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## Volume 4, Number 10 (October 1980)

The Solar Ocean Energy Liaison

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# Solar OCEAN ENERGY Liaison

INCORPORATING  
The OTEC Liaison

VOLUME 4 NUMBER 10  
October 1980

## CONTRACTORS BALK AT RESPONDING TO DOE'S PON FOR 40-MEGAWATT OTEC PILOT PLANT Pre-proposal Bidders' Conference a "Fiasco"

On July 1st, after much delay, the US Department of Energy announced the Program Opportunity Notice (PON DE-PN-01-80-CS-80000) for proposals for a 40-megawatt OTEC pilot plant (see the August 1980 issue of OE), with a pre-proposal conference for potential bidders to be held in Washington DC on October 8th.

*The conference was held, but it was a disaster.*

Close to 300 individuals attended, many of whom flew great distances to attend, only to find that DOE's Office of Procurement Operations was completely unprepared.

Potential bidders, after receiving their copies of the PON—a 384-page document, one inch thick, weighing over two pounds—were asked to submit questions to DOE.

Over 85 questions were received from prospective bidders, who were told they would be answered at the October 8th conference. The questions were received by DOE, as requested, on Friday, October 3rd.

### \$500,000 To Hear Questions Read

However, there they sat. For at Wednesday's conference, the hundreds of potential bidders were told that (a) the official from DOE's Office of Procurement Operations was on vacation, and (b) the answers had not been prepared, resulting in a tedious reading of the 85 questions.

One attendee estimated that \$500,000 had been spent by those who attended the meeting, considering travel expenses and lost time.

Surprise was later expressed that no one walked out of the meeting, since the impulse to do so prevailed. The meeting was variously called "a fiasco", "a disaster", and "sort of depressing", and DOE was described as "a bunch of clowns" and as "one of the funniest groups around".

The above exact quotations, while not very pretty, are among a collection of comments by major OTEC contracting personnel who attended the meeting. In addition, OE was asked to use these comments verbatim—without identification—to express the dissatisfaction, and indeed frustration, felt by those who enthusiastically attended

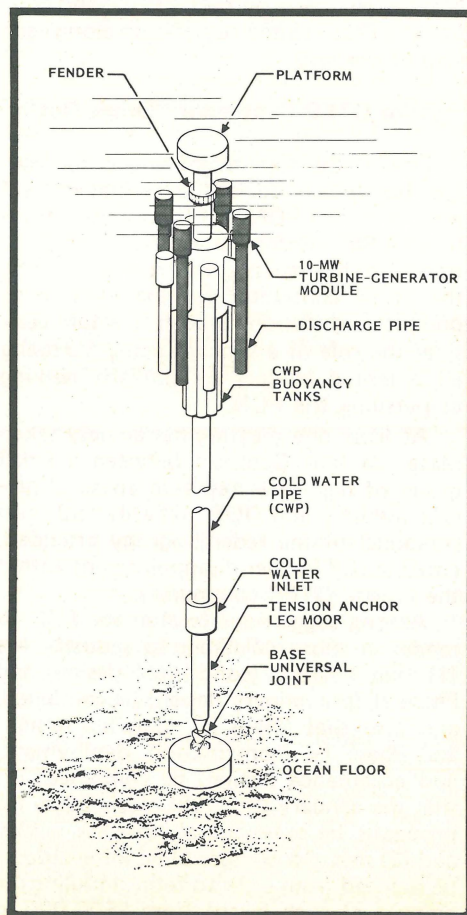
the conference expecting valuable information regarding this major step toward commercialization of OTEC.

### Richards Commended for His Efforts

Along with the severe distaste for the shabby handling of the meeting by DOE's Office of Procurement Operations, many contractors commented approvingly on the efforts of Bill Richards, Chief of DOE's Ocean Systems Division, to ameliorate the meeting.

