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Composition of Transportation Synfuels: R & D Needs, Strategies and Actions

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ABSTRACT

On October 11-13, 1978 a conference on **Composition of Transportation Synfuels** was hosted by Southwest Research Institute with the support of the United States Department of Energy. Persons in attendance were key members of the technical community who are actively involved in the development and utilization of nonpetroleum domestic resources for transportation fuels. Generally, attendees represented the federal, military, industrial, and academic sectors of the do-

mestic effort to develop synthetic fuels. The basic conference objective was to gather and organize facts and opinions which would enable the Department of Energy's Transportation Energy Conservation Division to (a) identify adjustments which may be needed in their Alternative Fuels Utilization Program strategies, and (b) define specific R&D project work on finished formulations of synthetic fuels which may have economic or environmental impact upon the domestic transportation scene.

PREFACE

The world will eventually run out of petroleum. Whether this occurs in the 20th or 21st century is of consequence only to the extent that it dictates the rate of development of new technology for utilization of nonpetroleum resources.

Development of this new technology is monumentally expensive; private industry cannot—and should not—be expected to bear this expense alone. Federal encouragement in the form of guarantees, subsidies, incentives, etc., have been and will doubtless continue to be debated for some time to come. Such discussion is well-warranted and healthy in a free society, but its significance is totally dependent upon obtaining accurate and objective technical facts. The basic purpose of this conference has been to gather and organize facts and opinions which will enable the Department of Energy's Transportation Energy Conservation Division to (a) identify adjustments which may be needed in their Alternative Fuel Utilization Program (AFUP) strategies, and (b) define specific R&D project work on finished formulations of synthetic fuels which may have economic or environmental impact upon the domestic transportation scene. This necessarily includes consequences of tradeoff among fuel composition, engine design, and energy utilization. The ultimate AFUP goal is to optimize energy utilization when considering the overall energy efficiency of resource/fuel/engine/vehicle system.

During October 11-13, 1978, some 125 representatives of federal government, private industry, military, and university R&D sectors met in San Antonio, Texas, to provide raw material for this purpose. They had been challenged to both formally and informally express opinions and discuss facts on the state-of-the-art of technological and institutional techniques applicable to the development of finished synthetic fuels. This will benefit planning of research and development programs needed to bolster transitional strategies for introducing synthetic fuels into transportation

systems.

A mixed format of panel discussions, formal presentations, technical briefings, and highly informal workshops was employed. The above-named technical sectors were represented by panels of established leaders in their fields; invited special presentations included:

- The DOE Alternative Fuels Program Plan
- The PARHO project
- The World War II German Synfuels program

The first two days of the conference were concluded with workshops on:

- R&D Project Brainstorming
- Means to Stimulate R&D Actions

The final morning of the conference was devoted to a composite summary panel whose members represented all sectors of domestic synfuels R&D.

In these proceedings an effort has been made to distinguish between technical and nontechnical factors which may impede or promote the future availability of alternative transportation fuels and, in addition, to estimate their relative importance to an infant industry aimed at efficiently supplementing our steadily diminishing domestic petroleum reserves while providing a proper balance between independence from and interaction with world commerce.

The results of a conference like this involving a broad cross section of researchers are logically a potpourri of separate ideas. Additional consideration must be given to bring these ideas together and into focus with existing activities and plans so the community can collectively move in a positive manner and seek the support of those who can aid in such actions.

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