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Proceedings: Solar Thermal Power User Review Panel Meeting March 1 & 2, 1979

March 1979

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PROCEEDINGS: SOLAR THERMAL POWER USER REVIEW PANEL MEETING

MARCH 1 AND 2, 1979

COMMUNICATION BRANCH

APRIL 1979

Solar Energy Research Institute

1536 Cole Boulevard
Golden, Colorado 80401

A Division of Midwest Research Institute

Prepared for the
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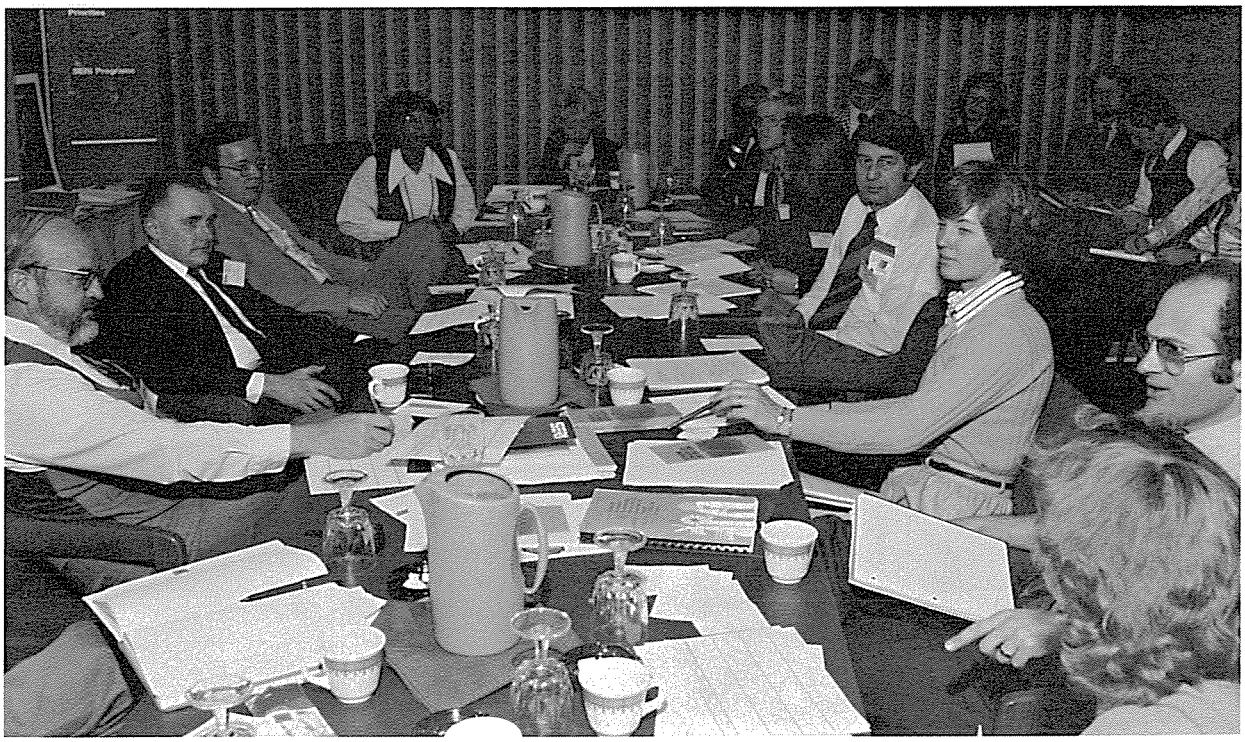

FOREWORD

This document was prepared by the Communication Branch of the SERI Technology Commercialization Division, Margaret Cotton, Project Leader.

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Branch Chief, Communication

Approved for:

SOLAR ENERGY RESEARCH INSTITUTE

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Assistant Director,
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PREFACE

In December 1978 the ETS/Solar divisions of the U.S. Department of Energy adopted a Technical Information Dissemination (TID) Plan, developed at SERI, for the dissemination of solar R & D results. This plan was formulated to assist the early commercialization of solar technologies and to enhance the development of solar industries within the private sector.

Within the plan certain tasks were set aside as primary. One of these was the establishment of an advisory committee titled User Review Panel.

The Solar Thermal Power User Review Panel met for the first time on March 1, 1979 in Denver. This report is a description of the processes and findings of that conference.

Margaret D. Cotton

Margaret D. Cotton
Solar Thermal TID Project Leader
Technology Commercialization Division
SERI

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SECTION 1.0

INTRODUCTION

User Review Panels in the various solar technologies are charged both with a planning and regulatory function. In one sense they provide accountability. More importantly they serve as experienced, multidisciplinary advisors in the creation and evaluation of a communication system.

Because solar technologies must be marketed, must be publicly adopted, and must give rise to a self-sustaining private industry, that portion of the total U.S. population which has expressed an interest in solar energy is segmented on the basis of the need to know solar R&D results, into four target audiences. User Review Panel members were selected from those audiences.

Audience 1 consists of Department of Energy contractors, such as national laboratories and research organizations funded by the government and linked with one another through federal reporting regulations and DOE-monitoring. This audience was represented on the Solar Thermal Power User Review Panel by Dr. Thomas Kuehn of the Jet Propulsion Laboratory, Pasadena, California, and Robert Stromberg of Sandia Laboratories, Albuquerque, New Mexico.

Audience 2 consists of non-DOE sponsored solar R&D programs, plus organizations and individuals who manufacture, install, service, and distribute solar technologies. This audience was represented by Dr. Kenneth Picha of the University of Massachusetts and Donald Newby of Westinghouse Corporation.

