SERI/TP-732-600 April 1980

Proceedings of the Ocean Energy Information Dissemination Workshop

December 1979

Don Petty

SERI

Solar Energy Research Institute
A Division of Midwest Research Institute

1617 Cole Boulevard
Golden, Colorado 80401

Operated for the
U.S. Department of Energy
under Contract No. EG-77-C-01-4042

Printed in the United States of America
Available from:
National Technical Information Service
U.S. Department of Commerce
5285 Port Royal Road
Springfield, VA 22161
Price:
Microfiche $3.00
Printed Copy $4.50

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SERI/TP-732-600
UC CATEGORIES: UC-58c,64

PROCEEDINGS OF THE OCEAN ENERGY INFORMATION DISSEMINATION WORKSHOP

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PREPARED UNDER TASK NO. 6722.15

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PREFACE

This document was prepared by the Technical Information Dissemination (TID) program, Ocean Systems Task.

The TID Program, developed in 1978 by the ETS/Solar division of the U.S. Department of Energy, disseminates solar RD&D results. The program aids commercialization of solar technologies and promotes communication among the technical, private, and public communities.

The Ocean Energy Information Dissemination Workshop was held 6-7 December 1979, to discuss methods of effective information dissemination and to coordinate the efforts and needs of the Ocean Energy community.

Don Petty
Project Leader

Approved for:

SOLAR ENERGY RESEARCH INSTITUTE

Neil H. Woodley, Manager
Utilities and Industry Division

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SECTION 1.0

INTRODUCTION

The Ocean Energy Information Dissemination Workshop assessed the need for information dissemination to the technical, governmental, and public communities. Held at the Solar Energy Research Institute (SERI) on 6-7 December 1979, the workshop was to unite industry and government to design methods for marketing ocean energy information; to discuss audio-visual and print products, mass media, and audience needs; and to plan future information activities.

Dana Moran, Assistant to the Director, presented information on SERI's background and aims; Jerry McGuire, media consultant, audio-visual marketing techniques; Pete Mourning, TID Program Manager, the goals and influence of the TID Program; and Jon Veigel, Assistant Director for Commercialization, SERI's commercialization efforts. Each workshop attendee presented a paper indicating current efforts of their communication programs and outlining future plans. Discussions centered on information flow to target audiences and on products enhancing ocean energy commercialization.

The specific objectives were to:

- discuss the current status of marketing ocean information,
- develop an understanding of information needs and how to satisy them, and
- develop and commit to a plan for FY80 that includes coordinating communication activities among contractors, the U.S. Department of Energy (DOE), and SERI.

SECTION 2.0

SERI PRESENTATIONS

Dana Moran, Assistant to the Director, opened the workshop by presenting SERI's organization and its development, an artist's conception of the future facilities, and the objectives for providing 20% of the nation's energy needs through solar energy by the year 2000.

Pete Mourning, TID Program Manager, discussed the TID program objectives. The program's purpose is to implement effective information exchanges to support early commercialization of solar R&D in: ocean energy, photovoltaics, solar thermal power, biomass, and wind energy conversion.

Media Consultant Jerry McGuire produced for SERI a 13-minute cable televsion segment on ocean energy and is developing a 12-15 minute film for public AV distribution. He emphasized the use of audio-visual products for widespread dissemination and the need for professionals in the decision-making process. Good films cost between $2,000 and $5,000 per finished minute. He said articles for popular, high-circulation magazines could be facilitated by informing the free-lance community about ocean energy and that short television features (90 seconds or more) are effective in reaching the uninformed public.

Jon Veigel, Assistant Director for Commercialization, discussed SERI's commercialization efforts including commercialization assessments to quantify the markets for the technologies. Several workshop members were concerned that the results could be misinterpreted and that differences in markets and methodology in comparison to other solar technologies could hinder ocean energy commercialization efforts.