"Much credit should be given to Bill Richards," one caller told OE, "who, after sensing the frustration of the attendees, rose to tell the group that he understood that many had flown great distances to attend", whereupon he made an effort to reply to questions from the floor. However many responses could not be succinct due to legal and other restrictions that precluded concise responses.

(continued on Page 2)



A recent Lockheed study recommends the system shown in the drawing above as one anchoring system to hold in place offshore energy plants the size of petroleum super-tankers.

### LOCKHEED STUDIES OTEC MOORING SYSTEMS FOR NOAA

How to keep huge OTEC plants—as big as oil tankers—in a fixed operating position despite the dislocating forces of currents, winds, and tides is the subject of an investigation recently completed by Lockheed Missiles and Space Company.

The study, conducted for the Office of Ocean Engineering of the National Oceanic and Atmospheric Administration (NOAA), examined eight candidate mooring systems and concluded that both single-point and multi-point tethers, designed to meet the unique requirements of the ocean thermal plants, are within current state of the art.

According to Dr. Robert L. Potash, the naval architect who conducted the study, such successful mooring systems for a pilot OTEC plant are an essential step toward developing tethers for commercial OTEC plants that will be as large as the world's largest oil tankers—over 300,000 tons.

Surface OTEC plants would be moored with up to 16 anchors. The system would be designed so that the tethers would not tangle the OTEC cold-water pipe, which descends several thousand feet, or interfere with electrical cables that transmit OTEC power to the shore.

Other types of OTEC plants which operate partially submerged (spar configuration) could use the cold-water pipe as part of the anchoring system, as in one design, and could therefore be anchored with a single-point mooring.

The ocean water conditions off Punta Tuna, Puerto Rico were used as the site scenario for the study.

# Solar OCEAN ENERGY Liaison

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The OTEC Liaison

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(OCEAN THERMAL  
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WAVE - TIDAL - CURRENT  
OFFSHORE WIND - BIOMASS  
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## CONTRACTORS BALK AT RESPONDING TO DOE'S PON FOR 40-MEGAWATT OTEC PILOT PLANT

(continued from Page 1)

### Reaction to the PON Itself

Aside from the unhappy results of the pre-proposal conference, due largely to improper planning and failure to allow adequate time for preparation, reactions from private industry to the terms of the PON itself are even sadder.

While virtually all of the direct funding of US OTEC development to date has been from DOE, the industrial sector has been increasingly outspoken of late regarding its reluctance to maintain costly operations and personnel in the pursuit of OTEC implementation unless and until DOE spelled out a long-range plan.

These views were frequently expressed by private-industry spokesmen in Congressional hearings during the last 18 months, and are understood to have accelerated the passage of legislation this summer which specified national goals for OTEC, as well as resolving some but not all of the major institutional barriers to OTEC progress. (See the June and July 1980 issues of OE.)

With that background, it could have been expected that private contractors would not welcome the terms of the PON, with its emphasis on cost sharing and continuous DOE-seated supervision along each step of the way.

### Major OTEC Contractor "Drops Out"

One of the four major OTEC contractors has already advised DOE that it "will not bid on this PON as it is presently structured". Still another, an offshore construction firm, has decided that it would not be the prime contractor for the PON in its present formulation, though it would consider the role of a subcontractor. Virtually all potential bidders are similarly balking at pursuing the PON.

At least one meeting has already taken place (in late October) between a small group of high-level representatives of private industry and DOE, but only mid-level personnel of the federal agency attended, creating still further disappointment within the private OTEC community.

Among suggestions to alter the PON to render it more palatable to industry are (1) that Phase I (conceptual design) and Phase II (preliminary design) be combined, and also that Phase III (detailed design) and Phase IV (construction, deployment, and acceptance testing) be combined; (2) that the January 9th, 1981 closing date for proposals be extended at least six weeks; and (3) that the number of winning bidders be reduced from eight to four, doubling the amount of each award from \$500,000 to \$1 million. (Additional suggestions are also being formulated.)

