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Nota di contenuto	An Introduction to Smart Energy Systems and Definition of Smart Energy Hubs -- Impacts of Energy Storage Technologies and Renewable Energy Sources on Energy Hub Systems -- Robust Economic Emission Dispatch of Thermal Units and Compressed Air Energy Storages -- Solar Thermal Energy Storage for Residential Sector -- Optimal Short-term Scheduling of Photovoltaic Powered Multi-chiller Plants in the Presence of Demand Response Programs -- Basic Open-source Nonlinear Mixed Integer Pro-gramming Based Dynamic Economic Dispatch of Multi-chiller Plants -- Demand Response Participation in Renewable Energy Hubs -- Supply Side Management in Renewable Energy Hubs -- Optimal Stochastic Short-Term Scheduling of Renewable Energy Hubs Taking into Account the Uncertainties of the Renewable Sources -- Risk-constraint Scheduling of Storage and Renewable Energy Integrated Energy Hubs -- Grid Integration of Large-Scale Electric Vehicles: Enabling Support Through Power Storage -- Optimal Operation of Renewable-based Residential Energy Hubs for

Minimizing PV Curtailment -- Long-term Smart Grid Planning under Uncertainty Considering Reliability Indexes -- A Joint Energy Storage Systems and Wind Farms Long Term Planning Model Considering Voltage Stability -- Optimal Design, Operation and Planning of Distributed Energy Systems through the Multi-energy Hub Network Approach -- Joint Electricity and Heat Optimal Power Flow of Energy Hubs -- Power-to-gas; A New Energy Storage Concept for Integration of Future Energy Systems -- Multi-objective Optimization Framework for Electricity and Natural Gas Energy Hubs under Hydrogen Storage System and Demand Response Program -- Index.

Sommario/riassunto

This book discusses the design and scheduling of residential, industrial, and commercial energy hubs, and their integration into energy storage technologies and renewable energy sources. Each chapter provides theoretical background and application examples for specific power systems including, solar, wind, geothermal, air and hydro. Case-studies are included to provide engineers, researchers, and students with the most modern technical and intelligent approaches to solving power and energy integration problems with special attention given to the environmental and economic aspects of energy storage systems. Provides optimization techniques and their applications for energy systems; Discusses the operation and planning of energy storage systems; Presents the most-up-to-date technological approaches to energy integration.
