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Nota di contenuto	CONTRIBUTORS -- FOREWORD -- PREFACE -- ACKNOWLEDGMENTS -- ABOUT THE AUTHORS -- 1. ALTERNATIVE SOURCES OF ENERGY -- 1.1 Introduction -- 1.2 Renewable Sources of Energy -- 1.3 Renewable Energy Versus Alternative Energy -- 1.4 Planning and Development of Integrated Energy -- 1.4.1 Grid-Supplied Electricity -- 1.4.2 Load -- 1.4.3 Distributed Generation -- 1.5 Renewable Energy Economics -- 1.5.1 Calculation of Electricity Generation Costs -- 1.6 European Targets for Renewables -- 1.6.1 Demand-Side Management Options -- 1.6.2 Supply-Side Management Options -- 1.7 Integration of Renewable Energy Sources -- 1.7.1 Integration of Renewable Energy in the United States -- 1.7.2 Energy Recovery Time -- 1.7.3 Sustainability -- 1.8 Modern Electronic Controls of Power Systems -- References -- 2. PRINCIPLES OF THERMODYNAMICS -- 2.1. Introduction -- 2.2. State of a Thermodynamic System -- 2.3. Fundamental Laws and Principles -- 2.3.1 Example in a Nutshell -- 2.3.2 Practical Problems Associated

with Carnot Cycle Plant -- 2.3.3 Rankine Cycle for Power Plants --
2.3.4 Brayton Cycle for Power Plants -- 2.3.5 Energy and Power -- 2.4
Examples of Energy Balance -- 2.4.1 Simple Residential Energy Balance
-- 2.4.2 Refrigerator Energy Balance -- 2.4.3 Energy Balance for a
Water Heater -- 2.4.4 Rock Bed Energy Balance -- 2.4.5 Array of Solar
Collectors -- 2.4.6 Heat Pump -- 2.4.7 Heat Transfer Analysis -- 2.5
Planet Earth: A Closed But Not Isolated System -- References -- 3.
HYDROELECTRIC POWER PLANTS -- 3.1 Introduction -- 3.2
Determination of the Useful Power -- 3.3 Expedient Topographical and
Hydrological Measurements -- 3.3.1 Simple Measurement of Elevation
-- 3.3.2 Global Positioning Systems for Elevation Measurement -- 3.3.3
Specification of Pipe Losses -- 3.3.4 Expedient Measurements of
Stream Water Flow -- 3.3.5 Civil Works -- 3.4 Generating Unit -- 3.4.1
Regulation Systems -- 3.4.2 Butterfly Valves -- 3.5 Waterwheels -- 3.6
Turbines -- 3.6.1 Pelton Turbine -- 3.6.2 Francis Turbine -- 3.6.3
Michel-Banki Turbine.
3.6.4 Kaplan or Hydraulic Propeller Turbine -- 3.6.5 Deriaz Turbines --
3.6.6 Water Pumps Working as Turbines -- 3.6.7 Specification of Hydro
Turbines -- References -- 4. WIND POWER PLANTS -- 4.1 Introduction
-- 4.2 Appropriate Location -- 4.2.1 Evaluation of Wind Intensity --
4.2.2 Topography -- 4.2.3 Purpose of the Energy Generated -- 4.2.4
Means of Access -- 4.3 Wind Power -- 4.4 General Classification of
Wind Turbines -- 4.4.1 Rotor Turbines -- 4.4.2 Multiple-Blade
Turbines -- 4.4.3 Drag Turbines (Savonius) -- 4.4.4 Lifting Turbines --
4.4.5 System TARP-WARP -- 4.4.6 Accessories -- 4.5 Generators and
Speed Control Used in Wind Power Energy -- 4.6 Analysis of Small
Generating Systems -- References -- 5. THERMOSOLAR POWER PLANTS
-- 5.1 Introduction -- 5.2 Water Heating by Solar Energy -- 5.3 Heat
Transfer Calculation of Thermally Isolated Reservoirs -- 5.4 Heating
Domestic Water -- 5.5 Thermosolar Energy -- 5.5.1 Parabolic Trough
-- 5.5.2 Parabolic Dish -- 5.5.3 Solar Power Tower -- 5.5.4 Production
of Hydrogen -- 5.6 Economical Analysis of Thermosolar Energy --
References -- 6. PHOTOVOLTAIC POWER PLANTS -- 6.1 Introduction --
6.2 Solar Energy -- 6.3 Generation of Electricity by Photovoltaic Effect
-- 6.4 Dependence of a PV Cell Characteristic on Temperature -- 6.5
Solar Cell Output Characteristics -- 6.6 Equivalent Models and
Parameters for Photovoltaic Panels -- 6.6.1 Dark-Current Electric
Parameters of a Photovoltaic Panel -- 6.6.2 Model of a PV Panel
Consisting of n Cells in Series -- 6.6.3 Model of a PV Panel Consisting
of n Cells in Parallel -- 6.7 Photovoltaic Systems -- 6.7.1 Illumination
Area -- 6.7.2 Solar Modules and Panels -- 6.7.3 Aluminum Structures
-- 6.7.4 Load Controller -- 6.7.5 Battery Bank -- 6.8 Applications of
Photovoltaic Solar Energy -- 6.8.1 Residential and Public Illumination
-- 6.8.2 Stroboscopic Signaling -- 6.8.3 Electric Fence -- 6.8.4
Telecommunications -- 6.8.5 Water Supply and Micro-Irrigation
Systems -- 6.8.6 Control of Plagues and Conservation of Food and
Medicine.
