical views are also presented in the Gasohol Study Group report. For example, Dr. Weisz presented several technical arguments which contributed to the Study Group's conclusion that as much energy is consumed in the ethanol production process as is contained in the ethanol itself. In making these arguments Dr. Weisz, to a certain extent, relied on his work with research staff members at Mobil to provide informational support.

It is apparent that the Mobil Oil Corporation has been opposed to the production of gasohol on various scientific

and technical grounds and that Dr. Weisz has written papers that indicate a relatively low estimate for gasohol's potential. It is also valid that Dr. Weisz was able to influence the Study Group toward his point of view on certain technical points. However, according to other Study Group members, these views were recognized at the outset, had apparent scientific validity, and hence were properly considered by the Study Group. As long as such views are balanced with opposing perspectives we find nothing inherently wrong with addressing them during the advisory process. In this instance, Dr. Pimentel obtained Dr. Scheller's participation on the Study Group for the purpose of providing a balance to Dr. Weisz, and Dr. Scheller consistently expressed a counter viewpoint. Whether Dr. Scheller presented an effective balance to Dr. Weisz and the Mobil viewpoint is an open question. A representative of a major ethanol producer may have presented a more effective balance. Nonetheless, the effort to achieve balance was made.

Another facet of the allegation relates to the possible conflict posed by Mobil's support for coal to methanol technology as a source of methanol for conversion to gasoline via its patented "Mobil process." In this connection, we found that Dr. Weisz played a limited role in preparing the report's section on methanol from coal. The section was drafted by a DOE support staffer who successfully argued, over the objections of Dr. Weisz, that a reference to the "Mobil process" should be made in the report. Dr. Weisz did suggest the language of one of the report's findings related to methanol from coal.

A related issue that has been subsequently raised is that a place may have been reserved for Mobil on the Study Group. 1/ This allegation is based on a November 19, 1979, internal DOE memorandum and internal meeting notes dated November 15, 1979, that list other Mobil staff members as alternates to Dr. Weisz for Study Group membership. Dr. Weisz provided an explanation for these documents. He told us that DOE's ERAB support staff called his office to see if he would be available to participate in the gasohol study. The individual who answered the phone told them that Dr. Weisz was presently away on vacation and appeared to be otherwise committed on the dates of the meeting and suggested two colleagues who might be able to serve instead. These

---

1/The issue was raised during hearings of the Joint Economic Committee, Subcommittee on Energy, on Alcohol Fuels Policy, June 25, 1980.

other names were then recorded alongside Dr. Weisz's name. This explanation was confirmed by a staff member in DOE's ERAB support office. We have no basis for disputing this explanation.

Dr. Hinman and the role of Pfizer, Incorporated

An allegation of possible conflict of interest was also made concerning Dr. Hinman. In this connection, the allegation asserted that Pfizer, Incorporated, was a major competitor for fermentation feedstock and therefore Dr. Hinman, as a Pfizer Vice President, could not objectively assess the merits of gasohol. We found insufficient evidence to support the view that Dr. Hinman was affected in his judgments or actions on the Study Group by factors outside the realm of the Study Group's objective consideration of the issues.

Dr. Hinman is currently the Pfizer Vice President for Chemical Research and Development and in this capacity is responsible for all fermentation research and development. He is also a member of ERAB. Like Dr. Stelson, therefore, he was selected to the Study Group by reason of his scientific background and his position on ERAB.

The validity of this allegation hinges on whether Pfizer is a major competitor for feedstocks that might be used to produce ethanol for fuel. If this were the case, it could be argued that the appearance of a conflict of interest existed in that a successful ethanol program could bid up the prices Pfizer would otherwise have to pay for its feedstocks.

It is difficult to determine whether Pfizer's competition for feedstocks would be significantly affected by ethanol production from agricultural crops. A significant portion of Pfizer's business involves fermentation technology. As stated in Pfizer's 1979 Annual Report,

> "Much of Pfizer's process research activity is devoted to fermentation technology * * * Highly efficient processes carried out in the fermentation facilities of the company's specialty chemical operations [which made up 14 percent of the company's consolidated net sales in 1979] provide over 60 percent of the products sold by that business. Specifically, chemical operations serve as a manufacturing arm of Pfizer's pharmaceutical and animal health businesses as well."

In addition, the Annual Report identified a drop in the profits of its specialty chemical operations amounting to $8.1 million (a 25 percent decrease from the previous year's profits). Pfizer attributed its losses in these operations to increases in the costs of organic feedstocks, as well as higher energy costs and inflationary pressures.

According to Dr. Hinman, however, Pfizer is not reliant on starch feedstock for the majority of its fermentation operations and hence would not be seriously affected by price increases in this area. Corn and other starches are the most likely feedstocks to be used in the production of ethanol for fuel in the near future. Dr. Hinman told us that Pfizer uses relatively little starch feedstock in its processing. As a rule, he said, Pfizer seeks to have flexibility in the sources of its fermentation materials. This allows Pfizer to switch feedstocks according to market prices. In addition, being a multi-national firm, Pfizer purchases feedstocks from many locations, reducing its dependence on any single source such as domestic corn. Dr. Hinman told us that Pfizer presently uses such diverse feedstocks as beet and cane molasses, and paraffin, a petroleum derivative, as well as some starch feedstock.

Dr. Hinman agreed that it was naturally not in Pfizer's interest to have any of its feedstock prices go up. However, because of its diversity of feedstock sources, increases in a single feedstock source such as starch could be countered by shifting to other available feedstocks. Consequently, it is questionable whether Pfizer's need for fermentation feedstock necessarily places the company at odds with a large-scale gasohol program.

