Overview Of Biogas Technology And Legislative Framework

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1st World Conference on Biomass for Energy and Industry - Spyros Kyritsis 2001

The 1st World Conference and Technology Exhibition on Biomass for Energy and Industry, held in Sevilla in June 2000, brought together for the first time the traditional European Conference on Biomass for Energy and Industry and the Biomass Conference of the Americas, thus creating the largest and most outstanding event in the worldwide biomass sector. The conference elaborated innovative global strategies, projects and efficient practice rules for energy and the environment at a key stage in the industry's development. New concepts and projects were highlighted to increase the social and political awareness for a change in worldwide resource consumption and to promote economically, socially and environmentally sustainable development for the next millennium. In 2 volumes, the Proceedings include some 470 papers essential to an understanding of current thinking, practice, research and global developments in the biomass sector - a vital reference source for researchers, manufacturers, and policy makers involved or interested in the use of biomass for energy and industry.

Drawdown - Paul Hawken 2017-04-18

• New York Times bestseller • The 100 most substantive solutions to reverse global warming, based on meticulous research by leading scientists and policymakers around the world “At this point in time, the Drawdown book is exactly what is needed; a credible, conservative solution-by-solution narrative that we can do it. Reading it is an effective inoculation against the widespread perception of doom that humanity cannot and will not solve the climate crisis. Reported by-effects include increased determination and a sense of grounded hope.” —Per Espen Stoknes, Author, What We Think About When We Try Not To Think About Global Warming “There’s been no real way for ordinary people to get an understanding of what they can do and what impact it can have. There remains no single, comprehensive, reliable compendium of carbon-reduction solutions across sectors. At least until now. . . . The public is hungry for this kind of practical wisdom.” —David Roberts, Vox “This is the ideal environmental sciences textbook—only it is too interesting and inspiring to be called a textbook.” —Peter Kareiva, Director of the Institute of the Environment and Sustainability, UCLA In the face of widespread fear and apathy, an international coalition of researchers, professionals, and scientists have come together to offer a set of realistic and bold solutions to climate change. One hundred techniques and practices are described here—some are well known; some you may have never heard of. They range from clean energy to educating girls in lower-income countries to land use practices that pull carbon out of the air.

The solutions exist, are economically viable, and communities throughout the world are currently enacting them with skill and determination. If deployed collectively on a global scale over the next thirty years, they represent a credible path forward, not just to slow the earth's warming but to reach drawdown, that point in time when greenhouse gases in the atmosphere peak and begin to decline. These measures promise cascading benefits to human health, security, prosperity, and well-being—giving us every reason to see this planetary crisis as an opportunity to create a just and livable world.

Biogas Production - Nagamani Balagurusamy 2021-01-11

This book focuses on biogas production by anaerobic digestion, which is the most popular bioenergy technology of today. Using anaerobic digestion for the production of biogas is a sustainable approach that simultaneously also allows the treatment of organic waste. The energy contained in the substrate is released in the form of biogas, which can be employed as a renewable fuel in diverse industrial sectors. Although biogas generation is considered an established process, it continues to evolve, e.g. by incorporating modifications and improvements to increase its efficiency and its downstream applications. The chapters of this book review the progress made related to feedstock, system configuration and operational conditions. It also addresses microbial pathways utilized, as well as storage, transportation and usage of biogas. This book is an up-to-date resource for scientists and students working on improving biogas production.