6.8.7 Hydrogen and Oxygen Generation by Electrolysis -- 6.8.8 Electric
Power Supply -- 6.8.9 Security and Alarm Systems -- 6.9 Economical
Analysis of Solar Energy -- References -- 7. POWER PLANTS WITH FUEL
CELLS -- 7.1 Introduction -- 7.2 The Fuel Cell -- 7.3 Commercial
Technologies for Generation of Electricity -- 7.4 Practical Issues
Related to Fuel Cell Stacking -- 7.4.1 Low- and High-Temperature Fuel
Cells -- 7.4.2 Commercial and Manufacturing Issues -- 7.5
Constructional Features of Proton Exchange Membrane Fuel Cells --
7.6 Constructional Features of Solid Oxide Fuel Cells -- 7.7 Water, Air,
and Heat Management -- 7.8 Load Curve Peak Shaving with Fuel Cells
-- 7.8.1 Maximal Load Curve Flatness at Constant Output Power --

7.8.2 Amount of Thermal Energy Necessary -- 7.9 Reformers, Electrolyzer Systems, and Related Precautions -- 7.10 Advantages and Disadvantages of Fuel Cells -- 7.11 Fuel Cell Equivalent Circuit -- 7.12 Practical Determination of the Equivalent Model Parameters -- 7.12.1 Example of Determination of FC Parameters -- 7.13 Aspects of Hydrogen as Fuel -- 7.14 Future Perspectives -- References -- 8. BIOMASS-POWERED MICROPLANTS -- 8.1 Introduction -- 8.2 Fuel from Biomass -- 8.3 Biogas -- 8.4 Biomass for Biogas -- 8.5 Biological Formation of Biogas -- 8.6 Factors Affecting Biodigestion -- 8.7 Characteristics of Biodigesters -- 8.8 Construction of Biodigester -- 8.8.1 Sizing a Biodigester -- 8.9 Generation of Electricity Using Biogas -- References -- 9. MICROTURBINES -- 9.1 Introduction -- 9.2 Principles of Operation -- 9.3 Microturbine Fuel -- 9.4 Control of Microturbines -- 9.4.1 Mechanical-Side Structure -- 9.4.2 Electrical-Side Structure -- 9.4.3 Control-Side Structure -- 9.5 Efficiency and Power of Microturbines -- 9.6 Site Assessment for Installation of Microturbines -- References -- 10. INDUCTION GENERATORS -- 10.1 Introduction -- 10.2 Principles of Operation -- 10.3 Representation of Steady-State Operation -- 10.4 Power and Losses Generated -- 10.5 Self-Excited Induction Generator. 10.6 Magnetizing Curves and Self-Excitation -- 10.7 Mathematical Description of the Self-Excitation Process -- 10.8 Interconnected and Stand-Alone Operation -- 10.9 Speed and Voltage Control -- 10.9.1 Frequency, Speed, and Voltage Controls -- 10.9.2 Load Control Versus Source Control for Induction Generators -- 10.9.3 The Danish Concept -- 10.9.4 Variable-Speed Grid Connection -- 10.9.5 Control by the Load Versus Control by the Source -- 10.10 Economical Aspects -- References -- 11. STORAGE SYSTEMS -- 11.1 Introduction -- 11.2 Energy Storage Parameters -- 11.3 Lead-Acid Batteries -- 11.3.1 Constructional Features -- 11.3.2 Battery Charge-Discharge Cycles -- 11.3.3 Operating Limits and Parameters -- 11.3.4 Maintenance of Lead-Acid Batteries -- 11.3.5 Sizing Lead-Acid Batteries for DG Applications -- 11.4 Ultracapacitors -- 11.4.1 Double-Layer Ultracapacitors -- 11.4.2 High-Energy Ultracapacitors -- 11.4.3 Applications of Ultracapacitors -- 11.5 Flywheels -- 11.5.1 Advanced Performance of Flywheels -- 11.5.2 Applications of Flywheels -- 11.5.3 Design Strategies -- 11.6 Superconducting Magnetic Storage System -- 11.6.1 SMES System Capabilities -- 11.6.2 Developments in SMES Systems -- 11.7 Pumped Hydroelectric Energy Storage -- 11.7.1 Storage Capabilities of Pumped Systems -- 11.8 Compressed Air Energy Storage -- 11.9 Storage Heat -- 11.10 Energy Storage as an Economic Resource -- References -- 12 INTEGRATION OF ALTERNATIVE SOURCES OF ENERGY -- 12.1 Introduction -- 12.2 Principles of Power Injection -- 12.2.1 Converting Technologies -- 12.2.2 Power Converters for Power Injection into the Grid -- 12.2.3 Power Flow -- 12.3 Instantaneous Active and Reactive Power Control Approach -- 12.4 Integration of Multiple Renewable Energy Sources -- 12.4.1 DC-Link Integration -- 12.4.2 AC-Link Integration -- 12.4.3 HFAC-Link Integration -- 12.5 Islanding and Interconnection Control -- 12.6 DG Control and Power Injection -- References -- 13. DISTRIBUTED GENERATION -- 13.1 Introduction. 