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Titolo	Waste-to-Energy [[electronic resource]] : Advanced Cycles and New Design Concepts for Efficient Power Plants / / by Lisa Branchini
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Descrizione fisica	1 online resource (150 p.)
Disciplina	363.728 621.042 628.4
Soggetti	Renewable energy sources Total energy systems (On-site electric power production) Refuse and refuse disposal Renewable and Green Energy Energy Systems Waste Management/Waste Technology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Introduction -- Municipal Waste Overview -- Waste-To-Energy -- Waste-To-Energy steam cycle -- Waste-To-Energy and Gas Turbine: Hybrid Combined Cycle concept -- WTE-GT steam/water side integration: thermodynamic analysis on one pressure level -- Performance indexes and output allocation for Multi-Fuel energy systems -- Specific application cases with GT commercial units.
Sommario/riassunto	· Explains the basics of Waste-To-Energy (WTE) conversion processes and the technologies currently in use for WTE · Provides layout and steam cycle adopted parameters for WTE plants · Examines new and advanced integrated WTE cycles for energy efficiency optimization · Discusses and identifies several performance indexes and power output allocation approaches for multi-fuel energy systems This book provides an overview of state-of-the-art technologies for energy conversion from waste, as well as a

much-needed guide to new and advanced strategies to increase Waste-to-Energy (WTE) plant efficiency. Beginning with an overview of municipal solid waste production and disposal, basic concepts related to Waste-To-Energy conversion processes are described with reference to combustion grate technologies, highlighting the most relevant aspects impacting the thermodynamic efficiency of WTE power plants. The pervasive influences of main steam cycle parameters and plant configurations on WTE efficiency are detailed and quantified. Advanced hybrid technology applications, particularly the Hybrid Combined Cycle concept, are examined in detail, including an illuminating compare-and-contrast study of two basic types of hybrid dual-fuel combined cycle arrangements: steam/water side integrated HCC and windbox repowering. Focusing on steam/water side integrated configuration, several layouts are proposed; for each proposed configuration, the optimum plant design is identified to meet the goals of maximizing steam generation and power output, while minimizing discharged outlet temperature. An in-depth case study investigates the strengths and challenges of a medium-sized WTE facility integrated with different market-available gas turbine (GT) units. Finally, the book examines issues of power output allocation and conversion efficiency for a multi-fuel energy system (such as WTE-GT integrated plant), which receives different types of input fuels and generates a single useful output. Several performance indexes and varying power output allocation approaches are identified and compared.