Audience 3 consists of a broader, less technical, and in many ways, more demanding group of influencers—political, economic, and socio-industrial. This audience was represented on the panel by Ronald J. Phillips, Director of Industrial Relations, NASA; Frank B. Smith, Executive Director, Solar Thermal Test Facilities Users Association; Rosalyn Barbieri, Economics and Policy Analysis Group, California Institute of Technology; Anna Friedlander, Editor, Solar Engineering Magazine; and Joseph Haggin, Associate Editor, Chemical Engineering News.

Target audience 4 consists of the organizations and individuals who are involved in solar energy either through use of the technology or active expression of interest. George Machovec, Solar Energy Librarian at Arizona State University represented this audience. He was especially qualified because of his interface both with the technical scientific community and with citizens seeking information about solar applications.

During the selection process, an effort was also made to balance the group with regard to sex and seniority. A preference was indulged with regard to seniority, for it was felt that senior executives have not only tried many things and made decisions about them, but are also quick to grasp the scope of a project and the range of possibilities available to a given set of actors. The work of the group was necessarily limited to the task at hand and to the constraints of the mission.

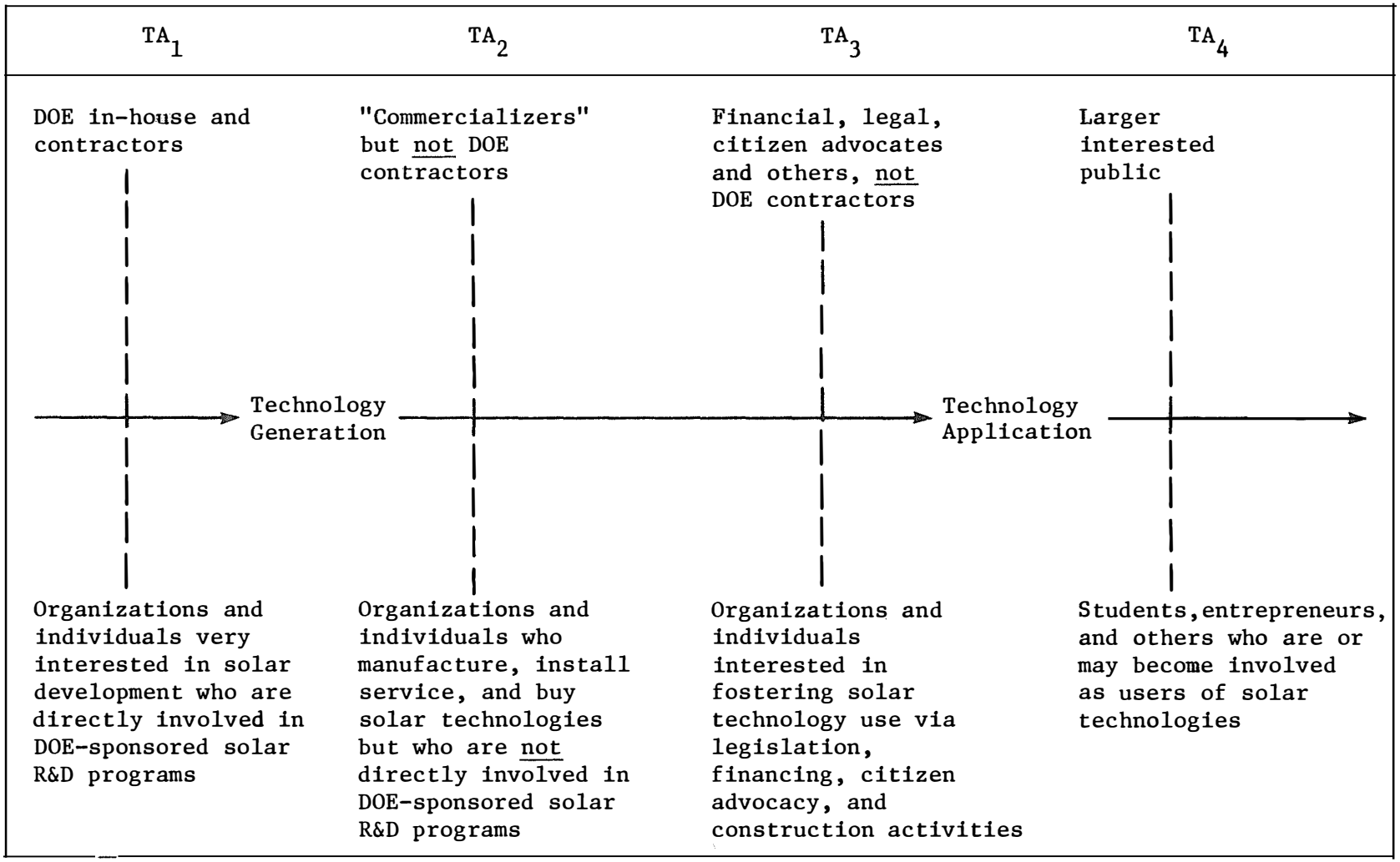

Figure 1-1. FOUR TARGET AUDIENCES (TAs) FOR SOLAR R&D RESULTS

Two constraints were time and place. The panel was limited to a two-day meeting. In addition, the SERI complex was thought to be a distraction. Only partially constructed and furnished, it houses telephones, typewriters, and a number of old friends. With the task in mind, panel members were cloistered together away from the SERI complex.

Just prior to the meeting several SERI presentations were arranged. These helped to set the expectations of the group and to draw a perimeter around courses of action available to the panel.

A senior manager, in his welcome address, made clear what SERI is about, and why the Department of Energy is acting now. SERI's director of public information provided an overview of the current staff and organization. A senior scientist from the solar thermal research group explained what research is in progress at SERI and described the technical information generated by that effort. A representative of SERI's Information Systems Division told the group about present computer capabilities and answered questions about current dissemination activities. The author of the TID plan described its purpose, methodology and strategies. Finally the senior communication specialist responsible for target audience analysis described the characteristics of each of the four audiences. See Appendix A and B: Solar Thermal User Review Panel and Agenda.

