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Nota di contenuto	Part I-Solar Photovoltaic Power Generation Technology and Solar Energy Applications -- Chapter 1. Cloud Effects on Photovoltaic Power Forecasting: Initial Analysis of a Single Power Plant Based on Satellite Images and Weather Forecasts -- Chapter 2. Enhancing the Performance of Photovoltaic Panels by Evaporative Cooling in Hot and Arid Climates -- Chapter 3. Influence of Absorber Layer Thickness and Band Gap Tuning on the Optical and Electrical Properties of Semi-Transparent Flexible Perovskite Solar Cells -- Chapter 4. Evaluation of Energy Payback Time (EPBT) and Carbon Emission by a Medium-Sized PV Power Plant in Burkina Faso -- Chapter 5. Conceptual Design for

Active Solar Still with an Adsorption Unit -- Chapter 6. Heat Transfer and Collector Thermal Efficiency of Magnesium Oxide/Water Nanofluids in Solar Flat Plate Collector under Thermosyphon Conditions -- Part II-Wind Power Generation and Marine Energy Development. -- Chapter 7. Long-Term Wind Speed Evaluation for Romanian Wind Farms -- Chapter 8. User-Defined Pitch Controller and Variable Wind Speed Turbine Aero-Dynamics Model in PSS/E -- Chapter 9. Expected Performances of WEC Systems Operating Near the European Offshore Wind Sites -- Chapter 10. Design and Performance Analysis of a Bio-Inspired Small Wind Turbine with Maple Seed Aerodynamics -- Chapter 11. Wind Climate Analysis at the Future Wind Farm Positions in the Mediterranean Sea -- Chapter 12. A Computational Platform to Assess the Coastal Impact of the Marine Energy Farms -- Part III-New Power System Analysis and Power Grid Control Technology. -- Chapter 13. Directional Relay for Outlet Ground Faults Based on Zero Sequence Voltage Comparison -- Chapter 14. Power Outages Quota Decomposition Method Based on Power Supply Mesh Reliability Comprehensive Evaluation -- Chapter 15. A Harmonic Impact Assessment Method for Multiple Harmonic Sources Connected to Distribution Network -- Chapter 16. Optimal Scheduling of An Islanded Multi-Energy Microgrid Considering Power-to-Gas and Carbon Capture Technologies -- Chapter 17. The Coordination Control Strategy of Clustering PCS and Its Application -- Chapter 18. Types of Grid Scale Energy Storage Batteries -- Part IV-Advanced Hydrogen Production System and Fuel Cell Technology. -- Chapter 19. Techno-Economic Analysis of Solar and Wind Energy Systems for Power and Hydrogen Production -- Chapter 20. Construction of a Prototype System for Hydrogen Production from Water Electrolysis with Homemade Materials -- Chapter 21. Facile Electro-Oxidation of Methanol at Pd-Au/C Nanocatalyst -- Part V- Renewable Energy Transformation and Energy Market Analysis. -- Chapter 22. Renewable Energy and Economic Growth in ‘Next Eleven’ Emerging Markets -- Chapter 23. Energy Configuration to the Ever-Changing Upheaval in Health Sector within Our Era: Industry Revolutions Embracement -- Chapter 24. Europe's Post Pandemic Electricity Price Evolution -- Chapter 25. Can Community Energy Meet DistributionNetwork Operators’ Expectations to Deliver Consumer Flexibility? -- Part VI-Clean Energy Combustion and Thermal Engineering. -- Chapter 26. Increasing Flow Rates of Air and Coconut Shell Producer Gas Mixed with PME20 for a Diesel Engine Generator -- Chapter 27. Investigation on Combustion Processes of Gasoline Blended with Dissociated Methanol Gas -- Chapter 28. Lee's Model and Determination of the Thermal Effect Zones of an LNG Bleve Fireball -- Chapter 29. Design Comparison for Supercritical CO2 Brayton Cycle with Recompression and Thermal Regeneration: Numerical Results -- Part VII-Building-Integrated Renewable Energy, Building Energy-Saving Design and Energy Efficiency. -- Chapter 30. An Optimized Setpoint Framework for Energy Flexible Buildings in Hot Desert Climates -- Chapter 31. A State-of-the-Art Approach for Assessing the Environmental Sustainability of Multi-renewable Energy Systems in the Built Environment -- Chapter 32. Realizing Visual Comfort Parameters and Adaptive Thermal Comfort Models for Hot Climates -- Chapter 33. Assessment of the Potential of Commercial Buildings for Energy Management in Energy Performance Contracts -- Chapter 34. The Incidence of Lighting System on Thermal Comfort Sensation: Experimental Evaluation -- Chapter 35. Investigating the Effect of Distance between Windows and Floor on Energy Losses in Residential Building Façades by Using Design Builder -- Chapter 36. Optimization of Window-to-Wall Ratio in a Transfer Hall of an Urban

Integrated Transportation Hub -- Chapter 37. Forecasting Future Climate with a Neural Network Trained on Monitored Data: An Analysis of the Energy Demand of a Detached House -- Part VIII-Environmental Impact Assessment and Management of Different Power Generation Technologies. -- Chapter 38. Solar Photovoltaic End-of-Life Waste Management Policies in Leading Countries and the Lessons Learned for the Kingdom of Saudi Arabia -- Chapter 39. Electrification of the Portuguese Railway — Life CycleAnalysis of Current Scenario and Future Decarbonization Goals -- Chapter 40. Environmental Impacts of Power Plants and Energy Conversion Systems -- Chapter 41. Hydrokinetic Turbine Impact Assessment on Fish -- Chapter 42. Repurposing of the Industrial Hydrated Lime in Storing Carbon Dioxide and Producing Calcium Carbonate.

Sommario/riassunto

This book presents the latest developments and innovations in clean energy engineering. It offers case studies on advances in clean energy technology, evaluates sustainable methods for increasing energy efficiency, and examines current concepts and solutions to global energy storage and energy-saving issues. Topics covered include clean coal, fossil field, green energy engineering and technology, including solar, biomass, wind, nuclear, energy efficiency, power cycles, and hydrogen equipment. Advances in Clean Energy Systems and Technologies is an essential guide to current research for scientists, practitioners, engineers, students, and researchers in clean energy systems and technologies. Presents cutting-edge research on clean energy technologies; Examines solutions to global energy storage issues; Includes case studies.