1. Record Nr. UNINA9911019471103321

Autore	Chatterjee Prasenjit
Titolo	Optimization in Sustainable Energy : Methods and Applications
Pubbl/distr/stampa	Newark : , : John Wiley & Sons, Incorporated, , 2026 ©2025
ISBN	1-394-24213-1 1-394-24212-3
Edizione	[1st ed.]
Descrizione fisica	1 online resource (517 pages)
Collana	Sustainable Computing and Optimization Series
Altri autori (Persone)	KhoslaAnita Kumar AggarwalAshwani DemirGulay
Disciplina	621.042
Soggetti	Renewable energy sources
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Sommario/riassunto	This state-of-the-art book offers cutting-edge optimization techniques and practical decision-making frameworks essential for enhancing the efficiency and reliability of sustainable energy systems, making it an invaluable resource for researchers, policymakers, and energy professionals. Optimization in Sustainable Energy: Methods and Applications brings together valuable knowledge, methods, and practical examples to help scholars, researchers, professionals, and policymakers address the growing challenges of optimizing sustainable energy. This volume covers a range of topics, including mathematical models, heuristic algorithms, renewable resource management, and energy storage optimization. Each chapter explores a different aspect of sustainable energy, providing both theoretical understanding and practical guidance. The volume explores challenges and opportunities surrounding the integration of multi-criteria decision-making techniques in energy planning, highlighting insights on environmental, economic, and social factors influencing the strategic allocation of resources. The use of evolutionary algorithms, machine learning, and metaheuristics to optimize energy storage, distribution, and optimization are also discussed. The transition towards sustainable

energy is at the forefront of global priorities, driven by the urgent need to mitigate climate change, reduce carbon emissions, and enhance energy security. As countries and industries increasingly prioritize renewable sources like wind, solar, and hydroelectric power, the complexity of optimizing these systems becomes a critical challenge. Optimization in Sustainable Energy: Methods and Applications, is a comprehensive exploration of cutting-edge methodologies used to enhance the efficiency, reliability, and performance of sustainable energy systems. Audience Research scholars, academics, students, policymakers, and industry experts in mechanical engineering, electrical engineering, and energy science.