Handbook on Sustainability Transition and Sustainable Peace - Hans Günter Brauch 2016-08-10

In this book 60 authors from many disciplines and from 18 countries on five continents examine in ten parts: Moving towards Sustainability Transition; Aiming at Sustainable Peace; Meeting Challenges of the 21st Century: Demographic Imbalances, Temperature Rise and the Climate–Conflict Nexus; Initiating Research on Global Environmental Change, Limits to Growth, Decoupling of Growth and Resource Needs; Developing Theoretical Approaches on Sustainability and Transitions; Analysing National Debates on Sustainability in North America; Preparing Transitions towards a Sustainable Economy and Society, Production and Consumption and Urbanization; Examining Sustainability Transitions in the Water, Food and Health Sectors from Latin American and European Perspectives; Preparing Sustainability Transitions in the Energy Sector; and Relying on Transnational, International, Regional and National Governance for Strategies and Policies Towards Sustainability Transition. This book is based on workshops held in Mexico (2012) and in the US (2013), on a winter school at Chulalongkorn University, Thailand (2013), and on commissioned chapters. The workshop in Mexico and the publication were supported by two grants by the German Foundation for Peace Research (DSF). All texts in this book were peer-reviewed by scholars from all parts of the world.

Handbook of Biofuels Production - Rafael Luque 2016-05-19

Handbook of Biofuels Production, Second Edition, discusses advanced chemical, biochemical, and thermochemical biofuels production routes that are fast being developed to address the global increase in energy usage. Research and development in this field is aimed at improving the quality and environmental impact of biofuels production, as well as the overall efficiency and output of biofuels production plants. The book provides a comprehensive and systematic reference on the range of biomass conversion processes and technology. Key changes for this second edition include increased coverage of emerging feedstocks, including microalgae, more emphasis on by-product valorization for biofuels' production, additional chapters on emerging biofuel production methods, and discussion of the emissions associated with biofuel use in engines. The editorial team is strengthened by the addition of two extra members, and a number of new contributors have been invited to work with authors from the first edition to revise existing chapters, thus offering fresh perspectives. Provides systematic and detailed coverage of the processes and technologies being used for biofuel production Discusses advanced chemical, biochemical, and thermochemical biofuels production routes that are fast being developed to address the global increase in energy usage Reviews the production of both first and second generation biofuels Addresses integrated biofuel production in

biorefineries and the use of waste materials as feedstocks

Technologies in Decline - Zahar Koretsky 2022-12-30

The central questions of this book are how technologies decline, how societies deal with technologies in decline, and how governance may be explicitly oriented towards parting with 'undesirable' technology. Surprisingly, these questions are fairly novel. Thus far, the dominant interest in historical, economic, sociological and political studies of technology has been to understand how novelty emerges, how innovation can open up new opportunities and how such processes may be supported. This innovation bias reflects how in the last centuries modern societies have embraced technology as a vehicle of progress. It is timely, however, to broaden the social study of technology and society: next to considering the rise of technologies, their fall should be addressed, too. Dealing with technologies in decline is an important challenge or our times, as socio-technical systems are increasingly part of the problems of climate change, biodiversity loss, social inequalities and geo-political tensions. This volume presents empirical studies of technologies in decline, as well as conceptual clarifications and theoretical deepening. Technologies in Decline presents an emerging research agenda for the study of technological decline, emphasising the need for a plurality of perspectives. Given that destabilisation and discontinuation are seen as a way to accelerate sustainability transitions, this book will be of interest to academics, students and policy makers researching and working in the areas of sustainability science and policy, economic geography, innovation studies, and science and technology studies.

Marketing Renewable Energy - Carsten Herbes 2017-06-23

This book answers questions such as: How do you market green electricity or bio-methane? What is the right price for renewable energy? How do the legal framework and customer preferences influence marketing strategies? Is direct marketing or online marketing the key to success? Answers to these and many other questions can be found in this volume, which gathers contributions from leading researchers and respected practitioners. Employing an easy-to-follow, clearly structured format, it combines the latest research results and concrete case studies to help readers understand the fundamentals of marketing for renewable energies and new business models from different countries.