## The Problem: Different Ballparks

Behind the dissension between DOE and private industry lies the fact that each feels that the other should bear the primary responsibility for the development of a commercial OTEC industry.

Government personnel, by and large, hold the view that private industry primarily seeks federal funding for contracts to fill its coffers, with little regard for the fact that substantial investments are made by industry to provide the mechanisms to fulfill the contracts. In quite a different ballpark, DOE is widely perceived by private industry as being interested solely in perpetuating its bureaucracy and being unconcerned about economic factors within its own structure, resulting in tremendous waste that would never be tolerated in a private corporation.

Regarding the terms of the PON, an industry source told OE that "Asking private industry to work on a financial ratio of six to one with all of the control in the hands of DOE is foolhardy. No responsible firm would likely accept such conditions."

This inherent divergence of belief systems is at the core of the problem, and one which will not be easily resolved. Yet forward movement is essential if OTEC and other alternative energy sources are to begin to reduce our dependence on foreign oil as well as environmentally-dangerous energy sources.

OE invites readers' commentaries on all relevant points of view—from both government and private industry. We will publish your views, since it has been the purpose of this publication to serve as a vehicle to do so. Anonymity will, as always, be protected.

We suggest not further criticism, but positive proposals for improvement.

### SOME GOOD NEWS ON SOLAR ENERGY

California frequently leads the nation in many areas, and a recent announcement by the Southern California Edison Company may be still another example of that state's progressive thinking.

After continuous pronouncements that they felt that no more than 10% of their energy could come from alternative energy sources by the year 2000, the utility announced in mid-October that they now anticipate 30% by 1990. This 30% would include solar energy, geothermal energy, wind, fuel cells, hydropower, and cogeneration.

According to a copyrighted story in the *Wall Street Journal*, John Bryson, president of the California Public Utilities Commission, said "It's a little like Richard Nixon recognizing China." He also said he would expect other utilities to follow Southern California Edison's lead, calling the com-

(continued on Page 5)

## SIXTH OPEN MEETING OF OEC DRAWS RECORD ATTENDANCE

### Frank Outlines NOAA's OTEC Plans

The first of the current fall-winter series of open meetings of the Ocean Energy Council (OEC) was held October 15th in Washington DC, co-sponsored by the National Ocean Industries Association. Mr. Richard Frank, administrator and head of the National Oceanic and Atmospheric Administration (NOAA), was the featured speaker. The meeting was attended by over 150 people including most of DOE's ocean systems program managers. In addition to heavy OTEC industry representation, Congressional staff members and private investment personnel were present, making this the largest OEC open meeting to date.

Administrator Frank's major theme was that the recently-passed OTEC legislation (see the July and August issues of OE) was affirmative legislation, and that energy may be the key to the utilization of the oceans' resources. The Ocean Thermal Energy Conversion Act of 1980, now Public Law 96-320, authorizes NOAA to administer a federal one-stop licensing system for OTEC facilities, and the speaker pointed out that this legislation provides for speedy establishment of regulations to accomplish that goal, with NOAA looking forward to the challenge.

Reviewing NOAA's planning, Frank told the audience that the research plan outlining any possible adverse aspects of OTEC implementation must be completed by February 1981, and that the regulations must be promulgated one year from the date of enactment of the Law, or approximately ten months from the date of the meeting. He added that this left no latitude for delay, which he approved of. He told the group: "We will do it within these time constraints, and you will have the rules by which to operate." He contrasted the OTEC regulations with those of the Seabed Mining Act, which has a tendency to inhibit implementation.

Frank announced that proposed regulations will be completed within a month and that a series of hearings on the regulations will begin on October 30th. He added that NOAA could not publish final rules, since the industry is just evolving, but that rules would emerge from experience. This comment appeared to indicate that the regulations would serve as guidelines, subject to possible change as developments necessitated.

