

1. Record Nr.	UNINA9910555067903321
Autore	Sahoo Umakanta
Titolo	Hybrid renewable energy systems / / Umakanta Sahoo
Pubbl/distr/stampa	Hoboken, New Jersey : , : Scrivener Publishing, , [2021] ©2021
ISBN	1-5231-4352-5 1-119-55563-9 1-119-55566-3 1-119-55561-2
Descrizione fisica	1 online resource (266 pages)
Disciplina	621.3121
Soggetti	Distributed generation of electric power Hybrid power systems Renewable energy sources Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Cover -- Half-Title Page -- Series Page -- Title Page -- Copyright Page -- Contents -- 1 Resource Assessment and Implementation of Hybrid Renewable Energy Systems for Food Preservation in Agro-Tropical Areas: A Techno-Economic Approach -- 1.1 Introduction -- 1.1.1 Objectives -- 1.2 Materials and Methods -- 1.2.1 Resource Assessment -- 1.2.2 Modelling and Simulation of a Hybrid Renewable Energy-Based Cooling System -- 1.3 Results and Discussion -- 1.3.1 Overall Efficiency of the System -- 1.3.2 Evaluation of Economic Parameters -- 1.3.3 Techno-Economic Study -- 1.3.4 Sensitivity Analysis -- 1.4 Conclusions -- References -- 2 Implementation of Hybrid Renewable Energy Projects in Rural India-A Case Study -- 2.1 Introduction -- 2.2 Overview of Microgrid -- 2.3 Basic Structure of Hybrid System -- 2.4 Hybrid Microgrid Control -- 2.5 Project Location -- 2.6 Load Profile Study of Proposed Location -- 2.7 Operation of Hybrid Microgrid System Considered for Current Study -- 2.8 Technical Specification of Hybrid System -- 2.9 Modeling of Hybrid Microgrid System -- 2.10 Last One Year Output of Hybrid Microgrid Plant -- 2.11 Financial Analysis --

2.12 Tariff Calculation -- 2.13 Conclusion -- References -- 3 Techno-Economic Analysis of Hybrid Renewable Energy System with Energy Storage for Rural Electrification -- 3.1 Introduction -- 3.2 HES Components -- 3.3 Energy Storage Systems -- 3.3.1 Pumped Hydro Storage (PHS) -- 3.3.2 Compressed Air Energy Storage (CAES) -- 3.3.3 Flywheel Energy Storage (FES) -- 3.3.4 Chemical Energy Storage -- 3.3.5 Electromagnetic Energy Storage -- 3.4 Hybrid Energy System Configuration -- 3.4.1 Integration Schemes -- 3.4.2 DC-Coupled Systems -- 3.4.3 AC-Coupled Systems -- 3.4.4 Hybrid-Coupled Systems -- 3.5 Component Sizing of Hybrid RE Systems -- 3.6 Techno-Economical Analysis -- 3.6.1 Selection of Study Area for the Proposed Study.

3.6.2 Load Assessment of the Study Area -- 3.6.3 Resources Assessment -- 3.6.4 Economic Analysis -- 3.6.5 Results and Discussion -- 3.7 Conclusion -- References -- 4 Modeling and Energy Optimization of Hybrid Energy Storage System -- 4.1 Introduction -- 4.2 Modeling of Proposed Topology -- 4.2.1 Modeling of Photovoltaic System -- 4.2.2 Modeling of Li-Ion Battery Module -- 4.2.3 Modeling of Ultracapacitor Module -- 4.3 Control Strategies -- 4.3.1 PV-MPPT Technique and DC/DC Converter Model -- 4.3.2 Hybrid Active Power Control of Energy Storage Systems -- 4.4 Energy Optimization Strategy and Simulation Results -- 4.4.1 Energy Optimization Strategy -- 4.4.2 Simulation Results -- 4.5 Conclusion -- Acknowledgment -- References -- 5 Techno Commercial Study of Hybrid Systems for the Agriculture Farm Using Homer Software -- 5.1 Introduction -- 5.2 Electricity Consumption by Agricultural Sector -- 5.3 Literature Review -- 5.4 Study Location -- 5.4.1 Solar Energy Potential in Dindigul District -- 5.5 Load Estimation of the Farm -- 5.5.1 Daily Power Consumption by the Farm -- 5.6 Renewable Energy Technology Used in the Hybrid System -- 5.6.1 Solar PV System -- 5.6.2 Biogas Energy Potential in Farm -- 5.6.3 Biomass Potential in the Particular Site -- 5.7 System Design and Analysis -- 5.7.1 Result Analysis -- 5.8 Conclusion -- References -- 6 Experimental Investigation of Solar Photovoltaic Cold Storage With Thermal Energy Storage -- 6.1 Introduction -- 6.2 Scope of Cold Storage in India -- 6.3 Materials and Method -- 6.3.1 Experimental Setup -- 6.4 Economic Analysis -- 6.4.1 Payback Period -- 6.5 Different Business Models for SPV Cold Storage With Thermal Energy Storage -- 6.6 Result and Discussions -- 6.7 Conclusions -- Acknowledgements -- Abbreviations -- References -- 7 Estimation of Fault Voltages in Renewable Energy-Based Microgrid -- 7.1 Introduction.

7.2 Problem Formulation -- 7.2.1 Taylor Series Based Voltage Signal Formulation -- 7.2.2 Recursive Least Square (RLS) Algorithm -- 7.3 Pseudo Code/Algorithm for Taylor-RLS -- 7.4 Experimental Validation -- 7.5 Conclusion -- References -- 8 Optimization of PV-Wind Hybrid Renewable Energy System for Health Care Buildings in Smart City -- 8.1 Introduction -- 8.2 Objectives and Methodology -- 8.3 Description of the HE -- 8.4 Results and Discussion -- 8.5 Conclusion -- Nomenclatures -- References -- 9 Hybrid Solar-Biomass Gasifier System for Electricity and Cold Storage Applications for Rural Areas of India -- 9.1 Introduction -- 9.2 Literature Review -- 9.2.1 Gasification of Biomass -- 9.2.2 Solar Energy Cooling and Heating -- 9.2.3 Engine Exhaust and Waste Heat Recovery -- 9.3 Materials and Methods -- 9.3.1 System Components -- 9.4 Performance Evaluation -- 9.4.1 Thermodynamic Analysis -- 9.5 Results and Discussion -- 9.6 Conclusion & Suggestions for Future Work -- References -- Index -- Also of Interest -- Check out these other related titles from Scrivener Publishing -- EULA.

