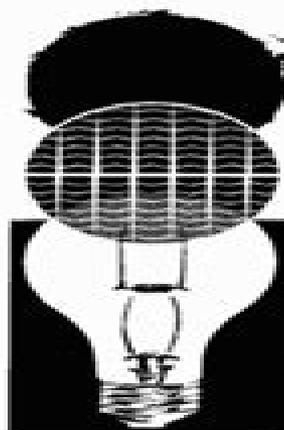


Basic Photovoltaic Principles and Methods

SERI/SP-290-1448
Solar Information Module 6213
Published February 1982



This book presents a nonmathematical explanation of the theory and design of PV solar cells and systems. It is written to address several audiences: engineers and scientists who desire an introduction to the field of photovoltaics, students interested in PV science and technology, and end users who require a greater understanding of theory to supplement their applications.

The book is effectively sectioned into two main blocks: Chapters 2-5 cover the basic elements of photovoltaics—the individual electricity-producing cell. The reader is told why PV cells work, and how they are made. There is also a chapter on advanced types of silicon cells. Chapters 6-8 cover the designs of systems constructed from individual cells—including possible constructions for putting cells together and the equipment needed for a practical producer of electrical energy. In addition, Chapter 9 deals with PV's future. Chapter 1 is a general introduction to the field.

The authors of this document are Paul Hersch and Kenneth Zweibel. They would like to thank their colleagues at the Solar Energy Research Institute's Solar Electric Conversion Division who reviewed the manuscript for technical accuracy: Richard Bird, Kathryn Chewey, Satyen Deb, Keith Emery, Kay Firor, Steve Hogan, Larry Kazmerski, Jack Stone, Thomas Surek, and Simon Tsuo. Gary Cook and Richard Piekarski of the Technical Information Office, who designed the document, were also helpful readers. Graphic Directions of Boulder, Colorado, was responsible for the text's figures, often with valuable improvements. Ray David was the cover artist. Vincent Rice of the Photovoltaics Program Office at DOE was supportive throughout, giving impetus to the project.

Basic Photovoltaic Principles And Methods Solar Energy Research Institute

Kenneth Zweibel, Paul Hersch



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The Handbook of Clean Energy Systems brings together an international team of experts to present a comprehensive overview of the latest research developments and practical applications throughout all areas of clean energy systems. Consolidating information which is currently scattered across a wide variety of literature sources, the handbook covers a broad range of topics in this interdisciplinary research field, including both fossil and renewable energy systems. The development of intelligent energy systems for efficient energy processes and mitigation technologies for the reduction of environmental pollutants is explored in depth, and environmental, social, and economic impacts are also addressed. Topics covered include:

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