SECTION 2.0

SELECTED SERI PRESENTATIONS

THE R&D MISSION IN SOLAR THERMAL TECHNOLOGY

The SERI Solar Thermal Technology Program is divided into four major tasks:

- Small Power Systems Definition and Analysis
- Heat Transfer and Receiver Research and Development
- Collector Performance Standard Test Development
- Materials Support Research and Development

Small Power Systems

The main objective of the Small Power System Study is to evaluate generic solar thermal systems in the 0.1-10 MW_e range and to rank them in order of probability of meeting a predetermined set of cost, performance, and institutional criteria.

Once ranking has been completed, it will be possible to determine whether a specific design variation will significantly change the ranking of a generic option. Generic options are being compared according to common ground rules agreed upon by SERI, PNL, and JPL.

Initially, each generic system will be rough-sized to meet the performance requirement, using selected dates and simplified assumptions. Then each system will be reviewed with contractors, manufacturers, and other laboratories, and modified to reflect updated results. Finally each generic system will be redesigned to meet the performance requirements with a cost-optimized design.

To determine variations in cost and performance for all capacities and capacity factors, each collector/receiver combination will be matched with different energy conversion, transport, and storage options.

Information collected by this study will be disseminated through (1) quarterly DOE Reviews; (2) executive summaries and detailed technical reports; (3) repackaged summary reports condensing quarterly and final laboratory and contractor reports for special audiences; and (4) an annual program locator providing information on organizations and individuals participating in the National Solar Thermal Program.

Heat Transfer and Receiver R&D

This task encompasses theoretical and experimental heat transfer studies, bench-scale studies in the high-temperature receiver laboratory, and tests using the 6-meter paraboloid concentrators at the SERI outdoor facility.

The objective of this task is to identify and resolve both technical and economic questions associated with high-temperature solar technology. Experience and input from the SLA and JPL technology development programs will be utilized. Task objectives will be accomplished by conducting tests on high temperature concentrating collector systems, chemical receivers, and thermal receivers. Subcontracts will be awarded for receiver designs.

Collector Performance Standard Test Development

This task will develop model thermal performance testing standards for concentrating solar collectors in two steps. First, a draft of a step-by-step procedure for measuring the conversion efficiency of concentrators will be used as input to the national consensus standards process. This will be carried out through participation in the newly formed ASTM committee on solar energy which has specifically identified the need for such a standard. Second, this procedure will be demonstrated and refined in an on-site test facility. The facility, or Standard Module (STAM), will serve as a versatile test bed that can be employed not only for standards development, but also for short- and long-term reliability studies, materials characterization, and component development.

The implementation of the STAM test facility can be divided into four steps: facility fabrication, site preparation, instrumentation/data acquisition and installation, and collector procurement. A June 1979 date is set for system completion, with tests beginning in July.

Materials Support Research and Development

The long-range objective of this task is to provide, in concert with industry and other DOE laboratories, a basic understanding of and database for the stability, durability, and compatibility of solar-thermal receiver/heat exchangers. The scope of this effort includes the testing of receiver materials for corrosion and compatibility, thermal radiation properties, and the effect of thermal and mechanical stresses on physical, mechanical, and chemical stability. Time-dependent changes in these parameters will be studied under simulated environments. The task is divided into three major subtasks: Corrosion and Metallurgy, High Temperature Ceramics, and Thin Films and Coatings.

The subtask objectives will be accomplished by a combination of in-house experimental research and outside contracts to utilize the extensive facilities of industry and other DOE laboratories. Components of solar central receivers and parabolic dishes will be subjected to relatively severe thermal shock conditions. Tests on suitably designed specimens of candidate materials may then be conducted under the predicted conditions of stress, strain, time, and temperature. From the data generated the ability of the material to perform under a specific set of conditions may be established.

High-cycle and low-cycle fatigue tests will be performed in environmental chambers to determine fatigue lives, cyclic hardening data, and crack initiation information. In addition, crack propagation data will be obtained utilizing fracture mechanics concepts.

The results of these investigations will produce data which will suggest alloy and ceramic development schemes to reduce failures due to creep and fatigue.

The heat transfer fluids activity includes characterization of fluids and their compatibility with the containment material. The development of new fluids is critical for solar thermal applications in the high-temperature regimes. For this reason SERI will coordinate research activities in thermal fluids and attempt to achieve working fluids capable of meeting the requirements of high-temperature operation.

High-temperature ceramics research will focus on identifying commercially available ceramics that show promise in high temperature receiver applications. It will also isolate the critical materials properties that might limit the lifetime or specifications for the use of ceramics. Subcontracts will be used to procure test specimens.

SERI initiated absorber research will seek to produce a selective absorber that is stable at high temperatures. Activity will center on tests of black chrome, black cobalt, CVD stacks, reactive coatings, and paints. (Films will be oxidized at temperatures between 523-750°K.) As part of the national program, contracts will be placed with industry and universities to produce and develop a variety of surfaces.

TID MANAGEMENT AND ORGANIZATION

The management approach and organization structure developed for the SERI TID program are in direct support of the activities to be undertaken during Year 1. This structure consists of three levels of responsibility:

- program administration
- program management
- program operations.

Program Administration

Program administration authority lies within the ETS Division of Program Resource Management at DOE. It is their purpose to ensure that the program plan is properly conceived and funded, so that it supports and enhances the total commercialization effort.

Program administrators:

- Set policy;
- Approve annual goals, time schedules, levels of professional effort, program evaluation and redesign plans, implementation strategies, and user review panel membership;
- Assure interagency coordination;
- Specify program reporting requirements and approve materials; and

- Review and approve program management, investigations, and dissemination mechanisms.

Program Management

Program management authority lies within SERI's Technology Commercialization Division, with consultation and support from SERI's Information Systems and Research Divisions.

