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Soggetti	Renewable energy resources Industrial engineering Production engineering Chemical engineering Sustainable development Renewable and Green Energy Industrial and Production Engineering Industrial Chemistry/Chemical Engineering Sustainable Development
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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 -- Hydrogen Production Processes -- Thermodynamic Analysis of Hydrogen Production Processes -- Economic Studies of Some Hydrogen Production Processes -- Ecological Efficiency of Steam Reforming Processes -- Sustainability Assessment of Hydrogen Production Techniques in Brazil, a Multi-Criteria Analysis -- Conclusions -- Appendix.
Sommario/riassunto	This work presents a comprehensive investigation of the most significant renewable hydrogen production processes. Technical, economic and ecological studies are described for the processes of steam reforming of ethanol, natural gas and biogas; water electrolysis with energy from renewable sources (wind power, photovoltaic and hydroelectric), and hydrogen production using algae. Aimed at mechanical and chemical engineering graduate students and

researchers involved in environmental sciences, sustainable energy and bioenergy research, this book introduces readers to the latest developments in the field and provides essential reference material for future research. The book first presents a comprehensive literature review of the processes studied. Subsequently, it provides a technical report on assessing the energetic efficiency for each hydrogen production process, as well as an economic study of the respective hydrogen production costs. Lastly, the ecological efficiency of each process is addressed. Over the past few decades, the UNESP's Group of Optimization of Energetic Systems, headed by Professor José Luz Silveira, has been pursuing research in the field of renewable energy generation. A major part of the group's research focuses on the production of hydrogen as a fuel and its important contribution to mitigating the environmental impacts caused by pollutant emissions.
