

TECHNICAL EDITOR'S PAGE

Solar Energy for the Second Century of ASME

The American Society of Mechanical Engineers celebrated its first century of service to mankind from August 10 to 21, 1980 at the Century 2 Emerging Technology Conferences in San Francisco. At this meeting, the Solar Energy Division offered a new concept in conducting a technical program at a conference of the Society. The program offered engineers interested in becoming involved in solar energy an opportunity to learn the background of this emerging technology in a short course, to attend a workshop that presented the current state of solar energy in the market place, as well as to participate in technical sessions at which papers on topics such as solar energy fundamentals, solar energy industrial process heat, solar energy as a principle source of energy in the future, analysis and testing of solar power systems and components, modeling and simulation of solar energy systems, solar power system studies, and solar codes and standards were presented and discussed. In addition, two plenary sessions, "Simplified Design Methods for Solar Systems" and "History of Solar Energy in the First Century of ASME" were presented by Professor W. A. Beckman and J. L. Yellot, respectively. Both of these will be published in the *Journal of Solar Energy Engineering*.

The contributions which the Solar Energy Division made at the Century 2 Conference provide a preview of the activities planned by the Solar Energy Division during the second century of ASME. The principal contributions that a large professional society such as ASME can make is to assist solar energy technologies in the transition from the laboratory to the market place. In order to make solar energy a dominant force in the energy infrastructure of this country, a substantial investment in manpower, materials, and capital will be required. The decision to undertake this investment must be made by professionals who have the opportunity to choose, as well as the power to implement their choice. The government can encourage a transition from oil to other energy sources such as coal, nuclear, and solar indirectly by financial incentives and an appropriate tax structure; but this transition can only be implemented by practicing engineers who know competing technologies and can find appropriate applications where an emerging technology such as solar energy will be technically viable and economically cost-effective. To achieve this goal it will be necessary to conduct additional workshops, short courses and other educational activities to assure that engineers be conversant with the potential, as well as with the short-comings of solar energy as a major contributor to the overall energy requirements of the country.

The interest in solar energy shown by participants of the Century 2 Conference was very encouraging. The solar energy technical sessions were packed—quite a contrast with 20 years ago! Professor Yellot recalled that at that time the attendees at a Solar Energy Session were the authors and their relatives. ASME devoted an entire session to papers on solar energy for the first time on December 3, 1957, and granted division status to Solar Energy less than 10 years ago. But this year there were seven technical sessions devoted entirely to solar energy and the division has its own transactions journal. Interest in the new journal was high and promotional copies of the *Journal of Solar Energy Engineering* were snapped up as rapidly as they were placed on display.

Several hundred people participated in the workshop, *Solar Energy in the Marketplace*, conducted by the Jet Propulsion Laboratory for the Solar Energy Research Institute and the Department of Energy. The workshop focused on applications of solar technologies that are reaching the state of commercialization. It examined technical, economic and

institutional issues surrounding the introduction and use of solar energy in various market sectors. Also, operational results from existing installations were presented, including cost, performance, financing, construction and installation. Ms. Rosalyn H. Barbieri of the Jet Propulsion Laboratory, M/S 506-316, 4800 Oak Grove Drive, Pasadena, Calif., 91103, (Phone: (213) 577-9328), who was in charge of this seminar, has asked for suggestions for other workshop topics. Given the success of the last workshop, her request should be taken seriously and ASME members interested in solar energy are invited to communicate with her.

Another important step will be taken at the next meeting of the Solar Energy Division, to be held April 27 to May 1, 1981, in Reno, Nev. For the past two years, separate conferences, one on system simulation and economic analysis and another on operational results; have been sponsored by the U.S. Department of Energy to provide a vehicle for communication and publication of results in these areas of solar energy. However, in 1981 and for future years, DOE has invited the ASME Solar Energy Division to sponsor a single conference covering these topics and thereby transferred responsibility for disseminating this information to a professional society. Papers will be peer-reviewed, thus providing an opportunity to acquaint outstanding engineers from related fields with solar energy topics by asking them to participate in the review process. The papers presented at this conference will be considered for publication in the *Journal of Solar Energy Engineering* after having been published in abbreviated form in a proceeding volume which will be distributed to the conference participants. It is hoped that in the future other DOE sponsored conferences will be transferred to appropriate technical societies in order to increase the size of the audience and eliminate the need for the government's involvement in an activity which is an important step in the commercialization of solar energy technologies and has traditionally been the responsibility of professional societies.

Significant steps were also taken by the Executive Committee of the Solar Energy Division to expand the scope of solar activities. Two new technical sub-committees, one for photovoltaics and another for wind and OTEC systems were established and the responsibility of the Solar Industrial Process Heat Sub-committee was expanded to include bio-conversion. Furthermore, the Executive Committee decided to put on a Solar Equipment Exhibit in connection with a Solar Energy Conference in 1982. Exhibits of technical hardware are important for commercialization. For an exhibit to be successful it must be seen by a large number of practicing engineers who can utilize the equipment. The American Society of Mechanical Engineers, whose membership exceeds three quarters of a million, is therefore well-suited to sponsor and conduct such an exhibit, successfully.

This survey of current activities of the Solar Energy Division of ASME and its plans for the future clearly show that solar energy has come of age. Given the growing importance of solar energy and the urgent need to develop a solar energy industry, the activities of the Solar Energy Division show that in the second century of ASME, the Solar Energy Division will participate increasingly in the activities of the Society because ASME can provide a forum at which solar energy information can be widely disseminated to engineers who can implement it on a sufficient scale to support the President's goal of supplying a large fraction of the nation's energy need within solar technologies by the end of the century.

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