Program managers:

- Set program goals, schedules, levels of effort, and reporting requirements;
- Establish a program evaluation and redesign plan;
- Develop SERI-wide operational procedures for the program;
- Monitor the production of information materials; and
- Prepare reports specified by program administrators.

Program Operations

Program operations authority lies within SERI's Technology Commercialization Division, specifically with project leaders chosen by the program manager from the staff of the Communication Branch.

Project leaders:

- Establish and conduct a user review panel;
- Recommend project-level annual goals;
- Identify, implement, and coordinate TID initiatives;
- Collect and report evaluation data and information; and
- Coordinate SERI TID activities with dissemination projects undertaken at contractor locations.

TARGET AUDIENCE CHARACTERISTICS

Target Audience 1 (TA_1)

TA_1 is composed of organizations and individuals very interested in solar development who are directly involved in DOE-sponsored solar R&D programs. TA_1 includes the personnel of DOE and those organizations who subcontract to DOE for technological and economic research. TA_1 members have the following general characteristics:

- Technically knowledgeable about specific solar technologies;
- Understand the technical jargon of research;

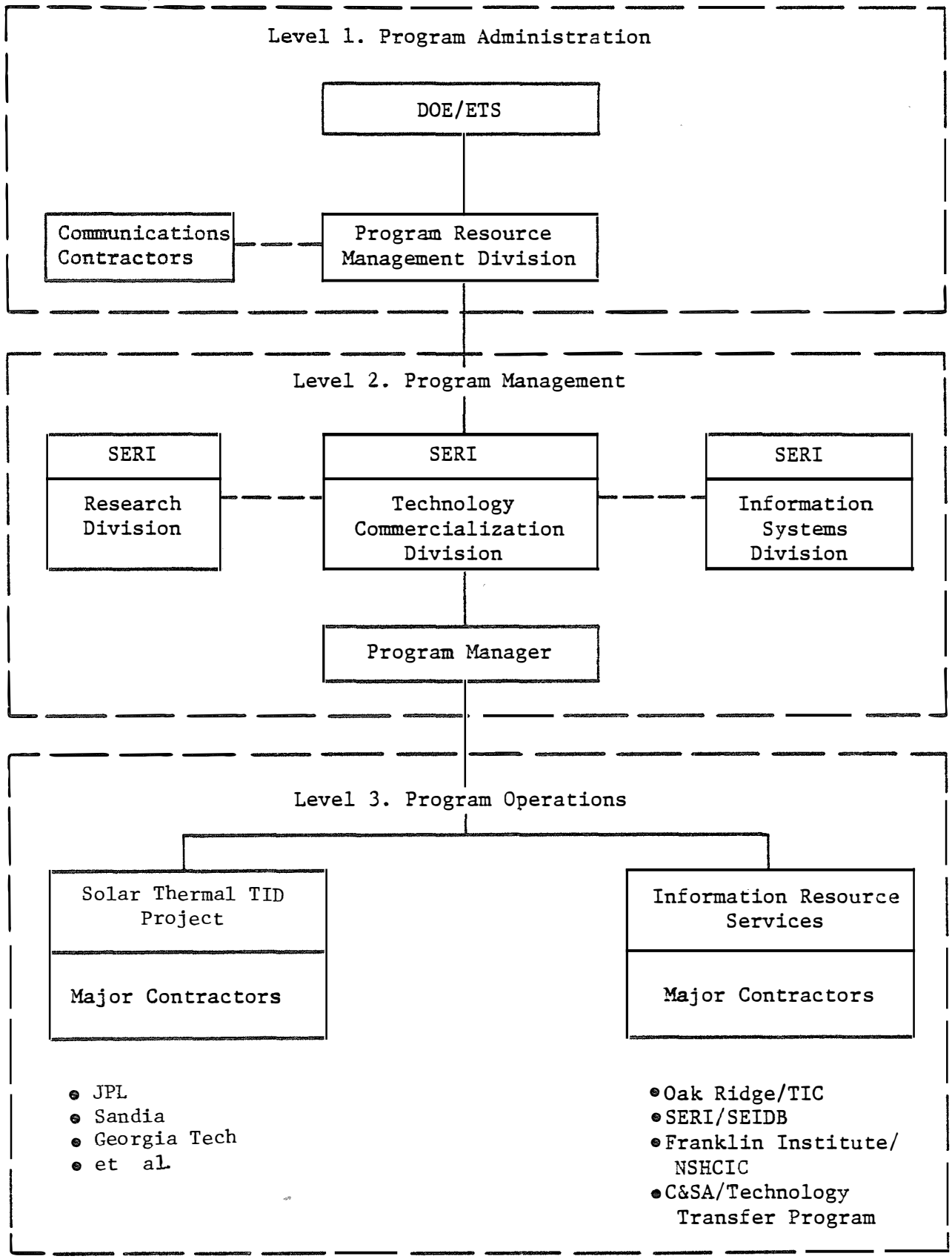

Figure 2-1. FUNCTIONAL ORGANIZATION OF THE SOLAR THERMAL TID PROGRAM

- Interested in research in progress;
- Interested in DOE program information, including RFP's, contracts let, etc.;
- Include some segments of the solar industry;
- Require highest degree of timeliness in solar information; and
- Rely heavily on technical reports, conferences, program reviews, etc.

Target groups include: National Laboratories (JPL, Sandia), federally funded Research and Development Centers, and other wholly federally-supported organizations; research institutes; industrial/commercial organizations; universities and colleges.

Target Audience 2 (TA_2)

TA_2 is composed of organizations and individuals who manufacture, install, service, and distribute solar technologies, but who are not directly involved in DOE-sponsored solar R&D programs. These organizations translate the results of research into marketable products and services. TA_2 members have the following characteristics:

- Include largest segment of solar industry;
- Require more summary information and repackaging of R&D results than TA_1;
- May not understand solar R&D program structure;
- Interested in performance data, summary cost data on applications, specifications, etc.;
- More interested in research results than in interim programs in R&D; and
- Rely heavily on trade press, conferences, professional meetings for solar information.

