

1. Record Nr.	UNINA9910999787803321
Titolo	Energy Systems Integration for Multi-Energy Systems : From Operation to Planning in the Green Energy Context / / edited by Carlos Ocampo-Martinez, Nicanor Quijano
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2025
ISBN	3-031-69015-X
Edizione	[1st ed. 2025.]
Descrizione fisica	1 online resource (XXXVII, 728 p. 235 illus., 211 illus. in color.)
Collana	Green Energy and Technology, , 1865-3537
Disciplina	621.042
Soggetti	Renewable energy sources Electric power distribution Energy storage Energy policy Renewable Energy Energy Grids and Networks Mechanical and Thermal Energy Storage Energy System Transformation
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Part 1: Introduction to Energy Systems Integration -- Part 2: Demand Response -- Part 3: Water-Energy-Food Nexus -- Part 4: Storage and Hydrogen -- Part 5: Energy Communities -- Part 6: Offshore and Wind Farms -- Part 7: Electric Vehicles and Transportation -- Part 8: Applications.
Sommario/riassunto	This book offers a comprehensive approach to energy systems integration (ESI) that optimizes the design and operation of energy systems, maximizing the benefits of all components while minimizing potential negative impacts. By coordinating the production, distribution, and utilization of energy from diverse sources, ESI ensures the most efficient and cost-effective fulfillment of end-users' needs. The true value of ESI lies in its ability to harmonize interconnected systems, enabling the production and supply of energy in its various forms to achieve reliability, environmental sustainability, and economic viability at appropriate scales. Through the analysis and design of

integrated energy systems, often referred to as multi-energy systems (MES), decision-makers and industry professionals gain valuable insights into the optimal strategies required to fulfill these objectives while considering contextual conditions and operational constraints. The book explores the design, modeling, supervising, and controlling of energy systems but also examines how these approaches can be seamlessly integrated into future MES through innovative and ESI processes. Through its comprehensive analysis and forward-thinking approach, this book serves as a vital resource for researchers, practitioners, and policymakers seeking to navigate the complexities of energy systems integration and leverage the potential of renewable energy for a sustainable future.