13.2 The Purpose of Distributed Generation -- 13.3 Sizing and Siting of Distributed Generation -- 13.4 Demand-Side Management -- 13.5 Optimal Location of Distributed Energy Sources -- 13.5.1 DG Influence on Power and Energy Losses -- 13.5.2 Estimation of DG Influence on Power Losses of Subtransmission Systems -- 13.5.3 Equivalent of Subtransmission Systems Using Experimental Design -- 13.6 Algorithm of Multicriterial Analysis -- References -- 14. INTERCONNECTION OF

ALTERNATIVE ENERGY SOURCES WITH THE GRID (Benjamin Kroposki, Thomas Basso, Richard DeBlasio, and N. Richard Friedman) -- 14.1 Introduction -- 14.2 Interconnection Technologies -- 14.2.1 Synchronous Interconnection -- 14.2.2 Induction Interconnection -- 14.2.3 Inverter Interconnection -- 14.3 Standards and Codes for Interconnection -- 14.3.1 IEEE 1547 -- 14.3.2 National Electrical Code -- 14.3.3 UL Standards -- 14.4 Interconnection Considerations -- 14.4.1 Voltage Regulation -- 14.4.2 Integration with Area EPS Grounding -- 14.4.3 Synchronization -- 14.4.4 Isolation -- 14.4.5 Response to Voltage Disturbance -- 14.4.6 Response to Frequency Disturbance -- 14.4.7 Disconnection for Faults -- 14.4.8 Loss of Synchronism -- 14.4.9 Feeder Reclosing Coordination -- 14.4.10 DC Injection -- 14.4.11 Voltage Flicker -- 14.4.12 Harmonics -- 14.4.13 Unintentional Islanding Protection -- 14.5 Interconnection Examples for Alternative Energy Sources -- 14.5.1 Synchronous Generator for Peak Demand Reduction -- 14.5.2 Small Grid-Connected Photovoltaic System -- References -- 15. MICROPOWER SYSTEM MODELING WITH HOMER (Tom Lambert, Paul Gilman, and Peter Lilienthal) -- 15.1 Introduction -- 15.2 Simulation -- 15.3 Optimization -- 15.4 Sensitivity Analysis -- 15.4.1 Dealing with Uncertainty -- 15.4.2 Sensitivity Analyses on Hourly Data Sets -- 15.5 Physical Modeling -- 15.5.1 Loads -- 15.5.2 Resources -- 15.5.3 Components -- 15.5.4 System Dispatch -- 15.6 Economic Modeling -- References -- Glossary -- APPENDIX A: DIESEL POWER PLANTS. A.1 Introduction -- A.2 Diesel Engine -- A.3 Principal Components of a Diesel Engine -- A.3.1 Fixed Parts -- A.3.2 Moving Parts -- A.3.3 Auxiliary Systems -- A.4 Terminology of Diesel Engines -- A.4.1 Diesel Cycle -- A.4.2 Combustion Process -- A.5 Diesel Engine Cycle -- A.5.1 Relative Diesel Engine Cycle Losses -- A.5.2 Classification of Diesel Engines -- A.6 Types of Fuel Injection Pumps -- A.7 Electrical Conditions of Generators Driven by Diesel Engines -- References -- APPENDIX B: GEOTHERMAL ENERGY -- B.1 Introduction -- B.2 Geothermal as a Source of Energy -- B.2.1 Geothermal Economics -- B.2.2 Geothermal Electricity -- B.2.3 Geothermal/Ground Source Heat Pumps -- References -- APPENDIX C: THE STIRLING ENGINE -- C.1 Introduction -- C.2 Stirling Cycle -- C.3 Displacer Stirling Engine -- C.4 Two-Piston Stirling Engine -- References -- INDEX.

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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 micropower systems 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.