Dr. Hinman's efforts on the Gasohol Study Group also show no clear indication of any bias or predisposition against gasohol. Dr. Hinman, in conjunction with Pfizer staff, wrote the initial draft of the report section on ethanol energy balance and production economics. In several instances, this draft appears more favorable to gasohol than the Study Group's final report, particularly in the controversial area of ethanol's gasoline replacement potential. In addition, the other Study Group participants stated that Dr. Hinman conducted himself as an objective scientist during the Study Group meetings and played a valuable role by mediating technical disputes that arose.

Majority of the Study Group not antagonistic toward gasohol

Based on the previous discussions, there is insufficient evidence to support the allegation that a majority of the Study Group membership was antagonistic to gasohol. As discussed earlier, there is insufficient evidence to indicate that Drs. Pimentel, Stelson, or Hinman could fairly be characterized as antagonists. Three other members of the Study Group, Drs. Cooney, Spurlock, and Scheller, also had no apparent bias against gasohol. In fact, Dr. Scheller could be characterized as a strong advocate. Only Dr. Weisz had expressed a previous position that was clearly pessimistic toward the future of gasohol.

CHALLENGES TO STUDY GROUP QUALIFICATIONS

In addition to alleging the possibility of conflicts of interest and predisposed biases against gasohol, two of the allegations challenged the overall qualifications of the Study Group. Specifically, the lack of alcohol fuels industry representation and the lack of financial expertise were asserted to be major deficiencies in the Study Group's membership. Each of these issues is discussed below.

Lack of alcohol fuels industry representation

One of the allegations related to the selection process asserted that the Gasohol Study Group was deficient because it did not have a balanced representation of the alcohol fuel industry. We agree that such representation was not achieved with respect to the Gasohol Study Group and, as such, the allegation is valid.

Neither the Gasohol Study Group nor ERAB itself contains a representative of the alcohol fuels industry. As pointed out in the allegation, Dr. Scheller has had substantial exposure to the industry. However, Dr. Scheller told us he is an industry consultant but is not in the business himself. In addition, Dr. Hinman is a representative of a firm involved with fermentation technology (i.e., Pfizer) but Pfizer itself does not produce ethanol and is not a part of the alcohol fuels industry.

Dr. Pimentel told us that in helping to form the Study Group as Study Group chairman, his primary interest was in obtaining scientists with established academic credentials.

He told us he was not interested in obtaining the participation of businessmen and thus industry representatives were not included. We believe, however, that qualified scientists could have been chosen from those major firms participating in the alcohol fuels industry. Several of the Study Group participants told us that the inclusion of such a representative could have improved the credibility of the Study Group's report.

Related to the question of the lack of industry representation is the failure to include a representative of small-scale technology. Although most ethanol is currently produced in large-scale facilities, considerable alcohol fuels activity is occurring on the farm and in local communities involving small-scale operations. As one ERAB member has stated, the cumulative effect of these individually small contributions can be substantial. Despite this potential significance, no representative of the small-scale viewpoint was included in the Study Group.

An effort was made by DOE's Office of Consumer Affairs to have such a representative placed in the Study Group. The Office attempted to have the operator of a small-scale facility in Colorado added. However, this effort was rejected. The Study Group chairman concluded that this individual lacked the requisite scientific credentials to be a group member and that his inclusion would make the composition of the Study Group biased in favor of gasohol. In addition, the chairman told us that at least two other members questioned the contribution small-scale technology would make toward solving the overall national energy problem.

Lack of financial expertise

It has also been alleged that the Study Group lacked the financial expertise to make the financial projections contained in the report. In a sense the allegation is correct. However, some Study Group members claimed considerable experience in industrial cost estimating or indicated that they drew upon experts from their own organizations as needed. Moreover, we found that financial expertise was probably not essential to the manner in which the Study Group report made its financial projections. Accordingly, we believe this allegation has mixed validity.

The seven Study Group members were scientists and engineers and did not have formal credentials which would demonstrate their financial expertise. However, several of the members claimed considerable experience in performing cost

analyses. These members told us that they had made numerous cost analyses of various ethanol and related plant operations. Moreover, Dr. Hinman, as the initial drafter of the ethanol economics section of the report, told us he relied extensively on a Pfizer cost engineer who he characterized as an outstanding estimator of fermentation plant costs with 35 years of experience.

Given the manner in which the report was developed, however, financial expertise was not crucial to the Study Group's report. Financial projections are an important element of only two report sections--the cost of producing ethanol from grain and the cost of producing methanol from coal. Concerning the cost projections for ethanol, the report relied primarily on the findings of previous studies on the subject as well as the analysis of a Pfizer cost engineer. Related to methanol cost projections, the Study Group simply summarized several previous analyses and made no independent projections. By relying primarily on the cost projections of others, the Study Group did not require extensive financial expertise.

NEED FOR MORE SYSTEMATIC MEMBER SELECTION PROCESS

In addition to responding to the specific allegations, we have several concerns relative to the ERAB process for selecting study group members in general. In this connection, we observed that the Gasohol Study Group selection process was highly personalized and non-systematic. Study Group members were named without detailed records of their backgrounds or personal financial ties. We believe a more systematic process of selecting study group members could help dispel doubts about the technical qualifications and potential conflicts of interest concerning the membership of future study groups.

Current process is highly personalized and non-systematic

Members of the Gasohol Study Group were named in a variety of ways. The ERAB chairman, Study Group chairman, other ERAB members, and the former DOE Under Secretary were involved in the process.

The chairman of ERAB has the ultimate authority to select members of ERAB study groups. Since ERAB meets only four times each year, this authority is necessary to expedite the study group advisory process. ERAB policy is to assign as many as possible of its own members having related

expertise or interest to its study groups. Accordingly, in this instance the ERAB chairman named three ERAB members to the Study Group--Dr. Pimentel as chairman of the Study Group, and Drs. Hinman and Stelson as members. The ERAB chairman delegated the responsibility for naming the other members to Dr. Pimentel.