SECTION 3.0

CURRENT INDUSTRY EFFORTS

JAMES RONEY—Ocean Engineering Associates

Roney consults for DOE, SERI, and the National Oceanic and Atmospheric Administration (NOAA) in cost analysis and program evaluation, and completed an analysis on the impact of the Matsunaga Bill (S. 1830). He stated he had difficulty obtaining up-to-date technical reports, bibliographies, and position papers on the status and policy of ocean energy development, since this information can be difficult to obtain from contractors. An information clearinghouse was suggested. Access to technical documents is hindered by the "non-responsiveness" and "bad copies" from TIC and NTIS.

NICK HAZELWOOD — Chief Scientist, Global Marine Development, Inc.

Global Marine Development, Inc. (GMDI) is involved in two Ocean Energy projects. Under DOE contract, GMDI is designing and modifying a surplus Navy T-2 tanker for use as an ocean thermal energy conversion testbed (OTEC-1). GMDI also designed, installed, and currently maintains the American Gas Association/DOE "Kelp Farm" off the Southern California Coast. General Electric (GE) is the program manager for this project.

In both projects, GMDI has supported DOE in its information dissemination efforts. An overall strategy and guidelines must be developed, followed, and modified as times change. Within such broad guidelines, initiatives directed to various target audiences are possible. The two projects, moreover, involve a significant amount of hard, large scale technology. Therefore, presenting OTEC or natural gas from kelp as "solar energy" must be done cautiously. The image of high technology energy sources is negative with persons ardently promoting solar energy. Conversely, these promoters are regarded as liars, flakes, and latter-day Luddites by many people who will commercialize OTEC or gas from biomass.

Papers have been given at the Offshore Technology Conference, the 6th OTEC Conference, Oceans 79, and the Marine Technology Society. The groups encompass Naval Architect/Marine Engineers, a Measurement Science Conference, and an Institute of Law.

Efforts include talks to interested community organizations, service clubs, and social groups. Because the OTEC-1 ship is being modified in Portland, Oregon, for deployment off the Island of Hawaii, presentations have concentrated in Hawaii, Oregon, and California.

Trade show exhibits have been arranged with both professional societies and civic groups. GMDI has built four scale-models of the OTEC-1 ship and one of the Kelp Farm. One ship model is at HO gauge scale (1:96), and three are N-gauge scale (1:192). During the past year over 25,000 people have seen these models. In addition, models were exhibited at local energy fairs and in the lobby of a Newport Beach hotel as part of a "Salute to Local Companies." Two smaller OTEC models have been donated for use in DOE exhibits.

Trade shows customarily provide company "capabilities" brochures. GMDI and the parent company, Global Marine, Inc., have included the OTEC-1 and Kelp farm projects in their brochures. The target audience is several thousand.

The Global Marine, Inc. featured both projects in the 1978 Annual Report to Stockholders, and will feature OTEC in the 1979 report. This tactic provides direct exposure to the many individual investors and to the larger financial, investment, and trusts community. The prospectus for a recent GMDI stock sale discussed both projects, again reaching a large financially sophisticated audience.

Print and video-media people have solicited GMDI's assistance on projects such as writing a children's book on OTEC. Personnel and the project models have appeared on local TV, and national exposure included a one minute review of the Kelp Farm on Walter Cronkite's CBS evening news. Also, a GE commercial appearing on national TV shows the Kelp Farm. In January or February of 1980, the Kelp Farm will be presented in a half-hour CBS special. GMDI has cooperated with reporters seeking interviews and requesting information for articles, such as the recent Fortune presentation on biomass.

When an ocean energy project reaches the operation stage, environmental documents describing the project and assessing the impacts must be prepared. During the permit process, public hearings may be held. The environmental document and hearings are invaluable in disseminating information. While media coverage correlates to the controversy's intensity, there also is a growing "environmental press." A good environmental report, carefully presented to reporters, can result in wide dissemination of information. Honesty and openness assist dissemination since the environmental press is competent, making attempts to deceive counterproductive. Honesty is most important with solar energy, because the gap between reality and zealots is critical and could affect credibility.

The program as outlined will continue without much change next year. As the OTEC-1 ship begins operations, local and national media attention will possibly grow. Similarly, as funding increases revitalize the Kelp Farm, more information will be provided to the media, the public, and the business and professional communities.