Frank pointed out one major caveat, however, and that was that NOAA needed information on which to base their judgments, and were seeking information from industry representatives. In this regard, OE understands that a wide-ranging group of industry representatives have already been contacted asking for such input.

Frank mentioned his resource problems briefly, pointing out that NOAA had already sent in their budget request for FY

(continued on Page 5)



Lockheed senior naval architect Terry Iwashita displays the model of a mooring system for a large OTEC power plant developed under a DOE contract. Supported by three metal rods, the clear plastic represents the ocean surface and the drift circle of the OTEC plant moored in 4500 feet of water. Lines from the surface OTEC unit represent mooring and energy-transmission cables, which must function under widely varying sea conditions.

### 1981 OCEAN ENERGY CONFERENCE SET

Next year's Annual Ocean Energy Conference, the eighth such meeting, is being organized by the Marine Technical Society and will be held in Washington DC in early June of 1981, most probably at the Capital Hilton.

### PUBLICATIONS AVAILABLE

OTEC Support Services Quarterly Technical Progress Report Number 3, November 15th, 1978 to February 14th, 1979, by J. P. Walsh of Value Engineering Company, Alexandria, Virginia, 17 pages, is available as C00-4931-T11 for \$5 paper copy and \$3.50 microfiche from the National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161.

**NATIONAL CONFERENCE ON  
RENEWABLE ENERGY  
TECHNOLOGIES**

The National Conference on Renewable Energy Technologies will be held December 7th through 11th in Honolulu, with ocean energy/OTEC as one of its primary topics. The Conference is being organized by the Hawaii Natural Energy Institute at the University of Hawaii at Manoa, and is co-sponsored by DOE and the Western Solar Utilization Network (Western SUN) with the theme "Island Energy Self-Sufficiency as a Model for Regional Energy Development".

Nine simultaneous sessions in the following categories will be held, with the

presentation of technical papers being followed by field trips in most cases: biomass, wind, photovoltaics, solar-thermal energy, ocean systems, geothermal energy, small-scale hydro, electrical energy systems, solar heating and cooling, energy-storage systems, and regional energy planning.

Speakers at the Conference will include Governor Ariyoshi, Senator Matsunaga, and Denis Hayes, Executive Director of SERI.

The Ocean Systems Tour, scheduled for Saturday, December 13th will include Mini-OTEC in Oahu, the Seacoast Test Facility site at Ke-ahole Point on the Big Island of

Hawaii, and possibly OTEC-1 at the same location.

Hawaii leads the nation in utilization of renewable resources due to its isolated location and abundance of varied resources including geothermal energy, wind, biomass, and, of course, plenty of sunshine.

Further information is available from the NREC Co-ordination Center, Group Travel Unlimited Incorporated, 1075 Connecticut Avenue Northwest, Washington DC 20036.

The preliminary program for the OTEC sessions is reprinted elsewhere in this issue.

**OCEAN SYSTEMS  
As of September 15, 1980**

Program Chairman: *Richard A. Woldin*, Lockheed Missiles & Space Company  
DOE Advisor: *Robert Cohen*

**SESSION I: Tuesday morning  
TECHNOLOGY REVIEW**

Session Chairman: *Richard A Woldin*, Lockheed Missiles & Space Company

- "Ocean Thermal Energy Conversion," *John R. Justus*, Congressional Research Service
- "Overview of the 7th Ocean Energy Conference," *Robert Cohen*, DOE, and *Robert Scott*, Gibbs & Cox, Inc.
- "Department of Energy, Ocean Systems Program Summary," *William Richards*, DOE
- "OTEC 40 MW Baseline Design," *J. Paul Walsh*, VSE Corporation