In selecting the other Study Group members, Dr. Pimentel relied on advice and suggestions from other ERAB members, his own knowledge, and input from DOE officials. Personal awareness and previous personal contacts were the keys to the process as shown below.

Study Group member	Primarily recommended by
Dr. Spurlock	Dr. Stelson 1/
Dr. Cooney	Dr. Hinman
Dr. Weisz	Former DOE Under Secretary 2/
Dr. Scheller	Dr. Pimentel 3/

1/Based primarily on previous work together.

2/Based on review of recent paper published by Dr. Weisz.

3/Based primarily on knowledge of recently published papers.

In addition, other DOE employees made efforts to place members on the Study Group. The former acting director of DOE's Office of Alcohol Fuels attempted to have several members added. None was selected but one was added as a consultant. Further, as discussed earlier, a staff member in DOE's Office of Consumer Affairs unsuccessfully sought the addition of another member to the Study Group.

The chairman of the Study Group told us that the process used to select Study Group members was non-systematic and based on personal contacts and references. In naming members, selection officials did not use or compile a comprehensive list of potential experts or detailed records of individual backgrounds. The selection officials relied on personal knowledge and word-of-mouth recommendations from inside ERAB and DOE.

When such a non-systematic process is used, the potential for criticisms of the qualifications and predisposition

of members is heightened. Moreover, the process can be reduced to a struggle between representatives of various points of view to assure that their positions are effectively represented in the study group. A more systematic process could help head off such disputes before they get started.

Study Group member selections were made without knowledge of personal financial ties

In selecting individuals to the Gasohol Study Group, selection officials also did not have detailed knowledge of personal financial ties. None of the Study Group members who were not already members of ERAB were requested to file a financial disclosure statement prior to their participation on the Study Group. An official on DOE's ERAB support staff told us that disclosure statements were not sought because his staff did not have the time. The need for such information is clearly set forth on the form submitted voluntarily by ERAB members. The form states "The conclusions and recommendations of ERAB will necessarily rest upon professional value judgments as well as upon findings arguable on purely scientific and technical grounds." More pointedly, the form states:

> "Some instances may arise when it would be inappropriate for a member of ERAB who had substantial professional or financial interest that would be affected by the outcome of the deliberations to participate in the review or consideration of a particular issue before the Board. In other instances it may be necessary, in order to insure that adequate competence is represented in the review, to deal with the potential conflict of interest by insuring that the ERAB reviewing body is constituted in such a way as to represent a balance of potentially biasing backgrounds or interests.
>
> "There may be more subtle sources of potential bias. There might be, for example, prejudgments implicit in views to which you are publicly committed, or conclusions given as an expert witness in administrative or legislative proceedings. You are asked on the reverse hereof to indicate any such factors that in your opinion might reasonably be construed as potentially compromising your independence of judgment in matters within the assigned task of the group to which you have been appointed."

ERAB and study group members are unpaid and hence are not required to file disclosure statements. However, we believe the integrity of the advisory process would be well served by requesting statements on a voluntary basis.

CHAPTER 4

PROBLEMS WITH TECHNICAL QUALITY OF THE REPORT

The most frequent criticisms of the Gasohol Study Group cited in the allegations deal with the technical quality of the Study Group report. In this connection, 6 of the 12 allegations identified perceived deficiencies in the report's treatment of the gasohol issue. The specific allegations in this category concerned

- --the failure to use scientific data or facts other than those previously published by the Study Group participants in the preparation of the report,
- --the Study Group's use of excessively high energy consumption estimates for the fermentation and distillation process in performing its ethanol energy balance analysis,
- --the failure to cite the energy losses in the methanol from coal conversion process when challenging the net energy performance of ethanol,
- --inadequacies in the Study Group's projections of future ethanol production levels,
- --the lack of evidence to support the report's contention that ethylene-based ethanol was being sold surreptitiously in the gasohol marketplace, and
- --the failure to use proper cost estimating procedures particularly in the development of the costs for producing methanol from coal.

Our review of these allegations produced mixed results. We found several of the allegations to be at least partially valid. Others we found to have little merit. In addition, we have several overall observations about the report which may have broader and more significant applicability to the ERAB reporting process in general. Each of the allegations and our overall observations are discussed below, following a general description of the process used to prepare the Study Group report.

HOW THE GASOHOL STUDY GROUP REPORT WAS PREPARED

As discussed in Chapter 1, the Gasohol Study Group was given the task of developing a rapid response to specific questions on the gasohol issue. Recognizing the need for haste and the limited time available for Study Group meetings (the Study Group met for only 2 days), the Study Group chairman assigned himself and two other Study Group participants the responsibility of preparing preliminary drafts of individual report sections prior to the Study Group's meetings. These sections and their preparers were

Report section	Preparer
Ethanol Energy Balance and Production Economics	Dr. Hinman
Methanol Production	DOE staff member
Agricultural Impacts	Dr. Pimentel

In addition to these three sections, a fourth topic--the production of ethanol from cellulose--was prepared by a subgroup of the Study Group during the 2 days of meetings. Together, these four sections formed the Study Group's report.

In addition to preparing the cellulose section of the report, the 2 days of meetings were essentially spent debating various elements of the report section on ethanol energy balance and production economics. This was the only report section that generated significant disagreement among Study Group members. In its final form, this section continued to generate the greatest controversy. The other three report sections were adopted without detailed discussion.

Two days after the conclusion of the Study Group meetings, a first draft of the Study Group's overall report (dated December 13, 1979) was circulated to the Study Group members. Based on the comments received, various modifications to the report were made. Several revised report drafts followed and the Study Group's report was submitted to the full ERAB on February 8, 1980. After incorporating a number of changes suggested by ERAB members, the report was approved by ERAB and issued on April 29, 1980.