Power-to-Gas: Technology and Business Models - Markus Lehner 2014-07-18

Increased production of energy from renewable sources leads to a need for both new and enhanced capacities for energy transmission and intermediate storage. The book first compares different available storage options and then introduces the power-to-gas concept in a comprehensive overview of the technology. The state of the art, advancements, and future requirements for both water electrolysis and methanation are described. The integration of renewable hydrogen and methane into the gas grid is discussed in terms of the necessary technological measures to be taken. Because the power-to-gas system is very flexible, providing numerous specific applications for different targets within the energy sector, possible business models are presented on the basis of various process chains taking into account different plant scales and operating scenarios. The influence of the scale and the type of the integration of the technology into the existing energy network is highlighted with an emphasis on economic consequences. Finally, legal aspects of the operation and integration of the power-to-gas system are discussed.

Innovation in Energy Law and Technology - Donald N. Zillman 2018

As energy innovation becomes imperative for the environment and energy security, the law must be fleet-footed to evolve in an unwieldy area of policy. This much-needed text assembles experts to analyse the most recent developments, and to postulate how human rights, sustainable development, and the eradication of energy poverty could be achieved.

EPA 530-F - 1999

Advances in Eco-Fuels for a Sustainable Environment - Kalam Azad 2018-11-30

Advances in Eco-fuels for Sustainable Environment presents the most recent developments in the field of environmentally friendly eco-fuels.

Dr. Kalad Azad and his team of contributors analyze the latest bio-energy technologies and emission control strategies, while also considering other important factors, such as environmental sustainability and energy efficiency improvement. Coverage includes biofuel extraction and conversion technologies, the implementation of biotechnologies and system improvement methods in the process industries. This book will help readers develop a deeper understanding of the relevant concepts and solutions to global sustainability issues with the goal of achieving cleaner, more efficient energy. Energy industry practitioners, energy policymakers and government organizations, renewables researchers and academics will find this book extremely useful. Focuses on recent developments in the field of eco-fuels, applying concepts to various medium-large scale industries Considers the societal and environmental benefits, along with an analysis of technologies and research Includes contributions from industry experts and global case studies to demonstrate the application of the research and technologies discussed

Energy Policy Analysis: A Conceptual Framework - Michael S Hamilton 2014-12-18

Presented in nontechnical terms, this book offers a unique and powerful conceptual framework for analysis of energy technologies (standard and alternative) in terms of their respective dollar costs, environmental costs, and national security costs. Energy technologies examined include coal, nuclear, oil, natural gas, solar, wind, geothermal, hydropower, biomass and biogas, energy conservation and efficiency, ocean power, hydrogen, electric power and transmission, and transportation. This three-point framework allows examination of issues and problems associated with implementation of U.S. energy policies in the context of major social goals (such as growth and equity), with treatment of conflicts and trade-offs between energy development and other social values (such as health and safety, cultural, historical, and aesthetic values). These are the key political issues for policy makers formulating national energy policy and decisions makers implementing it.

Hydrogen Production Technologies - Mehmet Sankir 2017-03-20

The book is organized in three parts. Part I shows how the catalytic and electrochemical principles involve hydrogen production technologies. Part II is devoted to biohydrogen production and introduces gasification and fast pyrolysis biomass, dark fermentation, microbial electrolysis and power production from algae. The last part of the book is concerned with the photo hydrogen generation technologies. Recent developments in the area of semiconductor-based nanomaterials, specifically semiconductor oxides, nitrides and metal-free semiconductors based nanomaterials for photocatalytic hydrogen production are extensively discussed in this part.

Public acceptance of renewable energies – an empirical investigation across countries and technologies - Schumacher, Kira 2019-10-29

Renewable Energy Sources: Engineering, Technology, Innovation - Krzysztof Mudryk 2018-02-09

This volume presents refereed papers based on the oral and poster presentations at the 4th International Conference on Renewable Energy Sources, which was held from June 20 to 23, 2017 in Krynica, Poland. The scope of the conference included a wide range of topics in renewable energy technology, with a major focus on biomass and solar energy, but also extending to geothermal energy, heat pumps, fuel cells, wind energy, energy storage, and the modeling and optimization of renewable energy systems. The conference had the unique goal of gathering Polish and international researchers' perspectives on renewable energy sources, and furthermore of balancing them against governmental policy considerations. Accordingly, the conference offered not only scientific sessions but also panels to discuss best practices and solutions with local entrepreneurs and federal government bodies. The Conference was jointly organized by the University of Agriculture in Krakow, the International Commission of Agricultural and Biosystems Engineering (CIGR), the Polish Society of Agricultural Engineering, AGH University of Science and Technology (Krakow), the Polish Society for Agrophysics under the patronage of the Rector of the University of Agriculture in Krakow, and the Polish Chamber of Ecology.