Target groups in TA_2 include: construction trades and installers (i.e., contractors, plumbers, sheet metal workers) equipment manufacturers; professional and trade organizations; distributors and retailers; and engineers who design and maintain solar equipment.

Target Audience 3 (TA_3)

TA_3 is composed of organizations and individuals interested in fostering solar technology use via legislation, financing, citizen advocacy, and construction activities. These agencies and organizations are not directly involved in the commercialization of solar, but exert influence, either positive or negative, upon commercialization decisions by providing the framework for incentives, quality control, and coordination. TA_3 members have the following characteristics:

- Necessary but not sufficient professionals (i.e., they influence consumption decisions and the pace of commercialization, but do not make such decisions themselves);

- Less understanding of the technical jargon and solar R&D program structure;
- More reliance on conventional public media for solar information; and
- Require repackaging of technical solar reports.

Target groups in TA_3 include: public interest or citizen advocacy groups (i.e., conservation, environment, natural resources) and consumer organizations; associations of residential and commercial builders and of home and building owners; regulatory community; financial community; state and regional governments including state solar or energy conservation offices and regional commissions; and other Federal Agencies like DOD, USDA (Energy Extension Service) and FEA.

Target Audience 4 (TA_4)

TA_4 is composed of the larger interested public, including those individuals who are or who may become involved as users of solar technologies as a result of R&D. TA_4 members have the following characteristics:

- Make final consumption decisions;
- Require greatest amount of repackaging of technical information;
- Least understanding of technical jargon and R&D program structure;
- Need most information about delivery systems; and
- Heavy reliance on conventional public media for solar information.

TA_4 groups include: utility companies; building owners (both residential and commercial), farmers, ranchers, foresters; industrial plants; businesses.

These four target audiences play differing roles in the commercialization of solar energy. Target audiences 1 and 2 are responsible for the production and marketing functions. Target audience 3 is primarily responsible for influencing commercialization by removing barriers and providing incentives. Finally, target audience 4 comprises the users of solar technology. All four target audiences act as information disseminators.

SECTION 3.0

SYNOPSES OF DISCUSSIONS ON TARGET AUDIENCE NEEDS

DISCUSSION 1: AFTERNOON, MARCH 1, 1979

Margaret Cotton, project leader, opened the session by stating that there would be discussion on the interface between DOE related activities and private industry. The panel would address the needs of four target audiences, identified as: (1) DOE funded research organizations; (2) other research organizations and private industry; (3) the political, economic community and universities; and (4) the interested public.

Emphasis was placed on the need to emerge from the two-day meeting with specific recommendations and a list of needs. These could then be prioritized for each audience. Suggestions must relate to the creation of ideal products or the improvement of those items that are currently available. The panel would attempt to evaluate present systems of dissemination and plan ways to improve the flow of information. In addition, criteria for measuring success must be developed.

Panel members were asked to lead the discussions. They could direct the group toward the identification of needs, incentives, and possible barriers. A worksheet (Figure 3-1) was distributed to facilitate recording the ideas generated by discussion.

Donald Newby of the Advanced Energy Systems Division of Westinghouse was introduced. He stated that their charter is to bridge the gap between R&D and production facilities, so as to stay in touch with all developing technologies. He said investigations are being conducted to keep Westinghouse aware of what is going on in solar research and development. His division hopes to eventually make recommendations on viable commercial ventures and product lines. Westinghouse tries to obtain contracts either through private industry or government so that an expertise in systems design can be developed among their staff.

Frank Smith, Executive Director of the STTFUA spoke next, giving some background on the Association. He said communication with test facility users is the most important function of his organization. He mentioned the frustrations involved with getting funding for projects and the problem of reaching appropriate people for workshops.

When asked how he would evaluate the effectiveness of the Association, Mr. Smith stated that it is very effective. There is a need for mailing lists. The mailing list they do have has come through contacts made at semiannual review meetings held by SERI and JPL. An ISES meeting will be held on May 4. This is one of the annual events where valuable information is exchanged. Panel members were urged to attend. In addition there are workshops planned for facility operators and experimenters who have been or will be funded by the Association. Mr. Smith's presentation was illustrated with slides of the four test facilities served by the STTFUA.

EXAMPLE

AUDIENCE:

IDENTIFIED NEED	ASSIGNED PRIORITY	IDEAL PRODUCT MUST:	EFFECTIVENESS MANIFEST WHEN:	PRESENT ACTIVITY	1-5 CURRENT EFFECTIVENESS	PANEL RECOMMENDATION
kind of information needed	#	A. how product will be B. used C.	how to measure effectiveness of product		%	
		A. B. C.				
		A. B. C.				
		A. B. C.				

Figure 3-1. WORKSHEET A

Robert Stromberg of Sandia Labs and Thomas Kuehn of JPL discussed the needs of DOE contractors. They agreed that the informal communication network between R&D investigators is to some extent adequate. Technical reports are usually available. But proceedings of conferences are not promptly produced and are often not accessible to those who did not attend. Some effort should be made to cut production and dissemination time for all reports. In addition it was agreed that standardization could make technical reports more valuable. One specific recommendation was to identify an in-house person as point of contact for inquiries. This professional would quickly locate data, identify sources, and refer people to the proper location and channel.

The term "repackaging", which recurs frequently in the TID Plan, was abhorred by all. Pete Mourning explained the word choice, saying that it denotes all uses made of technical reports and is not limited to the generation of editions and re-issues which could become repetitive and costly. Rather than threatening the integrity of technical data, "repackaging" could eliminate jargon and make reports readable and useful to non-technical readers.