ALLEGATIONS CONCERNING TECHNICAL REPORT QUALITY

Each of the specific allegations addressing perceived deficiencies in the Gasohol Study Group report's technical quality is discussed below.

Limitations on data used by the Study Group

The first technical deficiency listed among the 12 allegations concerns the failure of the Study Group to use data or facts other than those previously published by Study Group members in preparing its report. We believe this allegation has limited merit.

Although not included in earlier report drafts, the final Study Group report contains a long list of references from a wide range of sources, most of which were not prior publications of Study Group members. Our review of the report shows the frequent citation of external references in the body of the report. Study Group members also told us that many reference materials were actively used in their deliberations and ultimately incorporated into the report.

While external references were frequently cited, it is accurate that the key and most controversial findings were more heavily associated with the Study Group members. As mentioned earlier, the most controversial report section, concerning ethanol's energy balance and production economics, was drafted on a preliminary basis by Dr. Hinman. Dr. Hinman told us that in preparing this section he relied heavily on the previous experience of a Pfizer engineer. Relatedly, during the Study Group's discussion of this report section, Drs. Scheller and Weisz in presenting their opposing views, relied on their previous personal findings and statements in the formation of their arguments. We do not believe such reliance is unnatural, however. In fact, it is to be expected that if the Study Group members were experts in their respective fields they would rely upon their own previous experiences extensively.

Use of excessively high energy consumption estimates for the fermentation and distillation steps in the report's ethanol energy balance analysis

The basis of this allegation is that the Study Group did not consider valid evidence in conducting its ethanol energy

balance analysis. We believe this allegation has partial validity. The data cited in the report is supportable, but other data which could have resulted in different conclusions was also available but was discounted.

One of the most controversial issues in the gasohol area concerns whether ethanol consumes more energy in its production process than is contained in the final product itself. If this is so, gasohol critics contend that ethanol cannot make a contribution toward resolving the Nation's energy supply problems. As we pointed out in a previous report, 1/ we believe the issue of net energy analysis has been overemphasized. If a fuel other than petroleum or natural gas is used in the ethanol plant, ethanol production adds to the Nation's liquid fuels supply and this should be a primary objective.

Nonetheless, the energy balance situation for ethanol was cited by the ERAB chairman as one of the two key conclusions of the Gasohol Study Group report. Hence, the data used to develop the conclusion has drawn considerable attention. One of the major data elements in the Study Group's analysis was the amount of energy consumed in the fermentation and distillation process in an ethanol plant. The Gasohol Study Group report claims that with "best available technology" 2/ 69,000 British thermal units (Btus) of energy are consumed in the fermentation and distillation process to produce each gallon of anhydrous ethanol (pure ethanol with all water removed) from corn. The report recognized that claims for this figure ranged from 40,000 to 148,000 Btus but based on personal communication from a Pfizer engineer the 69,000 Btu figure was chosen. This figure was accepted by the Study Group members with the most experience in the field--Drs. Hinman and Scheller.

There is evidence, however, that a lower figure could have been chosen. Raphael Katzen Associates, a prominent

---

1/"Potential of Ethanol As a Motor Vehicle Fuel," (EMD-80-73, June 3, 1980).

2/Best available technology was defined elsewhere in the report as that technology expected to be available by 1985.

firm in the field of plant design, has claimed 1/ that its plant design could achieve a value of 55,000 Btus. Another prominent firm in the field, Bohler Brothers of America, Inc., claims 1/ its plant design consumes 67,000 Btus in the fermentation and distillation process. The Study Group was aware of these estimates but claimed that the 69,000 Btu figure was proven in actual operation, and because the other estimates were less conclusively proven they chose the more conservative value.

The Study Group was also made aware by an official in DOE's Office of Alcohol Fuels of a claim that a small-scale plant in Colorado was achieving an input of only 29,000 Btus in the fermentation and distillation process. The Study Group chairman told us that no substantiation for this claim was made and hence it was not used. An official in DOE's Office of Alcohol Fuels who supports the claim told us that he did not provide further substantiation because he was not asked to do so.

In addition to the allegation concerning the fermentation and distillation figure cited in the report's net energy balance analysis, other parts of this analysis can be questioned as well. For example, the report claims that 45,000 Btus per gallon of ethanol are consumed in growing the corn feedstock. Other analyses reported by the Office of Technology Assessment and the American Petroleum Institute estimate only about 34,000 Btus are consumed in this process. The value assigned for the energy content of ethanol has also been disputed in previous reports.

The choice of assumptions and figures in energy balance analyses are significant. The figures used by the Gasohol Study Group result in a bottom line that more energy is consumed in the ethanol production process than is ultimately contained in the product of that process. If other values are used, the process can be shown to have a considerable positive balance.

1/This data was contained in material submitted by the Mobil Research and Development Corporation to the House Subcommittee on Antitrust and Restraint of Trade on October 18, 1979.

Failure to fairly cite energy losses in the production of methanol from coal

Related to the previous discussion, this allegation claims that while the report discusses the energy balance issues associated with ethanol production in detail, it does not consider the significant conversion losses in the production of methanol from coal. Our review disclosed that this allegation is not valid.

The allegation states that the report challenges ethanol on a net energy return basis, yet does not consider the "2 for 1 Btu loss in producing methanol from coal." On page 22, however, the report states that the "Process efficiency [of producing methanol from coal] is considered to be about 50 percent." This means that about one-half of the energy originally contained in the coal feedstock is present in the methanol produced. The other one-half of the original energy is lost in the conversion process.