Handbook of Bioenergy Economics and Policy - Madhu Khanna 2009-12-02

Concerns about energy security, uncertainty about oil prices, declining oil reserves, and global climate change are fueling a shift towards bioenergy as a renewable alternative to fossil fuels. Public policies and private investments around the globe are aiming to increase local capacity to produce biofuels. A key constraint to the expansion of biofuel production is the limited amount of land available to meet the needs for fuel, feed, and food in the coming decades. Large-scale biofuel production raises concerns about food versus fuel tradeoffs, about demands for natural resources such as water, and about potential impacts on environmental quality. The book is organized into five parts. The introductory part provides a context for the emerging economic and policy challenges related to bioenergy and the motivations for biofuels as an energy source. The second part of the handbook includes chapters that examine the implications of expanded production of first generation biofuels for the allocation of land between food and fuel and for food/feed prices and trade in biofuels as well as the potential for technology improvements to mitigate the food vs. fuel competition for land. Chapters in the third part examine the infrastructural and logistical challenges posed by large scale biofuel production and the factors that will influence the location of biorefineries and the mix of feedstocks they use. The fourth part includes chapters that examine the environmental implications of biofuels, their implications for the design of policies and the unintended environmental consequences of existing biofuel policies. The final part presents economic analysis of the market, social welfare, and distributional effects of biofuel policies.

Green Digital Finance and Sustainable Development Goals - Farhad Taghizadeh-Hesary 2022-08-02

This book aims to fill the literature gap on digital instruments and FinTech in enhancing green finance. Technological innovation can increase transparency, accountability, and speed, decentralize the financial system, improve risk management, increase competition, lower costs, improve efficiency, increase cross-sectoral collaboration and integration, and scale up green finance. Artificial intelligence (AI), distributed ledger technologies (DLT) or blockchain, peer-to-peer lending platforms, big data, Internet-based and mobile-based payment platforms, Internet of Things (IoT), matchmaking platforms including crowdlending, tokenizing green assets are potential means to scale up the green finance for achieving the SDGs. The COVID-19 pandemic, the economic downturns, and the uncertainties shrank the new investments in renewable energy projects globally. Low investment in renewable energy projects could threaten the expansion of green energy needed to provide energy security and meet SDG7 and SDG13. Investments in renewable energy projects are scarce because of several risks and a low rate of return. Although several new green financing solutions such as green bonds, green banks, green credit guarantee, carbon taxation, carbon trade, village funds, and community trust funds have been established in different countries, these are insufficient, and alternative ways to finance projects are required. The book provides several high-quality studies on utilizing digitalization, FinTech, financial innovations, and other new technologies to fill the finance gap of green projects to meet the SDG goals. The chapters are written by scholars in diverse countries and regions and include practical policy recommendations.

Methane Emissions from Biogas Plants - Jan Liebetrau 2017

Sustainability of biogas and cassava-based ethanol value chains in Viet Nam - Food and Agriculture Organization of the United Nations 2018-07-02

This report presents the results of the implementation of the GBEP indicators to two key bioenergy pathways in Viet Nam: cassava-based ethanol and biogas at household, farm and industrial levels. The environmental, social and economic impacts of these two pathways are discussed, and recommendations are provided on how to improve their sustainability, efficiency and competitiveness. This work provided Viet Nam with an understanding of how to establish the means of a long-term, periodic monitoring of its domestic bioenergy sector based on the GBEP indicators. Such periodic monitoring would enhance the knowledge and

understanding of this sector and more generally of the way in which the contribution of the agricultural and energy sectors to national sustainable development could be evaluated. The implementation of the GBEP indicators in Viet Nam also provided a series of lessons learnt about how to apply them as a tool for sustainable development and how to enhance their practicality.