The "Target Audience" classification developed by SERI needs revisions since its orientation is toward the "small is beautiful" concept. Furthermore, this classification assumes a continuum ranging from the idealistic DOE/contractor (TA_1) to the slightly bewildered yet earnest consumer and businessman (TA_4), and is fairly a simplistic view not conforming to current trends.

Are the OTEC Utility Users Council and the gas companies comprising the American Gas Association really the naive victims as portrayed in TA_4? Is the "financial community" in TA_3 really "not directly involved in the commercialization of solar"? Do we need to worry about TA_1, the professional solar R&D group, who have well-established methods of communicating, and a compulsive drive to do so? Perhaps a better audience understanding can be obtained by observing who is being addressed and how.

PETER LISSAMAN—Aerovironment, Inc.

The Coriolis Project involves large ocean turbines, moored in the Florida Current of the Gulf Stream, generating electricity. The project has just recently received funds from DOE and has been mentioned favorably in the Energy Appropriations Bill. The official

and congressional interest in the project is a result of an extensive and coordinated two year information dissemination effort, conducted with private funds by the proposer.

Major articles on the Coriolis Project have appared in leading newspapers throughout the world (Los Angeles Times, Los Angeles, Calif., January/July 1979; Star News, Pasadena, Calif., July 1979) and in major journals and periodicals (Omni Magazine, May 1979; Time Magazine, 11 June 1979; Science and Mechanics, Winter 1979).*

Aerovironment has distributed the White Paper on the Coriolis Program and large full-color posters showing the turbine to interested persons including congressional representatives. Language relating to the project has been inserted in the U.S. House and Senate Energy and Water Development Appropriation Bills, 1980.

Plans for future publicity minimize newspaper and journal releases and concentrate on substantive releases in trade, technical, and political publications, which will include specific technical details, cost effectiveness, and environmental issues. An article to appear in Oceanus, the quarterly journal of Marine Science from Woods Hole Oceanographic Institution, exemplifies this effort.

Another aspect of the Coriolis Project dissemination effort is an upcoming film entitled "Energy: New Sources" by Churchill Films, Los Angeles, Calif.

MANSUR JOHNSON—Alternative Directions in Energy and Economics, Inc.

Alternative Directions in Energy and Economics, Inc. is a nonprofit organization working to expedite transition to solar energy primarily through public advocacy. As the east coast representative, Johnson has spoken to public interest groups in San Francisco and Atlanta; at Universities in Idaho, Minnesota, Arizona, Michigan, and Kansas; and to the local Republicans in Cohasset, Mass.

OTEC has been presented on radio in Atlanta; Tulluride, Colo.; Madison, Wis.; the "Morning Magazine" on KSPO, Spokane; KRAB, Seattle; Boston radio and TV; and the Toronto CBC.

Other projects include making a videotape for cable TV in Eugene, Oreg., and introducing OTEC to government and industrial people in Israel in 1977. A slide show on OTEC has been presented to the World Symposium in Toronto in April 1979; Paolo Solari's Arcosanti near Cordes Junction, Ariz.; and Pir Vilayat Khan's Abode of the Message in New Lebanon, N.Y. Prior to David Shapiro's organizing the OTEC User's Council in Puerto Rico, the governor was urged to push for OTEC, and an article in the San Juan Star (December 1978) was generated.

Hearings by the New England Energy Congress and before the Massachusetts State Legislature's Energy Committee outlined the OTEC/fuel cell option for New England.

With the Lt. Governor's Office, arrangements were made between E. J. Francis and Wm. Avery, both of Johns Hopkins University, and General Dynamics in Quincy, Mass., to provide names of industries in the Northeast that could be involved in a cost-sharing OTEC

* These are just a sample of the articles that have appeared.

program. This meeting is being coordinated by Rich Norling, staff-person for U.S. Congressman Gerry Studds.

Reporters at the University of Oregon (Daily Emerald) and in Portland (Willamette Week) wrote articles on OTEC after hearing the presentation.

MIKE MATHEWS—TRW, Inc.