It is true that energy balance issues related to ethanol are discussed more extensively in the report than the conversion losses associated with the methanol from coal production process. However, the net energy balance of ethanol can be a more significant issue if a scarce fuel such as oil or natural gas is used in the ethanol production process. In this connection, it is important to know whether more scarce fuels are going to be consumed in producing ethanol than would be saved by ethanol's displacement of gasoline. This potentiality is not present in the methanol production process since the energy needed to convert the coal to methanol is provided by the coal itself. Hence, we do not find significant fault with the disparate levels of discussion devoted by the report to the two fuels.

Inadequacies in projections of future ethanol production levels

The primary thrust of this allegation is that the report's projection of a 200-300 million gallon annual ethanol production level by 1985 (incorrectly identified in the allegation as 1981) lacked a statistical basis. Our review showed that the allegation failed to identify an important qualifier contained in the report's estimate and that this qualifier makes an otherwise highly conservative projection appear more reasonable.

The Gasohol Study Group report includes among its recommendations the statement that there is a high probability of reaching 200-300 million gallons of ethanol production per year by 1985. The report states that this projection assumes no oil or gas is used in the distillery. This is an important qualification since most current domestic production uses natural gas as its distillery plant fuel.

After being cited among its recommendations the projection is not discussed or supported with any analysis in the body of the report. Consequently, it is not possible to determine the validity of the procedures used to develop the projection. However, one Study Group member told us the projection was not the product of any detailed analysis or in-depth thought. It was merely an "off the cuff estimate" that the Study Group members regarded as having little importance. In this sense, therefore, it is accurate that the Study Group's projection did lack a detailed statistical basis. Nonetheless, in his letter transmitting the report to the Secretary of Energy, the ERAB chairman cited the projection as one of the two principal conclusions of the report. His letter also failed to identify the qualifier contained in the report.

In this context, we examined other ethanol production projections to assess the reasonableness of the Study Group's projection. As cited in the allegation, officials of the Archer Daniels Midland Company have announced that they expect to achieve a production capacity of 250 million gallons by the end of 1981. A company official told us they still regard this production level as being fully achievable. However, he added that most of their expected capacity will be fueled with natural gas. In addition, we reviewed a survey of possible ethanol producers conducted for DOE and published prior to the Study Group meetings. This survey estimated that total ethanol production would be between 272 and 352 million gallons a year by the 1981-1982 period, not 1985 as set forth in the Study Group's report. However, once again most of this capacity was expected to use natural gas as a fuel. Finally, an earlier DOE report 1/ estimated that 300 million gallons a year could be achieved by 1982 and 500-600 million gallons a year could be reached by 1985. This study made no clear statement on how much of this production potential would involve the use of oil or natural gas but only suggested that up to 40,000 barrels of oil per day could be saved if minimal oil was used in manufacturing ethanol.

1/The Report of the Alcohol Fuels Policy Review, June 1979.

Consequently, while the Study Group's projection was developed without detailed analysis and on the surface appears extremely conservative, the inclusion of a key qualifier makes the projection more reasonable than would otherwise be the case. If production from facilities using oil or natural gas is deleted from other projections we reviewed, the Gasohol Study Group's projection becomes more reasonable.

Lack of evidence on use of petroleum-based ethanol in gasohol

This allegation disputes the Gasohol Study Group report's finding that "there is some evidence that ethanol from ethylene [a petroleum product] is being used to replace fermentation ethanol." In this instance, we believe the allegation is valid. We find no evidence that supports the report's claim.

The report itself provides no support for the claim. The statement at issue is referenced in the report to an article in a chemical industry periodical. We examined this article and found that it provided no mention of this claim. In addition, we discussed the report's claim with the Study Group participants. None of these participants could supply any further evidence. Finally, we examined gross statistics of historic ethanol production from ethylene. We found that between 1978 and 1979 ethanol production from ethylene, rather than increasing as would be expected if the claim were true, actually declined.

Failure to use proper cost estimating procedures

While addressing the soundness of the cost estimating procedures used by the Study Group in general, this allegation is specifically directed to the Study Group's cost estimates for producing methanol from coal. In particular, the allegation contends that the Study Group failed to include construction costs in developing its methanol cost estimates. Our review has shown that this allegation has little merit.

The Study Group report estimates that the selling price of methanol from coal could be $0.67 per gallon. This estimate was based primarily on the results of a 1978 study performed for DOE by the Stanford Research Institute. Contrary to the allegation, the selling price derived from this study

does include a factor for recovering the costs of constructing the plant. It does not, however, include costs associated with the infrastructure requirements of such a facility.

OVERALL OBSERVATIONS OF THE STUDY GROUP'S REPORT

In the process of evaluating the allegations concerning the report's technical quality, we made a number of generalized observations related to the Study Group's report that were not specifically identified in the allegations themselves. In this connection, we found that the Study Group members

- --generally adopted a conservative course in arriving at their findings and incompletely reflected differing points of view in presenting a consensus report, and,
- --had little expertise in the fields of methanol from coal production and the role of tax incentives, yet were asked to address these topics in the report.

Report generally expressed conservative viewpoints without adequately expressing the range of uncertainties in the data

In any analysis dealing with the future of a technology such as alcohol fuels production, a large range of uncertainty surrounds almost any projection that can be made. In adopting its findings, particularly on the more controversial issues, the Study Group generally formulated a consensus position which was normally conservative and did not completely reflect the differing viewpoints that were present. We believe this approach is the primary reason the Study Group report has been perceived as a negative report on gasohol in many circles and, as such, contributed significantly to the report's controversial nature.

In developing its findings on a number of key technical issues addressed in the report, Study Group members had to contend with data that ranged widely and, depending on the values eventually accepted, could have led the Study Group to adopt vastly different positions. Consistently in its deliberations of these controversial points, the Study Group adopted data which was more conservative and conclusively established than other more optimistic, although possibly less certain, data. For example, in discussing the

potential ethanol production from crop residues, the Study Group report estimates that about 1.9 billion gallons a year could be produced after 1985. This estimate is less than one-sixth the size of a comparable projection made in DOE's June 1979 report on alcohol fuels. The estimate was adopted based on various conservative assumptions of the amount of residues that could be removed from the farmland without precipitating excessive soil erosion. The desire for conservatism was also apparent in the report's treatment of ethanol's energy balance.