The Biogas Handbook - Arthur Wellinger 2013-02-19

With pressure increasing to utilise wastes and residues effectively and sustainably, the production of biogas represents one of the most important routes towards reaching national and international renewable energy targets. The biogas handbook: Science, production and applications provides a comprehensive and systematic guide to the development and deployment of biogas supply chains and technology. Following a concise overview of biogas as an energy option, part one explores biomass resources and fundamental science and engineering of biogas production, including feedstock characterisation, storage and pre-treatment, and yield optimisation. Plant design, engineering, process optimisation and digestate utilisation are the focus of part two. Topics considered include the engineering and process control of biogas plants, methane emissions in biogas production, and biogas digestate quality, utilisation and land application. Finally, part three discusses international experience and best practice in biogas utilisation. Biogas cleaning and upgrading to biomethane, biomethane use as transport fuel and the generation of heat and power from biogas for stationery applications are all discussed. The book concludes with a review of market development and biomethane certification schemes. With its distinguished editors and international team of expert contributors, The biogas handbook: Science, production and applications is a practical reference to biogas technology for process engineers, manufacturers, industrial chemists and biochemists, scientists, researchers and academics working in this field. Provides a concise overview of biogas as an energy option Explores biomass resources for production Examines plant design and engineering and process optimisation

The Regulation and Policy of Latin American Energy Transitions - Lucas Guimaraes 2020-03

The Regulation and Policy of Latin American Energy Transitions examines the ongoing revolution within the energy landscape of Latin America. This book includes real-world examples from across the continent to demonstrate the current landscape of energy policy in Latin America. It focuses on distributed energy resources, including distributed generation, energy efficiency and microgrids, but also addresses the role of less common energy sources, such as geothermal and biogas, as well as discusses the changing role of energy actors, where consumers become prosumers or prosumagers, and utilities become service providers. The legal frameworks that are still hampering the transformation of the energy landscape are explored, together with an analysis of the economic, planning-related and social aspects of energy transitions, which can help address the issue of how inequalities are affecting and being affected by energy transitions. The book is suitable for policy makers, lawyers, economists and social science professionals working with energy policy, as well as researchers and industry professionals in the field. It is an ideal source for anyone involved in energy policy and regulation across Latin America. Reviews key legal and policy features defining success and failure within the diverse Latin American energy transitions Provides clear descriptions and comparisons of current and potential future policy frameworks in Latin America across differing social, economic, geo-political and policy contexts Analyzes the potential role of new technologies and practices in developing the region's energy economy Poses key regulatory challenges and possible means to finance the envisioned transitions

Anaerobic Digestion – Making Biogas – Making Energy - Tim Pullen 2015-01-09

Hundreds of million tonnes of agricultural and food waste are produced each year around the world, most of which is just that, waste. Anaerobic digestion, biogas and the heat and electricity that can be produced from it is still a nascent industry in many countries, yet the benefits of AD spread throughout the community: Gives good financial returns to farmers and eco-entrepreneurs. Helps community leaders meet various

policies and legislative targets. Offers an environmentally sensitive waste disposal option. Provides a local heat and power supply, & creates employment opportunities Reduces greenhouse gas emissions, as well as providing an organic fertilizer. Although the process of AD itself is relatively simple there are several system options available to meet the demands of different feedstocks. This book describes, in simple, easy to read language the five common systems of AD; how they work, the impact of scale, the basic requirements, the costs and financial implications, and how to get involved in this rapidly growing green industry.