**SESSION II: Tuesday afternoon  
REGIONAL MARKETS AND APPLICATIONS**

Session Chairman: *Donald Sasscer*, University of Puerto Rico

- "OTEC Island Markets," *John P. Craven*, State of Hawaii Marine Affairs Coordinator
- "U.S. Mainland OTEC Markets," *Byron Washom*, Advanco Corporation
- "The Development of Ocean Energy in the Third World," *Frederick E. Naef*, Lockheed Missiles & Space Company, Inc.
- "OTEC Baseload Power Cost Assessments," *James W. H. Denton and Robert H. Douglass*, TRW DSSG
- "OTEC Ammonia Production," *J. P. Schiller*, SOLARAMCO

**SESSION III: Wednesday morning  
OTEC AND ISLAND ECONOMIES**

Session Chairman: *John P. Craven*, State of Hawaii Marine Affairs Coordinator

- "Artificial Upwelling in the Caribbean," *Oswald A. Roels*, University of Texas Marine Science Institute
- "Economics of OTEC in the Pacific," *Brian Coffay*, Westinghouse Electric Corporation
- "Political Factors in Island OTEC Development," *Scott Allen*, University of Hawaii
- "OTEC for the Pacific Islands - A Japanese Perspective," *Hiroshi Kamogawa*, Toshiba Corporation, Japan
- "Grazing OTEC Plantships Technical Status, Potential Products and Costs," *W. H. Avery*, The Johns Hopkins University

**SESSION IV: Wednesday afternoon  
TECHNICAL ISSUES**

Session Chairman: *William Richards*, DOE

- "Closed Power Cycle Development," *E. J. Barsness*, Westinghouse Electric Corporation
- "The Promise and the Challenge of Alternate Ocean Energy Conversion Systems," *Benjamin Shelpuk*, Solar Energy Research Institute
- "Ocean Engineering Considerations in the Design of OTEC Plants," *Terence McGuinness*, National Oceanic and Atmospheric Administration
- "Environmental Assessment and Monitoring for Ocean Thermal Energy Conversion," *Pat Wilde*, Lawrence Berkeley Laboratory

**SESSION V: Thursday morning  
FINANCIAL AND INSTITUTIONAL ISSUES**

Session Chairman: *Hugh Folk*, University of Hawaii at Manoa

- "Legal and Institutional Aspects of OTEC Development," *Robert B. Krueger*, Nossaman, Krueger & Marsh
- "At Sea With OTEC Legislation: A Congressional View," *Willis D. Smith*, Senate Committee on Energy and Natural Resources
- "State and Local Support for OTEC: Clearing the Path," *Kent M. Keith*, State of Hawaii Department of Planning and Economic Development
- "Financing Schemes," *Neil Eisner*, Lehman Bros. Kuhnloeb, Inc.

**SESSION VI: Thursday afternoon  
TEST FACILITIES**

Session Chairman: *W. Lloyd Jones*, Hawaiian Dredging & Construction Co.

- "ANL Facility for the Performance Evaluation of OTEC Heat Exchangers," *Anthony Thomas*, Argonne National Laboratory
- "OTEC Research Ashore, The Role of the Seacoast Test Facility," *Lawrence W. Hallanger*, Seacoast Test Facility
- "Mini-OTEC—An Operational OTEC Plant," *Delbert N. Burwell and Lloyd C. Trimble*, Lockheed Missiles & Space Company, Inc.
- "OTEC-1," *J. E. Snyder*, TRW
- "International Test Facilities," *Jay E. Yaffo*, Alfa-Laval

(continued from Page 3)

1981 asking for authorized billets, personnel, and funding, but that no specifics had been mentioned.

Among the objectives NOAA is pursuing are the structuring of its new office of Ocean Minerals and Energy, headed by Robert Knecht; further definition of the thermal plume from operational OTEC plants; establishment of the upper limits of capacity for OTEC plants in a specific limited ocean area; and development of regulations on site evaluation and on pre-construction testing.

