PROCEEDINGS OF THE FIFTH SEDE BOQER SYMPOSIUM ON SOLAR ELECTRICITY PRODUCTION

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Editor

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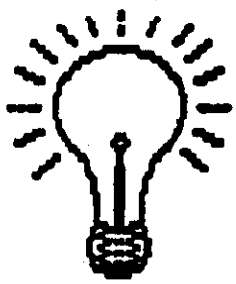

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INTRODUCTION

The 5th Sede Boqer Symposium on Solar Electricity Production was by far the most well-attended of the series to date. This was almost certainly due to world-wide interest in what is to become of the unfinished solar direct steam generation (DSG) test facility that the late lamented Luz Corp had started to erect at Sede Boqer. Indeed, anticipating such interest the present symposium was designed to last a day longer than its predecessors and to include a half-day. summing-up. DSG workshop session.

The layout of the present volume closely follows the order of events during the Symposium. First there is an in-depth review of DSG technology provided by Dr. Eldad Dagan, lately of Luz; Eng. Juha Ven of Solel Solar Systems Ltd (the company who purchased Luz's assets and who have, independently, developed a solar steam system of their own); and Dr. Juergen Rheinlaender (who was, at the last moment, unable to attend the symposium but who kindly provided a written text, which was presented by Mr. Martin Mueller) of ZSW. This first section of the proceedings is summed up by the opening address of Dr. Wilfried Grasse (a co-director of Plataforma Solar de Almeria and secretary of the Solar PACES program of the IEA) outlining his vision for an international joint effort to develop solar thermal electricity technology.

The second section contains the full texts of the two key-note reviews of the "sister" solar technologies that are currently of interest: central receivers, specifically the US *Solar 2* project, reviewed by Dr. Paul Klimas of Sandia Labs; and photovoltaics. specifically an outline of solar cell development within the framework of the former Soviet Union's space program. This review was presented by Prof. Mark Koltun (currently at the Krzhizhanovsky Power Engineering Institute and the Solar Energy Research and Educational Center but who was one of the leading solar scientists in the former Soviet space program). Transcriptions of the tape-recorded discussions which followed these review talks are appended to the texts.

The third section of these proceedings contains the texts of the six technical lectures that were presented on various problems associated with the design of solar direct steam generating systems. Among these texts I would like to single out those of Profs. Gad Hetsroni, Yehuda Taitel and Dvora Barnea, three of the world's leading specialists in the physics of two-phase flow, who graciously agreed to present a kind of "mini-course" on this subject so that non-specialists would be able to appreciate some of the subtleties of the problems that were discussed during these three days.

The fourth section contains texts supplied by participants who had made presentations at the poster session. Among this group I would draw attention to Dr. David Kearney's review of the present status of the nine SEGS plants that Luz left operating in California at the time of their demise.

The fifth section contains a transcription of the tape-recorded DSG workshop which constituted the final session of the Symposium. Since this session

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consisted largely of questions and answers in, more or less, the order in which the questioner was able to catch the chairman's eye, I have exercised a certain amount of editorial license (a) in re-ordering the discussion by grouping related topics together, (b) by transferring to the "DSG" transcript some questions and answers that were actually discussed during the technical session. I trust that the various speakers will forgive me for "quoting them out of context" in this somewhat high-handed manner.

Lastly it is my pleasant duty to acknowledge the beneficence of our sponsors. This year they included our traditional supporters: the Ministry of Energy and Infrastructure and the Blaustein International Center for Desert Studies; and two new friends, the IEA Solar PACES Program and Solel Systems Ltd. The 5th Symposium was held under the auspices of Ben-Gurion University of the Negev, the Israel section of ISES and the Israel section of the IEEE Power Systems Chapter.

David Faiman,
Sede Boqer, May 1993

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I. SOLAR DIRECT STEAM GENERATION: REVIEW PRESENTATIONS

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