Perspectives for Biogas in Europe - Floris van Foreest 2012

Biogas - Meisam Tabatabaei 2018-04-19

This book presents the state of the art in biogas production using anaerobic digestion technology, with an emphasis on waste utilization/valorization. Offering a comprehensive reference guide to biogas production from different waste streams, it covers various aspects of anaerobic digestion technology from the basics, i.e., microbiological aspects to prominent parameters governing biogas production systems, as well as major principles of their operation, analysis, process control, and troubleshooting. Written and edited by internationally recognized experts in the field of biogas production from both academia and industry, it provides in-depth and cutting-edge information on central developments in the field. In addition, it discusses and reviews major issues affecting biogas production, including the type of feedstock, pretreatment techniques, production systems, design and fabrication of biogas plants, as well as biogas purification and upgrading technologies. 'Biogas: Fundamentals, Process, and Operation' also addresses the application of advanced environmental and energy evaluation tools including life cycle assessment (LCA), exergy, techno-economics, and modeling techniques. This book is intended for all researchers, practitioners and students who are interested in the current trends and future prospects of biogas production technologies.

Energy Solutions to Combat Global Warming - XinRong Zhang 2016-10-17

This book gathers an in-depth collection of 45 selected papers presented at the Global Conference on Global Warming 2014 in Beijing, China, covering a broad variety of topics from the main principles of thermodynamics and their role in design, analysis, and the improvements in performance of energy systems to the potential impact of global warming on human health and wellbeing. Given energy production's role in contributing to global warming and climate change, this work provides solutions to global warming from the point of view of energy. Incorporating multi-disciplinary expertise and approaches, it provides a platform for the analysis of new developments in the area of global warming and climate change, as well as potential energy solutions including renewable energy, energy efficiency, energy storage, hydrogen production, CO2 capture and environmental impact assessment. The research and analysis presented herein will benefit international scientists, researchers, engineers, policymakers and all others with an interest in global warming and its potential solutions.

Energy Technology 2017 - Lei Zhang 2017-02-08

This collection focuses on energy efficient technologies including innovative ore beneficiation, smelting technologies, recycling and waste heat recovery. The volume also covers various technological aspects of sustainable energy ecosystems, processes that improve energy efficiency, reduce thermal emissions, and reduce carbon dioxide and other greenhouse emissions. Papers addressing renewable energy resources for metals and materials production, waste heat recovery and other industrial energy efficient technologies, new concepts or devices for energy generation and conversion, energy efficiency improvement in process engineering, sustainability and life cycle assessment of energy systems, as well as the thermodynamics and modeling for sustainable metallurgical processes are included. This volume also offers topics on CO2 sequestration and reduction in greenhouse gas emissions from process engineering, sustainable technologies in extractive metallurgy, as well as the materials processing and manufacturing industries with reduced energy consumption and CO2 emission. Contributions from all

areas of non-nuclear and non-traditional energy sources, such as solar, wind, and biomass are also included in this volume.Papers from the following symposia are presented in the book:Energy TechnologiesAdvances in Environmental Technologies: Recycling and Sustainability Joint SessionDeriving Value from Challenging Waste Materials: Recycling and Sustainability Joint SessionSolar Cell Silicon

Energy Abstracts for Policy Analysis - 1988

Comprehensive institutional review for climate resilient agriculture - Rana, Abdul Wajid 2019-10-16

Pakistan is vulnerable to climate change impacts. Like many developing countries, it is also facing the challenge of dealing with governance of climate change and restructuring associated institutions. It is estimated that the future cost of climate impact would be around $6 billion to $14 billion annually over the next 40 years. Ministry of Climate Change is now focusing in creating necessary infrastructure and platforms for policy decisions and implementation.

Biogas from Waste and Renewable Resources - Dieter Deublein 2008-04-18

Written as a practical introduction to biogas plant design and operation, this book fills a huge gap by presenting a systematic guide to this emerging technology -- information otherwise only available in poorly intelligible reports by US governmental and other official agencies. The author draws on teaching material from a university course as well as a wide variety of industrial biogas projects he has been involved with, thus combining didactical skill with real-life examples. Alongside biological and technical aspects of biogas generation, this timely work also looks at safety and legal aspects as well as environmental considerations.