In addition to adopting data in the more conservative ranges of those available, the report as a consensus document also frequently failed to adequately identify the differences of opinion that existed on the points of controversy. For example, in the report's treatment of ethanol's energy balance, the report assigned a credit of 8,000 Btus to reflect ethanol's octane boosting value in saving energy in the gasoline refining process. This credit is much lower than the 25,000 Btu credit originally suggested in the first draft of the section and vastly lower than the possible credit of about 42,000 Btus suggested by the Office of Technology Assessment. Moreover, in recent testimony before DOE, a major oil company has stated that each gallon of ethanol produced can not only transplant one gallon of gasoline when mixed as gasohol, but can also save an additional gallon of gasoline in the gasoline refining process. These analyses reflect the wide range of higher values that could have been assigned to this factor. However, the report assigned a value of 8,000 Btus for this credit without providing any indication that it was extremely conservative or that considerable differences of opinion existed. These determinations were significant to the analysis. If values on the optimistic end of the spectrum had been chosen a far different conclusion on ethanol's energy balance performance could have been drawn. The Study Group's analysis showed a small net energy loss. If the more optimistic values had been chosen, the balance could have been shown to be significantly positive.

The failure to adequately reflect differing viewpoints is also present on the Study Group's treatment of ethanol's manufacturing costs. The report contains a pie-chart figure which shows that the cost of corn makes up 73 percent of the cost of producing ethanol. The pie-chart, however, does not reflect an important production credit 1/ that if

---

1/The value of animal feed by-products of the ethanol production process are not incorporated as a production credit.

included, would have reduced the above figure to 62 percent. A footnote to the pie-chart indicates that the credit had not been included. This issue became a matter of debate among Study Group members but it was ultimately decided not to reflect the lower value that would result from including the credit in the pie-chart. Instead, a generalized statement on the impact of by-product credits was included among the report's list of findings.

ERAB's endorsement of the report makes it a report of ERAB, not the Gasohol Study Group. During ERAB's February 1980 meeting when the draft report was being considered, several members criticized the report and directed several changes. One member of ERAB, however, has stated that his points of disagreement with the report were not adequately addressed. In a July 5, 1980, letter to the Secretary of Energy, this ERAB member stated that his comments were for the most part disregarded and the the report "gives a seriously distorted picture of the potential of fuel alcohols." Concerning the controversial areas of ethanol's energy balance and production economics, the ERAB member stated in particular that "The flat conclusions stated do not reflect enormous ranges in the data."

Lack of capability present to adequately address methanol from coal and tax incentive issues

As part of its study on gasohol, the Study Group was given the task of investigating the comparative benefits of methanol production from coal and the need for additional tax incentives for gasohol production. Because of the lack of expertise in the Study Group, we do not believe the report's treatment of these issues was sufficiently indepth. On these subjects at least, the appearance that the report represented the best work of experts in the field is misleading. In future advisory committee efforts, we believe DOE should take steps to assure that study groups have the right mix of expertise among their members to offer opinions on the issues upon which they are asked to provide advice.

Methanol from coal

Although the Gasohol Study Group was asked to evaluate the comparative benefits of methanol from coal as part of its analysis, the Study Group chairman told us that no one on the Study Group had detailed knowledge about methanol from coal technology. In this context, the methanol from coal section of the report was written by a DOE support

staffer. The support staffer was at the time, however, chief of DOE's Biomass Energy Systems Branch and also had no detailed knowledge about methanol from coal. Consequently, in putting together the report section, the DOE staffer simply summarized previous DOE reports in the area.

In this manner, an advisory committee to DOE provided advice to DOE based primarily on a DOE employee's summarization of reports already available to DOE. Recognizing this deficiency, several Study Group members suggested that any discussion of methanol from coal be deleted from the report. Because this was one of the Study Group's assigned questions, however, it was decided to include the section. The report section generally did not contain controversial material but we nonetheless believe it is misleading to attach the prestige of ERAB to an analysis in which none of the Study Group members performed any independent analysis or had detailed knowledge of the subject.

Necessity for additional tax incentives

The adequacy of ethanol's tax incentives is another issue the Study Group was asked to address without expertise among its members. As stated in the ERAB charter, the primary mission of ERAB is to render advice on research and development policy matters. Accordingly, the Gasohol Study Group was composed of scientists having expertise in technologies related to ethanol production. This expertise well equipped the Study Group for rendering scientific and engineering advice on research and development and other related matters. However, we do not believe the scientific backgrounds of the Study Group members qualified the Study Group to render advice related to the adequacy of gasohol tax incentives. We also believe this task was inconsistent with the nature of ERAB's scientific mission.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

On April 29, 1980, ERAB submitted its "Energy Research Advisory Board Report on Gasohol" to DOE. This report has since become highly controversial and specifically triggered 12 allegations by the former acting director of DOE's Office of Alcohol Fuels concerning the conduct of the Study Group. The allegations generally fall into three areas--(1) nonadherence to legislative requirements governing Federal advisory committees, (2) the selection and qualifications of Study Group members, and (3) the technical quality of the Study Group's report. We assessed the validity of each of these allegations and in addition developed some observations of our own.

Concerning nonadherence to Federal advisory committee requirements, we found that the Gasohol Study Group was not operated in accordance with requirements governing Federal advisory committees. DOE asserts that the Study Group did not have to adhere to FACA because, in its view, subgroups of advisory committees are not actually advisory committees and hence are not bound by FACA's requirements. We found that DOE's interpretation is at odds with that of the lead Federal agency in this area--GSA--as well as 12 other Federal departments we surveyed. Moreover, we found that even under the terms of DOE's interpretation, the Gasohol Study Group operated as an advisory committee and should have been bound by FACA's requirements.

