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Autore	Wei Wei
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Descrizione fisica	1 online resource (722 pages)
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Soggetti	Energy systems Power electronics Building construction Applied mathematics Engineering mathematics Energy Systems Power Electronics, Electrical Machines and Networks Building Physics, HVAC Mathematical and Computational Engineering
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction -- Electric Power System with Renewable Generation -- Integrated Gas-Electric System -- Heat-Electricity Energy Distribution System -- Electrified Transportation Network -- A Basics of Linear and Conic Programs -- B Formulation Tricks in Integer Programming -- C Basics of Robust Optimization -- D Equilibrium Problems -- Index.
Sommario/riassunto	This book opens up new ways to develop mathematical models and optimization methods for interdependent energy infrastructures, ranging from the electricity network, natural gas network, district heating network, and electrified transportation network. The authors provide methods to help analyze, design, and operate the integrated energy system more efficiently and reliably, and constitute a foundational basis for decision support tools for the next-generation energy network. Chapters present new operation models of the coupled energy infrastructure and the application of new methodologies

including convex optimization, robust optimization, and equilibrium constrained optimization. This book provides theoretical foundation and technical applications for energy system integration. The interdisciplinary research presented in this book will be useful to readers in many fields including electrical engineering, civil engineering, and industrial engineering. Provides theoretical foundation and technical applications for energy system integration; Contains new research problems and methodologies for researchers and practitioners in energy system integration; Presents in-depth discussion in a systematic fashion.