This part of the meeting concluded with Margaret Cotton reminding the panel that in addition to the March 2 session there would be other review panel meetings after progress had been made in the development of the TID program. At that time the panel would assess what had been accomplished and give further advice on dissemination objectives.

SPECIFIC RECOMMENDATIONS—TARGET AUDIENCE ONE

Technical Reports

Criteria and guidelines must be established for the preparation of technical reports. It is essential that these be accurate, clear, concise, and complete. While most reports are carefully prepared and of high quality, priority should be given to raising standards in this area so that reports are reliably excellent.

Technical summaries can be useful. These contain more detail than executive summaries but less than final reports.

Information should be multi-tiered. Basic documents must be written from which all other reports are derived. At present, lead documents are issued too slowly for many purposes.

Technical accuracy should be guaranteed through a review process, but the present approval chain is too long. Review comments could be added to reports to remove some liability for early issues.

Central reporting should be policed so that information is kept up to date. Reports should be made readily available to a wider audience. While reporting procedures are outlined in some DOE contracts, these clauses are not always carried forth to subsequent contracts. In some cases a significant loophole results.

Databases

High priority should be given to the creation of a computer network that allows on-line searching by researchers and information centers around the country. The SEIDB at SERI could serve this need if it were made widely accessible through well-placed remote terminals. It should provide quick, easy entry to bibliographies and abstracts as well as to original documents.

SERI's activities and services should be reported regularly to keep industry and other DOE contractors aware of information and facilities that are available to support national solar investigations. Information should be published regularly in a news alert publication which is concise and widely disseminated at workshops and seminars as well as through monthly distribution.

Outreach

Workshops are essential because they produce a substantial interchange of information. DOE-sponsored conference proceedings should be available through regular channels within a couple of months.

Incoming calls and requests by outside researchers should be quickly and competently referred to the best possible source. Contractor staffs should be educated to increase the effectiveness of existing communication networks.

Potential contractors are an important audience. They should receive "monthly alert" newsletters advising them of RFPs and the availability of certain reports.

Potential technology users are important, too. They must be reached with a product that is cheap, quick, and accurate. Effectiveness will be manifest when copies of reports are ordered, as well as proceedings from workshops and symposiums.

Would-be experimenters should be encouraged. Reports prepared for them should be understandable and attractive—popular, well-presented, practical-level summaries of work done. Perhaps these should be issued annually.

DISCUSSION 2: MORNING, MARCH 2, 1979

The March 2 meeting concerned audiences 2 and 3.

Target audience 2 consists of equipment manufacturers, professional and trade organizations, distributors, retailers, and maintenance equipment companies. These rely more on trade papers and conferences than on technical reports. Most of their demand is for performance data and cost information. This requires a document one step beyond the technical report, which summarizes the data contained in several publications.

A report that is useful to target audience 3—consumer organizations, financiers, regulatory agencies, and legislative bodies at both the state and community level—is also derivative and may contain some interpretive material.

Discussion leaders for this audience reminded technical representatives that while original reports are usually the basic source for articles, less cumbersome language and the elimination of jargon would accelerate acceptance by the press and other media.

Technical reports or "repackaged" documents that treat test results should convey both the significance of the findings and ideas related to potential applications.

To facilitate access to information, indexes should be created, especially indexes to computer programs, files, and other indexes. Key word systems were recommended, though any activity in this area would be helpful.

A listing of opportunities for research would increase participation and facilitate timely transfer of technology.

Abstracts from current conferences are of prime importance. These should be short and written in clear language. They will be used as a source for ordering reports and proceedings.

Industrial editors should be brought into the labs both as an educational experience and as an aid to later communication.

Members of target audience 3 are not inclined to wade through technical reports. For this reason, accuracy in derivative documents is crucial. This audience's needs must be carefully assessed so that special documents can be prepared and disseminated to them.

The project leader then changed the course of the discussion to clarify the needs of teaching faculties and the university community. Dr. Picha, of the University of Massachusetts, led the discussion.

One of the significant pieces of information in teaching courses is the annual Heating and Cooling Recommendation Guide published by ASHRAE. This guide includes design calculations and descriptive mechanics for doing things. An update is now available which uses computer programs to indicate how to size equipment. A design engineer's manual of this type can be a very effective device.

At the community college level, seminars have been successful. For example, through a grant from the Department of Commerce, Colorado State University brought in teachers and engineers to work on standards and experiments in solar heated residential buildings. This kind of program would work well in an engineering curriculum.

Another segment of the university population has a different set of needs—the people teaching social sciences, business, and economics. They may be concerned with solar energy as it relates to institutional problems. Brochures containing economic and performance data might serve their needs.

This portion of the university community requires materials similar to that prepared for target audience 4. Products designed for audiences 3 and 4 must be carefully prepared to respond to the interests and applications in each user group.

On campuses that have no solar research program, an intensive course for instructors and planners might be effective. Larger universities with ongoing research curriculums would not find such a course valuable.

Mr. Haggin told the group that continuing education is often provided in conjunction with chemical society meetings. Solar thermal power is one of the subjects offered.

Several short courses are offered by Midwest IGT. These are short, intensive courses, unlike workshops, since preparation is required before admission. Many are evaluative as well as experiential.

Don Newby called attention to the economic questions surrounding the adoption of solar power. Economic analyses are made with ground rules that differ. For example, systems designers make engineering decisions. They need different data from some other investigators. They need economic statistics, which often are not available in technical reports.

Discussion uncovered the fact that solar technologies are so new that economic data, if it is available, is often not valid. Findings reflect experimental costs.

All projections are difficult because of the newness of the technologies. For example, in target audience 2 we do not yet know who will choose to manufacture solar equipment. Economics play an enormous role in determining that. Businesses must consider where they are headed economically. Each financial commitment is a function of trade studies, which are primarily economic.