TRW's 1980 public affairs plan for work on OTEC includes:

- presentations and exhibits at the Offshore Technology Conference in Houston, the 7th Ocean Energy Conference in Washington, and the Marine Technology Conference in New Orleans;
- a network television commercial during CBS's 1980 primary, convention, and election coverage (approximately end of February to November);
- an OTEC article in TRW's technical magazine, Quest, issued the first of the year;
- proper exploitation with DOE and GMDI, of the OTEC-1 deployment in April; and
- continuing response to media inquiries on OTEC work and OTEC "speakers bureau" activities.

Program people testified before congress twice in 1979 in support of the OTEC program, and will try to accomodate any requests received for further testimony during 1980.

AL GOLDMAN—Goldman Industries

Goldman Industries, Inc., Renewable Energies Division is involved in the development of a 50 MW_e commercial OTEC plant in the Key West, Fla. area. Proposals have been issued to several U.S. firms for site-specific feasibility studies, to determine optimal preliminary designs for "open-cycle" electricity- or water-producing land-based or moored plants.

As a member of the Center for Directed Change, a nonprofit tax-exempt foundation in Miami, plans to use alternative energies characteristic of the south Florida region are being developed. Floridians United for Safe Energy (FUSE) is supporting the Intervenor, Marle Oncavage, in proceedings before the Nuclear Regulatory Commission regarding Florida Power and Light's (F.P. & L.) application for extensive repairs to nuclear reactors in south Florida. OTEC will be the cornerstone of a comprehensive solar energy and conservation plan. Possibly a more economically viable, ecologically benign, and safe alternative than F.P. & L. will be demonstrated.

Discussions with F.P. & L. regarding their interest in commercializing OTEC in south Florida have begun.

BRYN BEORSE—Sea Water Conversion Lab, University of California

The French work on OTEC, watched and participated in from 1948, was beyond the laboratory or demonstration stage; a fully designed plant for providing Abijan, West Africa, with power and desalted water. The cold water pipe-line, the critical component in

earlier plants, was built, laid, and remained in place for six months. During that time corrosion and biofouling were measured, and the OTEC community and public were informed about early research and design. In cooperation with Al Goldman, completion of the 40,000-kW open cycle land-based power and desalting plant at Key West, Florida would be a convincing step in commerialization. Vice versa, all other commercialization steps will help this project.

The radio talk shows in New York, Toronto, and San Fransicso; television interviews in these cities and Los Angeles; and articles or interviews in the Bay Area newspapers, in the Humanist, Co-evolution, and the OTEC Liaison may contribute to commercialization. According to Congressman Gerry Studds, testimonies before DOE and the House Subcommittee on Oceanography contributed to the House Bill No. 5796 on OTEC. The AAAS 146th annual meeting this year afforded repeated occassions to discuss OTEC and other renewable energy sources.

Well known to about 1,000 top scientists and engineers, OTEC is still unknown or actively resisted by a greater number of them and by the general public. In view of this, commercialization efforts need not be divided into separate categories. A newspaper interview may be as effective as a doctoral thesis; a word to grade or high school students as important as to a group of scientists. The Exxon company has studied OTEC, possibly to enter this field.

ERIC MIDBOE—Gibbs & Cox Naval Architects

Gibbs & Cox, Inc. became involved in the OTEC program in 1978 by participating in the OTEC Platform and Integration Study. The study evaluated six hull forms for the OTEC Commercial Plant. Gibbs & Cox, Inc. developed the 400-MW OTEC ship and semi-submersible configuration to the concept design level.

More recently, Gibbs & Cox, Inc. has become the naval architectural support contractor to the DOE Ocean Systems Branch. Included in our present responsibilities are the conceptual design baseline for an OTEC 10/40-MW_e Spar Pilot Plant; development of a validated cold-water pipe design methodology; system integration and engineering support for ocean waves and currents energy conversion; and special studies supporting the OTEC Ocean Engineering Program directed by the Program Manager.