#### A Positive, Upbeat Meeting

Adding to the upbeat mood of the attendees of the meeting were two positive comments by Frank: that NOAA found OTEC "less harmful than any other energy activity", and that NOAA would be very happy when industrial OTEC teams apply for the loan guarantees provided for in recent legislation.

A series of questions from the attendees followed Frank's 20-minute talk, dealing mainly with the environmental aspects of OTEC and the apparent improving communication between the Federal Government and private industry. Jack Botzum, editor of *Ocean Science News*, pointed out that the public should be invited to participate in forthcoming hearings NOAA will hold in Washington (see accompanying story in this issue).



(continued from Page 2)

pany's recent announcement "a nationally-significant breakthrough in utility-resource planning".

While this breakthrough in utility planning will not directly affect ocean energy and OTEC, it will ultimately improve the socio-political environment for public as well as governmental acceptance of alternative energy.

A recent *Wall Street Journal* review of a book on the 2500-year history of solar energy said it well: "Out of the current competition among various energy sources, the winner may well turn out to be the one that preceded all the rest. But it is useful to be reminded that the race to the sun is a marathon rather than a sprint."

#### NASA TO MANAGE MAJOR OTEC PROJECTS

The National Aeronautics and Space Administration (NASA) will manage major OTEC construction projects. This move was implemented due to the needs of the DOE ocean-systems program and NASA's ability to help meet those needs because of its relatively ample supply of billets and personnel resulting from the current slowdown of the space program and its experience in successful administration of large construction projects.

#### HYBRID OTEC PLANT/CWP BRIEFING HELD BY NOAA AND J. RAY McDERMOTT

A briefing on the Hybrid OTEC Plant/CWP Conceptual Design Study was held at NOAA's Rockville, Maryland offices November 6th. The work was recently completed by J. Ray McDermott and Company under a consulting agreement with Gianotti and Associates Incorporated, System Support Contractor for the NOAA office of Ocean Engineering.

Following an earlier briefing in May, the conceptual-level study looks at the design and installation of CWP systems for shelf-mounted or hybrid OTEC plants from 40 MW to 100 MW for both Puerto Rico and Hawaii. Two CWP designs are discussed, ranging from 33 to 70 feet in diameter, one using steel and the other using fiberglass-reinforced plastic. Three different installation schemes are described in detail and compared for relative merits, and schedule and cost estimates for the most promising combination of CWP material and installation schemes are provided.

Further details may be obtained from T. McGuinness at NOAA/OTES, 6010 Executive Boulevard, Rockville, Maryland.

#### ROBERT KNECHT TO HEAD NOAA'S OFFICE OF OCEAN MINERALS AND ENERGY

Richard Frank, administrator of the National Oceanic and Atmospheric Administration (NOAA), has announced that Robert Knecht will head NOAA's newly-established Office of Ocean Minerals and Energy.

Formed to co-ordinate the mandate given NOAA under the recently-passed OTEC legislation, the new office will be primarily concerned with licensing and environmental work and the establishment of regulations to complete one-stop licensing for future OTEC plants.

#### US GOVERNMENT PROCUREMENT INVITATIONS AND CONTRACT AWARDS

Listed below are contract awards and procurement invitations related to solar ocean energy culled from the Commerce Business Daily. This is not to be construed as a complete list.

**Oct 1: Bibliographic Searches on Technical Subjects Related to Ocean Research and Development:** Negotiations are being conducted with the New York Times Information Bank, 1111 19th Street, Suite 510, Rosslyn, Virginia 22209, for Solicitation AC-01-79-AD-10616.A003. Department of Energy Office of Procurement Operations, Washington DC 20509.

**Oct 1: Energy Exchange With Ecosystems:** Contract DE-AC-92-76-EV-02164.A004, for \$58,368, awarded to the Uni-

versity of Michigan, Ann Arbor, Michigan 48109. US Department of Energy, Chicago Operations and Regional Office, 9800 South Cass Avenue, Argonne, Illinois 60439.

