

1. Record Nr.	UNINA9910410021603321
Titolo	Economically Enabled Energy Management : Interplay Between Control Engineering and Economics // edited by Takeshi Hatanaka, Yasuaki Wasa, Kenko Uchida
Pubbl/distr/stampa	Singapore : , : Springer Singapore : , : Imprint : Springer, , 2020
ISBN	981-15-3576-0
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (347 pages)
Disciplina	333.790952
Soggetti	Energy policy Energy and state Natural resources Control engineering Renewable energy resources Energy Policy, Economics and Management Natural Resource and Energy Economics Control and Systems Theory Renewable and Green Energy
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Economically-enabled Energy Management: Overview and Research Opportunities -- Supply and Demand Balance Control Based on Balancing Power Market -- Resolving Discrepancies in Problem Formulations for Electricity Pricing by Control Engineers and Economists -- Effectiveness of Feed-In Tariff and Renewable Portfolio Standard under Strategic Pricing in Network Access -- The Welfare Effects of Environmental Taxation and Subsidization on Renewable Energy Sources in an Oligopolistic Electricity Market -- Behavioral Study of Demand Response: Web-Based Survey, Field Experiment, and Laboratory Experiment -- Economic Impact and Market Power of Strategic Aggregators in Energy Demand Networks -- Incentive-Based Economic and Physical Integration for Dynamic Power Networks -- Distributed Dynamic Pricing in Electricity Market with Information Privacy -- Real-Time Pricing for Electric Power Systems by Nonlinear

Model Predictive Control -- Distributed Multi-Agent Optimization Protocol over Energy Management Networks -- A Passivity-Based Design of Cyber-Physical Building HVAC Energy Management Integrating Optimization and Physical Dynamics.

Sommario/riassunto

This book gathers contributions from a multidisciplinary research team comprised of control engineering and economics researchers and formed to address a central interdisciplinary social issue, namely economically enabled energy management. The book's primary focus is on achieving optimal energy management that is viable from both an engineering and economic standpoint. In addition to the theoretical results and techniques presented, several chapters highlight experimental case studies, which will benefit academic researchers and practitioners alike. The first three chapters present comprehensive overviews of respective social contexts, underscore the pressing need for economically efficient energy management systems and academic work on this emerging research topic, and identify fundamental differences between approaches in control engineering and economics. In turn, the next three chapters (Chapters 4–6) provide economics-oriented approaches to the subject. The following five chapters (Chapters 7–11) address optimal energy market design, integrating both physical and economic models. The book's last three chapters (Chapters 12–14) mainly focus on the engineering aspects of next-generation energy management, though economic factors are also shown to play important roles.