In both projects, Gibbs & Cox, Inc. has supported DOE in its information dissemination efforts, including:

- Organization of DOE's 7th Ocean Energy Conference for June 1980. Duties include the role of Conference Chairman, development of the technical program, preparation of technical workshops, arrangements for exhibits, and technical and administrative support.
- Presentation of ocean energy related papers to professional societies such as the Society of Naval Architects and Marine Engineers, Marine Technical Society, and others.
- Exhibiting ocean energy related material at trade shows. Models have been built of the Gibbs & Cox, Inc. 40-MW OTEC plantship, the Gibbs & Cox, Inc. 10/40-MW OTEC spar pilot plant, and the 1-MW Kaimei wave energy conversion barge designed by Commander Masuda of Japan.

- Presentations on both the 400-MW commercial plant studies and the 40-MW spar pilot plant to DOE and industry.

Gibbs & Cox, Inc. plans to continue these dissemination activities. Additionally, as the OTEC program progresses to commercialization, Gibbs & Cox, Inc. is ready to participate in the preparation and dissemination of information.

RICHARD MEYER—Solar Ocean Energy Liaison

The Solar OCEAN ENERGY Liaison began publication as The OTEC Liaison after attending the 4th Annual OTEC Conference in March 1977, and finding the OTEC/ocean energy community needed improved inter-communication. OCEAN ENERGY is privately funded, has subscribers worldwide, and disseminates information on an international basis. Prior to publication, the content and frequency of publication was determined by obtaining feedback from the ocean energy/OTEC community by distributing a questionnaire to 4th OTEC Conference attendees.

Though small, the number of subscribers includes virtually all private corporations, federal agencies, and research organizations formerly or currently active in ocean energy. The newsletter is published monthly, with occassional supplements on fast-breaking, major news events. OCEAN ENERGY provides U.S. and international news, conference reports, calendar of upcoming events and meetings, listings of U.S. government procurement invitations and contract awards, scientific research and test results, data sources, interviews, photographs and diagrams, political forecasts, administration and congressional activities, and other information pertinent to ocean energy. Solar Age, Ocean Industry, UNESCO Courier, The Explorer's Journal, Critical Mass Journal, and others have requested information or articles on ocean energy.

Meyer is co-founder and current President of the Ocean Energy Council (OEC), a non-profit organization incorporated in Washington, D.C., in April 1979. OEC is an advocacy body favoring development and implementation of ocean energy, particularly OTEC, and is self-funded through individual and organization memberships. The OEC's purposes include improving public knowledge and acceptance of ocean energy/OTEC as a viable resource contributing to the national and international energy supply, providing a forum for presenting to DOE the considered professional recommendations of the ocean energy community, and fostering educational advancement and growth of members.

Meyer also acts as liaison with members of congress and their staffs, The Solar Lobby, The Center for Renewable Resources, The Cousteau Society, international private industry and researchers, and others. Meyer has given radio and TV interviews, and presented information on ocean energy to groups and individuals in media and industry. Information on ocean energy, when requested, is provided without cost.

Based on over three years of involvement, the OTEC/ocean energy "information gap" is probably due to the "conceivability gap". The conceivability gap exists on two levels: understanding the basic technology of how OTEC works; and believing that sea-water, which is cost free and abundant world-wide, can produce electrical energy.

Hawaii's "Mini-OTEC" Project in August 1979, failed to receive much media attention and did little to dispell doubts as to OTEC's potential as an economical, environmentally benign, renewable source of solar energy. This gap was pointed out by an individual in DOE's Ocean Systems Branch who has "fought the battle" for years; and by the comment

of an aware, intelligent friend who, once OTEC was explained said, "Electricity from sea water? You've got to be kidding!!" Most people primarily think of the oceans as a source of recreation and romance, not as possibly the world's greatest resource for energy, food, minerals, and chemicals.

To help correct this conceivability gap, education and information dissemination must be increased not only in quantity but in quality. The ocean energy community, itself, which would gain credulity by increased information dissemination, must give it a far higher priority than at present.

SECTION 4.0

SERI ACTIVITIES

Information activities being performed by SERI's TID Progam include a 12-minute segment for the DOE ACTS program to introduce an unsophisticated audience to the concept of ocean energy. This film will be used in selected cable television areas, by the Canadian Broadcasting Company in a series on alternative energy, and by DOE in congressional meetings and elsewhere because of the various OTEC bills in Congress. Additionally, the film will become a continuous cassette for viewing at trade shows and other exhibits and will be used by the SERI speakers' bureau as background material.