**Oct 1: Carry Out Pacific Oceanographic Studies:** Contract N00014-80-C-0440, September 16th, 1980, \$1,007,588, awarded to the University of California, La Jolla, California 92037.

**Oct 1: Conceptual Design of a Solar Co-generation Facility:** Contract DE-AC-03-80-SF-11432 awarded to Bechtel National Incorporated, 50 Beale Street, San Francisco, California 94105. US Department of Energy, San Francisco Operations Office, 1333 Broadway, Oakland, California 94612.

**Oct 1: Security Requirements Analysis for US Energy Resources:** RFP RP-01-800-DP-3021-Y, \$134,320, Contract AC-01-80-DP-30214, awarded to Presearch, Arlington, Virginia 22202. Department of Energy, Office of Procurement Operations, Washington DC 20585.

**Oct 3: Honolulu Program of Waste Energy Recovery:** Negotiations are being conducted with the city and country of Honolulu, 650 South King Street, Honolulu, Hawaii 96813, for Solicitation FG-01-80-CS-20244.A001. Department of Energy, Office of Procurement Operations, Washington DC 20585, (202) 376-9290.

**Oct 3: Solar Hydrogen Production Via the Sulfur/Iodine Thermo Chemical Water-Splitting Cycle:** Negotiations are being conducted with General Atomic Company, PO Box 81608, San Diego, California 92138 for Solicitation AC01-8C01-80CS-80004. Department of Energy, Office of Procurement Operations, Washington DC 20585.

**Oct 3: Grant to Support OTEC Utility Users Council:** Negotiations are being conducted with Puerto Rico Electric Power Authority, San Juan, Puerto Rico 00936, for Solicitation FG-01-80-ET-21099. Department of Energy, Office of Procurement Operations, Washington DC 20585, (202) 376-9290.

**Oct 3: Financial Assistance for International Energy Symposia Series as Part of 1982 World's Fair Participation:** Negotiations are being conducted with the Energy Opportunities Consortium, PO Box 2229, Knoxville, Tennessee 37901, for Solicitation FG-01-80-IR-11839. Department of Energy, Office of Procurement Operations, Washington DC 20585, (202) 376-9290.

**Oct 6: Solar Rankine-Cycle Applications Study to Determine Technical Feasibility and Market Penetration Potential for the Application of Large Solar Rankine Power Equipment:** RFP 8-1-1-FA-00372Q, closing date November 14th, 1980. RFP available on written request only. Telephone requests are not acceptable. Procurement Office, George C. Marshall Space Flight Center, Alabama 35812, Attention F. E. Suns/AP34 F.

**Oct 6: Honolulu Program of Waste Energy Recovery:** Contract FG-01-79-CS-20244.A001, for \$142,500, awarded to City and Country of Honolulu, 650 South King Street, Honolulu, Hawaii 96813.

**Oct 7: Solar Hydrogen Production Via the Sulfur/Iodine Thermo-Chemical Water-Splitting Cycle:** Negotiations are being conducted with the General Atomic Company, PO Box 81608, San Diego, California 92138. Solicitation AC-01-80-CS-80004. Department of Energy, Office of Procurement Operations, Washington DC 20585.

**Oct 7: Honolulu Program of Waste Energy Recovery:** Negotiations are being conducted with the city and country of Honolulu, 650 South King Street, Honolulu, Hawaii 96813, for Solicitation FG-01-80-CS-20244.A001. Department of Energy, Office of Procurement Operations, Washington DC 20585.

**Oct 7: Information Structures for the Control of Large-Scale Systems:** Solicitation RA-01-80-RA-50154. Contract AC-01-RA-50423, for \$228,693, awarded to Advance Information and Decision Systems, Mountain View, California 94040. Department of Energy, Office of Procurement Operations, Washington DC 20585.