Challenges to the credibility of the advisory committee process, as occurred in the case of the Gasohol Study Group, seriously reduce the value of the advisory input provided. We believe an effective means of restoring integrity to the process is to strictly comply with the legislation governing advisory committees. In this connection, DOE should change its policy regarding subgroups to conform to the lead Federal agency in this area--GSA--as to what constitutes an advisory committee under FACA.

Concerning the allegations related to the selection of Study Group members, we found that for the most part there was insufficient evidence to confirm the allegations of conflict of interest on the part of Study Group members. We did find, however, that the allegations related to the Study Group's qualifications for assessing certain gasohol-related issues were at least partially valid. Moreover, we observed

that the Study Group member selection process was non-systematic and highly personalized.

We believe the study group member selection process is at the heart of the allegations related to possible conflict of interest and inadequate Study Group qualifications. The current non-systematic process increases the likelihood of controversy as experienced in this case and promotes internal DOE strife associated with naming members to study groups. We believe it is more prudent to prevent such situations before they occur rather than debating the merits of various claims after they occur. A more systematic procedure for selecting study group members would be an important step to this end.

Finally, concerning technical report quality, we found that the allegations had mixed validity. Some of the allegations had little merit, others were partially valid, while another was fully valid. In addition, we made several observations not specifically identified in the allegations. We found that the Study Group's report was deficient in that the full range of conflicting viewpoints was not always presented. We also found that the Study Group report addressed two subject areas--methanol from coal and gasohol tax incentives--which the Study Group members were not well equipped to address.

We believe as a matter of good reporting practice that the full range of valid scientific viewpoints on an issue should be present in a technical report such as the Gasohol Study Group report. In addition, we believe DOE's advisory committee reports should contain a description of the review's scope and methodology so as to set forth any limitations of the advisory committee's analysis. In this manner an advisory committee report's findings and recommendations can be more objectively assessed and rationally used in the policy development process.

RECOMMENDATIONS

To enhance the integrity of DOE's advisory committee process, we recommend that the Secretary of Energy take those steps necessary to make DOE's policy regarding advisory committee subgroups conform with the position of the lead Federal agency--GSA--responsible for Federal advisory committee activities. In this connection, we believe the Secretary of Energy should revise DOE's regulations regarding advisory committees to require that such subgroups, when serving in the capacity of advisory committees themselves, (1) be chartered, (2) have meetings which are open to the public and announced in the Federal Register, (3) keep detailed minutes of

completed meetings, and (4) make drafts or other documents prepared by the subgroups available for public scrutiny.

To correct weaknesses in ERAB's procedures for selecting Study Group members and reporting its findings, we recommend that the Secretary of Energy direct DOE's ERAB support office to:

--implement a more systematic basis for selecting members to its study groups, and,

--adopt the requirement that in preparing its reports ERAB present (1) all valid minority viewpoints on the issues it is addressing in addition to the consensus viewpoint and (2) the limitations of its analysis including a description of the review scope and methodology employed.

To insure that sound policies and practices for selecting members of subgroups to advisory committees and for reporting advisory committee findings are being followed throughout DOE, we recommend that the Secretary of Energy undertake a DOE-wide review of its advisory committee activities. If the same problems evident on ERAB subgroups are found during this review, we believe the Secretary of Energy should implement our recommendations with respect to these advisory committees as well.

- - - -

At the request of Representatives Daschle, Bedell, and Fithian, we did not obtain official DOE comments on this report. However, we solicited the views of cognizant DOE officials and the views of those individuals alleged to have conflicts of interest. Regarding the latter, three of the four individuals provided their views and changes were made to the report to recognize those views. The remaining individual did not provide any views. The views of cognizant DOE officials are discussed below.

We discussed our recommendation addressing DOE's policy on subgroups of advisory committees with officials in DOE's Office of General Counsel. These officials told us that they continue to believe that their legal interpretation of FACA is correct and that advisory committee subgroups reporting directly to the parent advisory committee should not be bound by FACA and related requirements. They also said they would be opposed to a change in DOE policy on this issue unless DOE was provided the same opportunities for closing advisory committee meetings under FACA as other Federal agencies. In

this connection, they said that under section 624 of the DOE Organization Act, DOE can close meetings to the public under only two conditions--concerning national security and confidential business information--while other agencies, governed by the generalized provisions in FACA, can close meetings under 10 conditions. They said, however, that they are preparing no legislative proposals to alter provisions of the DOE Organization Act.

Despite these comments we believe our recommendation has merit and should be acted upon. Concerning DOE's Office of General Counsel position that subgroups become advisory committees under FACA only when they advise DOE directly, we believe that as a practical matter (exemplified in the case of the Gasohol Study Group) it is extremely difficult to prevent advice being developed by subgroups from reaching DOE prior to approval by the parent body. Therefore, if the public is to have the opportunity to monitor and participate in the advisory process, subgroup activities must be open in the manner intended by FACA.

In this connection, officials in DOE's ERAB support office told us they are exploring the possibility of proposing a modification to the FACA requirements for subgroups of advisory committees. These officials told us that conforming to GSA's current policy regarding subgroups would have adverse consequences on DOE's ability to obtain timely advice from its advisory committee subgroups. These officials said the chartering process can be time consuming and hence could prevent DOE from obtaining quick advice on issues requiring speedy handling. They further said that a compromise position which would involve waiving the chartering requirement while complying with all the other requirements for assuring public participation was acceptable and was being explored for possible proposal to GSA. It was recognized, however, that such a proposal would require a change in FACA's provisions.