In addition to the TV segment, a 12 to 15-minute film will be produced for distribution to high schools, colleges, interested clubs, and similar organizations. This presentation will include the latest DOE programs and OTEC-1, and will describe current efforts to make OTEC a viable energy alternative.

A third 12 to 15-minute film, technical in nature and designed for a more sophisticated audience, will address the latest developments in biofouling research, CWP development, and heat exchanger efficiency, and will attempt to answer some of the technical questions expected from people such as engineers and researchers.

DOE is completing a small pamphlet describing ocean energy and updating their previous pamphlet. SERI will supplement DOE's work with a booklet-size color brochure for distribution with the films and speeches.

SERI will be working with subcontractor Richard Meyer to develop the Ocean Energy Directory. This directory will be a compendium of contractors, researchers, influencers, financers, and congressmen involved in ocean energy.

SERI will also attend several major exhibits including the Marine Technology Conference, the Offshore Technology Conference, and the 7th Ocean Energy Conference.

SECTION 5.0

CONCLUSION

The Ocean Energy Information Dissemination Workshop's results are divided by target audience needs.

5.1 TARGET AUDIENCE 1: DOE CONTRACTORS

In general, in-house contractors agreed there was adequate information transfer. However, workshop participants expressed the need for a clearinghouse of ocean energy related information containing current position papers on technology status for contractor use as well as archives of films, brochures, photographs, technical reports, bibliographies, and other items. These materials should be maintained on microfiche for ease of reproduction and storage. A periodical describing current clearinghouse materials and the means of obtaining them would be necessary. Since preparing and reproducing publications costs significantly, DOE should not request exorbitant numbers of publications from contractors without adding those costs to the contract.

5.2 TARGET AUDIENCE 2: TECHNICAL COMMUNITY

Most studies in ocean energy involve engineering development rather than strict basic research. To obtain a higher level of credibility, it was suggested that more papers on technical issues be written for refereed journals in the scientific community.

5.3 TARGET AUDIENCE 3: INFLUENCERS

Considerable discussion existed on the importance of focusing information dissemination on influencers as opposed to the general public. Some felt that targeting influencers, especially Congress and its staff, would achieve better monetary results for furthering ocean energy. Others felt that informing all target audiences with emphasis on the general public was essential in influencing the decisionmakers and that the importance of the general public's perception should not be underestimated.

Suggested activities for informing the influencers include developing white papers on the state of the art in ocean energy and making them available to the decision-making community, as well as a DOE-sponsored newsletter to provide interested people with a periodic update on DOE ocean energy programs.

5.4 TARGET AUDIENCE 4: GENERAL PUBLIC

Participants felt that effective contributions (at their own expense) were being made to inform the general public. Products ranging from TV commercials and talk shows to exhibits and films are being developed and disseminated. Participants emphasized that ocean energy is here now, is technically feasible, and is understandable.

APPENDIX A

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APPENDIX B

AGENDA

Thursday, December 6, 1979

9:00 - 9:30	Opening Remarks	Dana Moran
9:30 - 10:30	TID Program, Target Audiences	Pete Mourning
10:30 - 10:45	Break	
10:45 - 11:15	SERI Commercialization	Jon Veigel
11:15 - 12:00	Audio-visual Marketing	Jerry McGuire
12:00 - 1:30	Luncheon	
1:30 - 4:00	Current Contractor Programs Gaps in Information Flow	
4:00 - 5:00	DOE Program	Eric Midboe

Friday, December 7, 1979

9:00 - 10:30	Solving Problems in Contractor Communication	Don Petty
10:30 - 10:45	Break	
10:45 - 12:00	Placing Priorities and Making Commitments for FY80	Don Petty
12:00 - 1:30	Lunch	
1:30 on	Discussion	

APPENDIX C

TARGET AUDIENCE DESCRIPTIONS

At the request of the ETS/Solar Divisions of DOE, SERI's Communication Branch developed a Technical Information Dissemination (TID) Program. The Program's purpose is to facilitate the earliest appropriate commercialization of solar R&D results. One of the program's first objectives is to define and characterize the potential target audiences or major actors who need to know solar R&D results for the five ETS technologies (i.e., wind energy conversion systems, biomass, solar thermal power, photovoltaics, and ocean thermal energy conversion). The characterization and classification of target audiences will provide the Communication Branch a framework from which to select organizations and individuals to be included in a study to assess the information needs of the users of solar R&D results.

