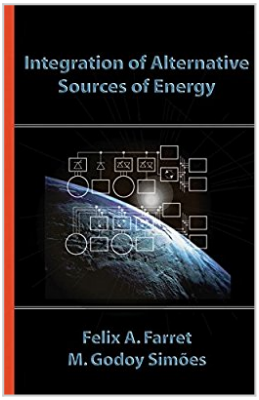

Integration of Alternative Sources of Energy with Alternative Energy Resources Set

By Felix A. Farret

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A unique electrical engineering approach to alternative sources of energy Unlike other books that deal with alternative sources of energy from a mechanical point of view, Integration of Alternative Sources of Energy takes an electrical engineering perspective.Moreover, the authors examine the full spectrum of alternative and renewable energy with the goal of developing viable methods of integrating energy sources and storage efficiently.Readers become thoroughly conversant with the principles, possibilities, and limits of alternative and renewable energy. The book begins with a general introduction and then reviews principles of thermodynamics.Next, the authors explore both common and up-and-coming alternative energy sources, including hydro, wind, solar, photovoltaic, thermosolar, fuel cells, and biomass.Following that are discussions of microturbines and induction generators, as well as a special chapter dedicated to energy storage systems. After setting forth the fundamentals, the authors focus on how to integrate the various energy sources for electrical power production. Discussions related to system operation, maintenance, and management, as well as standards for interconnection, are also set forth. Throughout the book, diagrams are provided to demonstrate the electrical operation of all the systems that are presented. In addition, extensive use of examples helps readers better grasp how integration of alternative energy sources can be accomplished. The final chapter gives readers the opportunity to learn about the HOMER Micropower Optimization Model. This computer model, developed by the National Renewable Energy Laboratory (NREL), assists in the design of micropowersystems and facilitates comparisons of power generation techniques.Readers can download the software from the NREL Web site. This book is a must-read for engineers, consultants, regulators, and environmentalists involved in energy production and delivery, helping them evaluate alternative energy sources and integrate them into an efficient energy delivery system. It is also a superior textbook for upper-level undergraduates and graduate students.

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Editorial Review

Review
..."an attractive reference book for research, consulting and development engineers...also, it can be used...in university." ("IEEE Industrial Electronics Society Newsletter," March 2006)

From the Back Cover
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About the Author
FELIX A. FARRET, PhD, is Professor of Electrical Engineering at the Federal University of Santa Maria. Dr. Farret received a CAPES fellowship from the Brazilian government for his research in fuel cells and alternative sources of energy as part of a joint program between the Colorado School of Mines-Engineering Division and the Federal University of Santa Maria, Brazil.

M. GODOY SIMOES, PhD, Livre-Docente, is Associate Professor of Electrical Engineering at the Colorado School of Mines. He is a recipient of a National Science Foundation Faculty Early CAREER Development Award. He served as Program Chair of IEEE PESC 2005, General Chair of IEEE PEEW 2005, and is currently serving as Associate Editor for the IEEE Transactions on Power Electronics as well as Secretary of

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