We recognize that under certain circumstances the requirement to obtain separate charters for advisory committee subgroups might impose burdens on the advisory process. Hence, DOE's efforts to obtain the flexibility for waiving the chartering requirement while strictly following the requirements for assuring public participation may have merit. However, any such legislative proposals could take time to develop, present, and have approved. In the interim, we believe that the public interest would be best served through DOE's conformance with the policies set forth by GSA and implemented by other Federal agencies.

Concerning DOE's Office of General Counsel's desire for equal conditions for closing advisory committee meetings, we believe this is an issue that should be addressed on its own merits and not be linked to possible changes in DOE policy on advisory committee subgroups. We accordingly believe our recommendation should be considered independently of any possible action on this related issue.

We discussed our recommendations related to improving ERAB's subgroup member selection process with officials in DOE's ERAB support office. These officials agreed that a more systematic process for selecting subgroup members is needed.

We also discussed our recommendations toward improving the quality of ERAB reports with officials in DOE's ERAB support office. These officials agreed with our recommendations.

APPENDIX I

Department of Energy
Washington, D.C. 20585

May 1, 1980

MEMORANDUM FOR THE SECRETARY

FROM: E. Stevens Potts, Acting Director
Office of Alcohol Fuels
Conservation and Solar Energy

SUBJECT: Energy Research Advisory Board: Report on Gasohol

As you are aware, the ERAB has been gestating for some time now over a report on Gasohol.

The effort, which was originally touted to be a quick look by high-level scientists at the gasohol issue, has dragged on for several months, amid considerable controversy.

The controversy focuses upon the objectivity of the panel and the effort, and casts doubt on both the objective, independent judgment and scientific character of the ERAB itself, and upon the utility and viability of the ERAB as an advisory panel providing scientific judgment to top-level government policy makers.

The issues against this particular effort include:

1. The selection of the Study Group Chairman, who was a paid consultant to the major industry antagonist (Mobil Oil) against gasohol, and who had published in scientific journals a viewpoint which is prejudiced against fuel alcohol.

2. The inclusion of Dr. Tom Stelson as a panel member during the time he was under the confirmation process to be the Assistant Secretary for Conservation and Solar Energy and thus an allusion to the liability of the potential of his being materially influenced by senior level policy makers in the Department.

3. The inclusion of the major industry opponent to gasohol (Dr. Paul Wiesz, Director, Mobil Research and Development Corporation) as a group member during the period of time when Mobil was actively fighting gasohol while simultaneously promoting the Mobil process to convert coal to methanol, along with a representative of a major competitor for fermentation feedstock, Dr. Richard Hinman, V.P., Pfizer, Inc. With Stelson absent and preoccupied much of the time with his confirmation process, the majority of the study group participants thus was constituted of antagonists, not objective scientists.

4. The lack of inclusion of any balanced representation of the alcohol fuel industry. Only one representative, Dr. William Scheller, could claim any substantial exposure to the industry.

5. The lack of public announcement of the Study Group Meetings, the complete lack of public participation or representation in the process, and the violation of DOE regulations in the manner and method in which the Study Group carried out its business, including the failure to provide a public transcript for the majority of the meeting time, or the opportunity for the public to attend the meetings.

6. The almost complete lack of scientific data or statistical facts, other than previously published works by the Study Group participants.

7. The challenge to ethanol on the net energy return basis, without consideration of the 2 for 1 BTU loss in producing methanol from coal.

8. The obvious inaccuracies and lack of statistical basis in the projections developed by the group. (Projecting 200-300 million gallons per year maximum by late 1981, when one major producer (ADM) alone has announced a capacity of 250 million gallons by the end of 1981.)

9. The lack of financial expertise by the members of the panel, yet the heavy dependence upon their own financial projections as a basis for their judgments.

10. The allusion to "evidence" of the use of ethylene-derived ethanol to replace fermentation-based ethanol in gasohol, without scientific or sound evidentiary basis.

11. The complete lack of regard to proper cost estimating procedures in the data presented in the report, including the failure to include construction costs in estimates of costs to produce methanol from coal.

APPENDIX I

12. The use of energy consumption figures which fail to represent any documentary evidence for ethanol fermentation and distillation, and far exceed tested data derived from actual plants.

Those twelve points are only a few of the controversies surrounding this particular study. It now appears publicly to be just what we assumed it to be at the outset, an attempt to "railroad" the gasohol issue by enveloping a biased and poorly substantiated report in the cloak of supposed scientific judgment of the Energy Research Advisory Board.

The truly unfortunate aspect of this effort is that the manner in which it was conducted will cast doubt upon the integrity, capability and scientific independence of the Energy Research Advisory Board, and simultaneously create repercussions for the Department of the sort shown at Tab A.

I believe your public comments on the report should be as follows:

- The Energy Research Advisory Board has issued a report of a Study Group on Gasohol.
- Considerable doubt has arisen as to the method in which the Group was convened, the selection process for the members of the group, and the objectivity and scientific basis of their report.
- Further doubt has been cast upon the method by which the Energy Research Advisory Board carries out its charter.
- We will consider the report as just that, a report by a group of hastily convened individuals, some of whom may be substantially biased in their outlook by the fact of their personal situations.
- The report will not be considered as a statement of this Department's policy or outlook on the gasohol issue.
- We will review the Energy Research Advisory Board activities and method of operation and determine whether or not action should be taken to see that its future efforts conform more closely with existing laws, DOE regulations, and the need for objective judgment by the Department of Energy.
- You should then indicate that you have not reviewed the report itself and will make no comment as to its content.

(307192)

AN EQUAL OPPORTUNITY EMPLOYER

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

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

POSTAGE AND FEES PAID
U. S. GENERAL ACCOUNTING OFFICE

THIRD CLASS