The TID plan established four primary target audiences for solar R&D results. The composition of each audience, some characteristics of that audience, and examples of organizations and groups therein are detailed below and then summarized in Table 1.

C.1 TARGET AUDIENCE 1 (TA_1)

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

- Technically knowledgeable about specific solar technologies;
- Understand research's technical jargon;
- 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.

C.2 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 these characteristics:

- Include largest segment of solar industry;

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

TA_1	TA_2	TA_3	TA_4
DOE in-house and contractors	"Commercializers" but not DOE contractors	Financial, legal, citizen advocates and others, not DOE contractors	Larger interested public
Organizations and individuals very interested in solar development who are directly involved in DOE-sponsored solar R&D programs	Organizations and individuals who manufacture, install, service, and buy solar technologies but who are not directly involved in DOE-sponsored solar R&D programs	Organizations and individuals interested in fostering solar technology use via legislation, financing, citizen advocacy, and construction activities	Students, homemakers, and others who are or may become involved as users of solar technologies as a result of R&D

Technology Generation → Technology Application →

- 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, and 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.

C.3 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 these characteristics:

- Necessary but not sufficient professionals (i.e., persons who 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, regional commissions; and other federal agencies like the U.S. Department of Defense, U.S. Department of Agriculture (Energy Extension Service), and FEA.

C.4 TARGET AUDIENCE 4 (TA_4)

TA_4 is composed of the larger solar interested public, including those individuals who are or may become involved as users of solar technologies as a result of R&D. TA_4 members have these 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; residential and commercial building owners; farmers, ranchers, foresters; industrial plants; businesses.

These four target audiences have differing roles in the commercialization of solar R&D results. 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 technoloby. All four target audiences act as information disseminators.

Document Control Page	1. SERI Report No. TP-732-600	2. NTIS Accession No.	3. Recipient's Accession No.

4. Title and Subtitle

Proceedings of the Ocean Energy Information Dissemination Workshop

5. Publication Date: April 1980

6.

7. Author(s)

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8. Performing Organization Rept. No.

9. Performing Organization Name and Address

Solar Energy Research Institute
1617 Cole Boulevard
Golden, Colorado 80401

10. Project/Task/Work Unit No.: 6722.15

11. Contract (C) or Grant (G) No.
(C)
(G)

12. Sponsoring Organization Name and Address

13. Type of Report & Period Covered: Technical Publication

14.

15. Supplementary Notes

16. Abstract (Limit: 200 words)

The workshop was held to discuss the status of marketing ocean energy information and to develop an understanding of information needs and how to satisfy them. Presentations were made by the Solar Energy Research Institute(SERI) staff and media consultants about the effective use of audio-visual and print products, the mass media, and audience needs. Industry and government representatives reported on current efforts in each of their communication programs and outlined future plans. Four target audiences (DOE contractors, researchers, influencers, and general public) were discussed with respect to developing priorities for projects to enhance the commercialization of ocean energy technology.

17. Document Analysis

a. Descriptors: Ocean Systems; Ocean Thermal Energy Conversion; Commercialization; Market; Market Research; Technology Assessment; Industry; Public; Research Programs

b. Identifiers/Open-Ended Terms

c. UC Categories: 58c, 64

18. Availability Statement
National Technical Information Service
U. S. Department of Commerce
5285 Port Royal Road
Springfield, Virginia 22161

19. No. of Pages: 30

20. Price: $4.50

Form No. 8200-13 (6-79)

☆ U.S. GOVERNMENT PRINTING OFFICE: 1980—677-175/ 148