Waste Biomass Management – A Holistic Approach - Lakhveer Singh 2017-03-13

This book gives an overview on techniques and future perspectives of various aspects of waste biomass management. It also presents the economic and environmental evaluation, and also the monetary value-benefits and sustainability of the different processes. Recycling processes of lignocellulosic biomass from palm oil mill waste are covered, as well as from sugar industry waste and agriculture waste. It also includes thermal and non-thermal technologies for resource recovery from waste biomass. Challenges in the reuse and recycling of waste biomass are discussed, i.e., the hygienic safety in biomass management and bioremediation technologies for conversion into valuable products. The book is aiming at scientists, researchers and students alike, who are working in the research areas pertaining to waste management

RENEWABLE ENERGY AND STORAGE DEVICES FOR SUSTAINABLE DEVELOPMENT - V. K. Jain 2022

The book contains selected and peer-reviewed papers presented during the International Workshop on Renewable Energy and Storage Devices for Sustainable Development (IWRESD-2021). The book covers recent research on various applications and scientific developments in the areas of renewable energy. These topics are solar cells, sustainable energy conversion, processing technologies, instrumentation, energy storage devices, solar thermal applications, batteries, new materials, and processes to develop low-cost renewable energy-based technologies, etc. This book will be of interest to researchers and engineers across a variety of fields.

Improving Biogas Production - Helen Treichel 2019-01-10

This book highlights the current limitations of biogas production and yield and new avenues to improving them. Biogas production and yield are among the most important renewable energy targets for our world. Pursuing an innovative and biotechnological approach, the book presents alternative sources for biogas production and explores a broad range of aspects, including: pre-treatment of substrates, accelerators (enzyme-mediated) and inhibitors involved in the process of obtaining biogas and its yield, design specifications for digesters/modified digesters, managing biogas plants, microbial risk and slurry management, energy balance and positive climatic impacts of the biogas production chain, and the impacts on Human, Animal and Environmental Health (“One Health” concept for the biogas chain).