**Oct 7: Studies in Large-Scale Systems Theory Using Concepts:** Solicitation RP-01-80-RA-50154. Contract AC-01-80-RA-50424, for \$380,852, awarded to Systems Engineering for Power, Vienna, Virginia. Department of Energy, Office of Procurement Operations, Washington DC 20585.

**Oct 8: Development of MIS Data Base for Conservation and Solar Energy:** Negotiations are being conducted with the Computer Sciences Corporation, Washington DC 20001. Solicitation AC-01-80-CS-10360. Department of Energy, Office of Procurement Operations, Washington DC 20585.

**Oct 8: Thermal Energy Reclamation and Delivery System:** Unsolicited proposal. Contract FG-01-80-CS-24110, \$907,165, awarded to Energy Recycling Company, Lansing, Michigan 48901. Department of Energy, Office of Procurement Operations, Washington DC 20585.

**Oct 8: Research and Development for Organizational Forms of Large-Scale Systems:** Solicitation RA-01-80-RE-50154. Contract AC-01-80-RA-50425, \$139,815, awarded to Michigan State University, East Lansing, Michigan 48824. Department of Energy, Office of Procurement Operations, Washington DC 20585.

**Oct 8: Frequency-Response Design Methods for Large-Scale Systems:** Solicitation PRAD DE-RA-01-80-RA-50159. Contract AC-01-80-RA-50420, \$319,860, awarded to University of Maryland, College Park, Maryland 20742. Department of Energy, Office of Procurement Operations, Washington DC 20585.

**Oct 8: Conceptual Design for Solar Cogeneration:** Contract DE-AC-03-80-SF-11437, September 30th, 1980, for \$437,607 awarded to General Electric Company, Energy Systems Programs Department, One River Road, Schenectady, New York 12345. US Department of Energy, San Francisco Operations Office, 1333 Broadway, Oakland, California 94612.

**Oct 8: Assessment of a Variety of Issues Relating to Energy Conservation, Utility Regulation, Solar Techniques, and Nuclear Energy:** Solicitation: Sole source. Contract AC-01-80-PE-70278, \$152,915, awarded to Harvard University, Cambridge, Massachusetts 02138. Department of Energy, Office of Procurement Operations, Washington DC 20585.

**Oct 27: Experimental and Analytical Studies of the Influence of Connecting Flows in the Ocean and Atmosphere:** Contract N00014-75-C-0877, October 10th, 1980, \$133,200, awarded to Florida State University, Tallahassee, Florida 32306.

**Oct 30: Marine Bottoming Cycle (MBC) Demonstration:** The Department of Energy is developing a list of organizations interested in responding to a Solicitation for Co-operative Agreement Proposal (SCAP) for a demonstration of the use of an organic Rankine bottoming-cycle (ORBC) waste heat recovery system in a marine transportation application. It is expected that the MBC demonstration will verify the fuel-saving capability of ORBC systems and will promote near-term commercialization of such systems. The demonstration effort will emphasize readily-available technology in order to accelerate the potential near-term energy-saving benefits. It is anticipated that a cost-shared co-operative agreement of about four years' duration will be negotiated with the successful proposer. Requests for copies of the SCAP, which should include complete name, address, and point of contact, should be submitted no later than November 21st, 1980 to Attn: Elissa Speizman, AAOD II-B, (312) 972-2107. (301). US Department of Energy, Chicago Operations and Regional Office, 9800 South Cass Avenue, Argonne, Illinois 60439.

**Oct 31: Develop Computer Software to Estimate Sea Surface Temperature:** The Department of Commerce has awarded a cost-plus-fixed-fee contract to the Small Business Administration, subcontracting to the Systems and Applied Sciences Corporation, 6811 Kenilworth Avenue, Riverdale, Maryland 20840, for the total estimated cost-plus-fixed-fee of \$38,852. Contract NA-80-SAC-00067. US Department of Commerce Procurement-ADP, Washington DC 20230.