Some seminars, such as the one offered by Chicago First National Bank, address issues related to popular consumption. The solar seminar is concerned with contractor designs, where we are in economics compared to other energy sources, and whether we can tell how much future systems will cost. These briefings reach the audiences we have identified. It is important that we prepare special reports to answer economic questions and influence decisionmaking.

Frank Smith remarked that whenever we discussed repackaging technical reports, 80% of the time we meant extrapolating economic information. Distributors, installers, manufacturers, and retailers are concerned about trends. They want to know what products are being produced and for what market.

The question was asked: How can trade papers take advantage of that interest?

The 3M Corporation is researching ways to put that information in short summary documents. Commerce Business Daily reports it also. Not every company searches CBD, however. SERI should create a periodical to tell who will be looking at collector designs or certain materials. There should be an "alert" service for the news media.

There should be no stinting on alerting services. News releases from DOE are too few and infrequent, especially those providing items of interest to potential subcontractors. For example, a program director may decide to award a contract but lose nine months in procurement processes. A news alert could help prevent such a delay.

Joseph Haggin explained that the chemical industry, which is well established, has a very effective communication system which includes alerts to the press.

In response to a question: How useful is authentic testimony as trade information? he responded that it is a popular technique. Many of these messages are directed toward specific segments of the community—job markets or people looking for large research contracts. Many companies have people on watch for certain charges. When they detect a sudden investment spurt, they get interested. The American Chemical Society has five people who watch Congressional reports every day.

The editors were then asked to evaluate Solar Energy Intelligence reports.

Solar Energy Intelligence Reports are relatively superficial, they replied. But NBS and the Bureau of National Affairs publish newsletters which are very good and on a variety of subjects. These organizations are large enough to hire people out of journalism schools who will sit through committee hearings and undertake voluminous research projects.

Ronald Phillips mentioned a NASA publication which is easy to read and more comprehensive than a newsletter. He said Commerce Business Daily is also a way to find out what's going on.

Small firms can't afford to have people set aside to read CBD daily, Haggin observed. Small companies often suffer because of it. An association is being formed to help them compensate.

There are several kinds of information small businesses need that are not easy for them to get. They are interested in patent information. They need comparative technical studies, and they want to know what is going on with similar businesses. They need reports and product literature. One way to get such information is a close arrangement with SERI and the SBA. These two have good access to data small businesses need and can't afford.

Pete Mourning mentioned that a lot of aerospace companies in southern California ferret out such information themselves. Typically, they have small business and minority development programs. If they are not themselves interested in a given business opportunity, they will pass the information to, and assist the small businesses.

Discussion on venture capital firms followed. These are large institutions that have well-qualified technical staffs. They put together deals for investors, so technical information is a major tool of their trade. In emerging technologies, their people are going to influence the rate of growth and the spread of the market. There are probably a few hundred firms of this type in the country.

The question was asked: To what extent are states setting up technology development corporations?

The answer: About 10 states have them. Several are in the Department of Commerce, and in the IMBE. As many as 10 technical communication centers are being created.

One will be located at Georgia Tech. These could provide an important service because people will more and more be looking to small businesses for opportunities in technology and finance. Some states have an organization in another related area which could be extended to solar. There is one in Illinois, created because of pressure from Senator Percy. There are also federal regional commissions, like the Appalachia Regional Commission.

Peggy Wrenn, who had been asked to speak to the panel about the information needs of legislators, was asked what kind of information R&D laboratories can provide. She said legislators look at issues from a lay point of view. They ask specific questions, such as "What is the difference between direct and diffuse?". Also the success of solar bills depends on "ready" technology.

Case studies would be useful, particularly if they were concise. NCSL is starting a solar and renewable fuels study to provide information to state legislators. Summaries that are up to date and written in clear English would be helpful. These should include information about projected solar targets and the significance of test results.

One panel member asked: does the Colorado PUC require studies of alternative energy sources such as solar thermal conversion?

According to Wren, the PUC has only addressed solar energy in one hearing. There were a lot of angry solar customers there. Some were on the demand rate. The PUC is thinking about creating a solar rate but concurrent peaking problems are a real concern.

The panel wanted to know what happens to solar legislation after it is passed? Is it effective? Is there an evaluation of solar incentives? No one is compiling that information, but legislators would be interested in knowing it.

On tax incentives, Wrenn said, present federal law has been written so that passive designs will be given tax credit. But the IRS has exempted almost everyone. If SERI is trying to educate the state legislature, that would be an obvious place to start. Wrenn thought a lot of people would be interested in knowing what is going on in solar development—for example, what it would cost to have a plant at this time. How much power could be provided? How would costs compare to the price of the other current we operate? Solar-powered irrigation would be interesting to a legislator. SERI might be able to act as an intermediary.

The group discussed DOE restrictions on mailing information to a legislator. One interesting suggestion was: get a written invitation to brief a Congressman on the subject. Such a valid request could not be refused.

SPECIFIC RECOMMENDATIONS - TARGET AUDIENCE TWO AND THREE

Technology status reports are needed. For example, a materials research bulletin which would show who is doing what kind of research. This would benefit manufacturers. Economic data on the various technologies should be specially prepared for audience 2.

As solar thermal technology becomes more cost effective, manufacturers need to know the economics to help them get into the solar business.

There is a need for trend information, good informative material to aid planning. Manufacturers and installers need to anticipate new developments. SERI should create a continuing series of frequently updated information packages.

Annual and semiannual compilations could provide an overview of the technology, products and services. A series of compilations in appropriate subjects would be useful.

Junk pamphlets should be discontinued.

PRODUCT REVIEW - LATE MORNING, MARCH 2

After a break, Margaret Cotton suggested that the panel begin to review products. She explained her efforts to produce information repackaged for target audiences 2 and 3. The items shown were a first attempt. She invited both comments and suggestions. A worksheet (Figure 3-2) was distributed to help focus their efforts.