Biogas Technology in Nigeria - Isaac Nathaniel Itodo 2021-12-23
This book provides comprehensive and simplified coverage of fundamentals of biogas such as production, purification, storage, methods of improving yield and utilization, types, construction, design and operation of biogas plants. It covers stepwise design and a manual for construction of biogas plants including a planning guide, profitability analysis and evaluation of biogas plants. The biogas energy profile in Nigeria is exclusively covered. Features: Explores planning for biogas plants as a pre-requisite to develop a functional plant balancing energy production and consumption. Gives out detailed provision of the types of substances that are and can be used for biogas production covering animal, municipal, and industrial wastes. Provides knowledge for aspiring biogas producers as well as decision makers, specifically in the context of Nigeria. Covers use of digestrate for anaerobic digestion as a waste treatment method and on the input (feedstock) to the biogas plant. Compares carbon dioxide emissions from biogas plants with fossil fuel plants. This book aims at Graduate Students and Researchers in Agricultural, Environmental, Chemical, Civil and Energy engineering and related professional audience.
Biogas Technology - R. S. Khoiyangbam 2011-01-01
The global demand for energy is met mainly by fossil fuels. Their excessive and indiscriminate use, coupled with increasing demand for energy, will soon deplete their existing reserves. Therefore, it is extremely important to find alternative, environment-friendly, and ecologically sound sources of energy for meeting the present and future energy requirements. Biogas Technology: Towards Sustainable Development makes an attempt to explore the potential of utilizing biodegradable biomass as fuel and manure.
Biogas Energy - Tasneem Abbasi 2011-11-03
In recent years, the importance of biogas energy has risen manifold and has become universal. This is due to the realization that biogas capture and utilization has great potential in controlling global warming. By capturing biogas wherever it is formed, we not only tap a source of clean energy, but we also prevent the escape of methane to the atmosphere. Given that methane has 25 times greater global warming potential than CO2, methane capture through biogas energy in this manner can contribute substantially towards global warming control.
Advanced Biofuel Technologies - Deepak K. Tuli 2021-12-17
Advanced Biofuel Technologies: Present Status, Challenges and Future Prospects deals with important issues such as feed stock availability, technology options, greenhouse gas reduction as seen by life cycle assessment studies, regulations and policies. This book provides readers complete information on the current state of developments in both thermochemical and biochemical processes for advanced biofuels production for the purpose of transportation, domestic and industrial applications. Chapters explore technological innovations in advanced biofuels produced from agricultural residues, algae, lipids and waste industrial gases to produce road transport fuels, biojet fuel and biogas. Covers technologies and processes of different types of biofuel production Outlines a selection of different types of renewable feedstocks for biofuel production Summarizes adequate and balanced coverage of thermochemical and biochemical methods of biomass conversion into biofuel Includes regulations, policies and lifecycle and techno-economic assessments
Energy Research Abstracts - 1994
Semiannual, with semiannual and annual indexes. References to all scientific and technical literature coming from DOE, its laboratories, energy centers, and contractors. Includes all works deriving from DOE, other related government-sponsored information, and foreign nonnuclear information. Arranged under 39 categories, e.g., Biomedical sciences, basic studies; Biomedical sciences, applied studies; Health and safety; and Fusion energy. Entry gives bibliographical information and abstract. Corporate, author, subject, report number indexes.
China's Carbon-Energy Policy and Asia's Energy Transition - Akihisa Mori 2021-12-30
This book seeks to examine the impacts associated with China's carbon-energy policy in Asia and how, coupled with the Belt and Road Initiative, these effects prompt foreign direct investments in coal power and

exports of renewable energy technologies. China shows a co-evolution of carbon-energy policy and energy transitions from coal to renewables. Assessing how the policy intensifies pressures and motivations to Chinese companies, chapters in this edited volume analyse how the policy has changed energy and CO2 emissions in Asia through the lens of carbon leakage, relocation, and halos. Contributors present in-depth studies on China's investments and exports, and also its impacts on Indonesia, India, Vietnam, and Japan. Using applied computable general equilibrium and scenario input-output analyses, chapters investigate if regional electricity connectivity reduces new coal power investments through efficiency gain. Arguing that China is shifting from the world's factory to the leading innovator and Asia's demand centre, it is ultimately demonstrated that China is likely to achieve climate targets whereas Asia to increase CO2 emissions and economic reliance on China. China's Carbon-Energy Policy and Asia's Energy Transition will be of significant interest to students and scholars of energy, environment, and sustainability studies, as well as Chinese studies and economics.

Technologies for Converting Biomass to Useful Energy - Erik Dahlquist 2013-04-16

Officially, the use of biomass for energy meets only 10-13% of the total global energy demand of 140 000 TWh per year. Still, thirty years ago the official figure was zero, as only traded biomass was included. While the actual production of biomass is in the range of 270 000 TWh per year, most of this is not used for energy purposes, and mostly it

Biogas - Abd El-Fatah Abomohra 2021-04-28

Anaerobic digestion (AD) is by far the most important technology for providing clean renewable energy to millions in rural areas of many developing countries. AD of biowastes produces both biomethane and anaerobic digestate as a byproduct that can be used further as a biofertilizer. Biowastes including sewage, food processing wastes, animal wastes, and lignocellulosic wastes typically produce biogas containing 55%–70% biomethane. In the context of energy consumption, more than 85% of the total energy consumed currently comes from non-renewable fossil resources. Biogas technology can provide sustainable, affordable, and eco-friendly energy through waste recycling. This book provides basic knowledge and recent research on biogas production, focusing on the enhancement of biomethane and production routes integrated with microalgae cultivation or agriculture.