



Principles of Sustainable Energy Systems, Second Edition (Mechanical and Aerospace Engineering Series)

By Frank Kreith

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Principles of Sustainable Energy Systems, Second Edition (Mechanical and Aerospace Engineering Series) By Frank Kreith

Completely revised and updated, **Principles of Sustainable Energy Systems, Second Edition** presents broad-based coverage of sustainable energy sources and systems. The book is designed as a text for undergraduate seniors and first-year graduate students. It focuses on renewable energy technologies, but also treats current trends such as the expanding use of natural gas from fracking and development of nuclear power. It covers the economics of sustainable energy, both from a traditional monetary as well as from an energy return on energy invested (EROI) perspective.

The book provides complete and up-to-date coverage of all renewable technologies, including solar and wind power, biological processes such as anaerobic digestion and geothermal energy. The new edition also examines social issues such as food, water, population, global warming, and public policies of engineering concern. It discusses energy transition—the process by which renewable energy forms can effectively be introduced into existing energy systems to replace fossil fuels.

See What's New in the Second Edition:

Updates to all chapters on renewable energy technology engineering, in particular the chapters dealing with transportation, passive design, energy storage, ocean energy, and bioconversion. Written by Frank Kreith and Susan Krumdieck, this updated version of a successful textbook takes a balanced approach that looks not only at sustainable energy sources, but also provides examples of energy storage, industrial process heat, and modern transportation. The authors take an analytical systems approach to energy engineering, rather than the more general and descriptive approach usually found in textbooks on this topic.

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Editorial Review

... "This is an ideal book for seniors and graduate students interested in learning about the sustainable energy field and its penetration. The authors provide very strong discussion on cost-benefit analysis and ROI calculations for various alternate energy systems in current use. This is a descriptive book with detailed case-based analyses of various systems and engineering applications. The text book provides real-world case studies and related problems pertaining to sustainable energy systems."

—Dr. Kuruvilla John, University of North Texas "The new edition of "Principles of Sustainable Energy" tackles many important issues in depth and with great clarity. The important inclusion of net energy analysis adds an essential dimension to the discussion of sustainable energy. The development and presentation of the emerging field of Transition Engineering represents a vital new direction for engineers that is urgently needed at this pivotal moment for society. The discussion of an overall constraint in energy supply and options for demand reduction are critical – many academic texts focus on supply side technological fixes to both security of energy supply and climate change."

—Michael Dale, Global Climate and Energy Project, Stanford University, CA

"This book provides thorough coverage of not only the technical aspects of energy sources, traditional and renewable energy technologies, and resulting impacts on society and the environment, but also broader historical, political, economic, and social aspects that are critically intertwined with energy decision-making today. This textbook can be easily integrated, in its entirety or using selected chapters, into a variety of classes, ranging from highly technical engineering design or science classes to classes offered in other disciplines, such as political science, business, economics, etc."

—Angela S. Lindner, Ph.D., University of Florida

"...provides an excellent overview of the whole sustainable energy canvas. ...this book is ideal for a course on renewable energy technologies."

—T. Agami Reddy, Arizona State University, Tempe

"... a very educational book that enables an energy novice to become literate in the most important aspects of energy systems. From technology, to systems, to the role of scientists and engineers in providing for a more livable future, *Principles of Sustainable Energy* provides both the needed background principles to understand both energy technology and sustainability. The authors teach us that it is not only technology that enables a better future, but our chosen uses of technologies."

?Carey W. King, University of Texas at Austin

From reader reviews:

Judith Joiner: Nowadays reading books become more than want or need but also get a life style. This reading habit give you lot of advantages. The advantages you got of course the knowledge the rest of the information inside the book in which improve your knowledge and information. The information you get based on what kind of e-book you read, if you want have more knowledge just go with knowledge books but if you want experience happy read one along with theme for entertaining like comic or novel. The particular Principles of Sustainable Energy Systems, Second Edition (Mechanical and Aerospace Engineering Series) is kind of e-book which is giving the reader erratic experience.

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