The first item was a program map, which caused a great deal of discussion. Several people suggested removing the insolation rates background. Others commented about the relative size of central receiver symbols.

Three samples of a handbook were passed around the table. Cotton stressed the need for written feedback, and showed a Vu-graph of the table of contents.

The panel agreed that the handbook's organization reflected too much DOE information. For example, there was too much DOE program data and not enough solar energy information. The temptation to put in all the technical data has to be overcome, however.

As the discussion progressed, technical and nontechnical representatives were divided on how the book should be designed. Some said commercial applications, residential applications, and the types of technologies that can serve these applications should be shown. All agreed it should be developed one way for the public and another if it is to become a semitechnical manual.

An AV of the test facilities was reviewed next. There was some discussion about the central receivers program. One of the panel members felt that "power towers" are the wrong image to project. In the research community, scientists know better. But outside this community, people are not supporting solar thermal budgets because they think of the "power tower". Dr. Kuehn suggested a slide show presenting an overview of the technology; then one on the test facilities. He advised us to go in slowly with near-term troughs and work up to a description of the big projects.

Next the panel discussed a SERI newsletter, In Review, which was distributed. There was some discussion on whether pictures should be used. The group recommended the inclusion of a list of firms working in solar energy. We should avoid too much emphasis

PRODUCT DESIGN

ITEM	FIRST IMPRESSION	ADD	DELETE	RE-ORGANIZE
PROGRAM MAP				
SOLAR THERMAL HANDBOOK				
AV OF TEST FACILITIES				
UNIVERSITY NEWSLETTER				
VIEWGRAPHS SET				
NEW PRODUCT SUGGESTION				

Figure 3-2. WORKSHEET B

on what is going on in laboratories. Also, the technology should not be emphasized in every issue.

Vu-graphs were discussed. Recommendations were solicited concerning what should go into a set to be given to DOE contractors.

The subject of the Technical Information Center at Oak Ridge surfaced. Everyone wanted to put pressure on TIC, but no one had a specific suggestion.

Floyd Shoemaker of the SERI Communication Branch was re-introduced to tell panel members about a national survey in progress at SERI to assess the needs of major users of solar thermal information. This national study will be conducted by telephone. He handed out copies of a questionnaire for the panel to review. They were asked to fill them in and return to him as quickly as possible.

Keith Haggard, Chief of Communication Branch urged the group to maintain communication with SERI and to give their advise during the interval preceeding the next User Review Panel meeting.

In support of this communication effort, Steve Rubin agreed to provide a list of all SERI reports and publications of Information Systems Division.

The meeting adjourned at 1 PM on Friday, March 2, 1979.

Appendix A

SOLAR THERMAL USER REVIEW PANEL

Frank B. Smith
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STTFUA,
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Thomas J. Kuehn
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Small Power Systems Application Project
Jet Propulsion Laboratory
Pasadena, California

Rosalyn H. Barbieri
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Robert Stromberg
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Don Newby, Manager
Westinghouse Solar Total Energy Systems
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Anna Faye Friedlander
Editor
Solar Engineering Magazine
Dallas, Texas

Ronald J. Phillips,
Industrial Relations, NASA
Washington, D.C.

Kenneth Picha, Director
Energy Research & Education
University of Massachusetts
Amherst, Massachusetts

Joseph Haggin, Editor
Chemical Engineering News
Chicago, Illinois

George Machovec
Solar Energy Librarian
Arizona State University
Tempe, Arizona

Appendix B

AGENDA

Thursday March 1, Stouffer's Denver Inn

8:30		COFFEE
8:45	SERI Senior Management	Welcome
9:00-9:20	J. Williams	Orientation • establishment of SERI and SERI goals • operation of SERI: relationships to other labs, DOE, and the public • SERI services and resources • overview of the major tasks
9:20-9:45	B. Gupta	The R&D mission in Solar Thermal Technology • objectives • tasks • procedures • findings and reports
9:45-10:00	S. Rubin	Data Services at SERI • the database • possible uses and capacities • current newsletters and dissemination activities
10:00-10:30	Panel participants	Round table introductions • each organization and individual role • experience with technical information dissemination programs • current mission and projects
10:30-10:45		BREAK
10:45-11:15	P. Mourning	The TID Plan • its conception • primary goals • immediate tasks • function of the panel
11:30-11:50	F. Shoemaker	Four Target Audiences • assumed needs • market survey tasks • MITRE books and distribution lists
11:50-12:00	M. Cotton	About the work session
12:00-1:30		LUNCH
1:30-2:00	M. Cotton	Worksheets and Summary Report • how to use the materials • information flows and needs assessment • formulation of recommendations a. type product & priority b. level of effort c. source of responsibility - contractor, DOE, private or public organization, SERI?

Discussions Led by Panel Members

2:00-3:00	R. Stromberg R. Barbieri D. Newby	Contractor needs • present activities • planned dissemination • panel's recommendations

		REFRESHMENTS
3:00-4:00	K. Picha J. Haggin A. Friedlander	University needs • publications serving special audiences, such as: a. faculty and planning people b. researchers and students • panel's recommendations
4:00-4:15	M. Cotton	Summary of the day's findings Program for March 2 General announcements
4:30		RECESS
Friday March 2		
9:00-9:15	M. Cotton	Announcements, handouts and introduction
9:15-9:40	P. Wrenn	• Solar legislation: How it happens
9:40-10:00	G. Machovec	• Library and business community needs
10:00-10:20		• Addressing the needs of TA3 and TA4 Group discussion
10:20-10:30		BREAK
10:30-11:00		Product Review - the Solar Thermal Program Kit
11:00-12:00		Preparation for a Summary Report • review of identified needs • listing of recommendations • definition of work to be undertaken before next meeting • objectives of next panel meeting
12:00		Collection of questionaires General announcements
12:15		ADJOURNMENT

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