

Handbook Of Industrial Energy Analysis Duckoo

It is universally recognized that the end of the current and the beginning of the next century will be characterized by a radical change in the existing trends in the economic development of all countries and a transition to new principles of economic management on the basis of a resource and energy conservation policy. Thus there is an urgent necessity to study methods, technical aids and economic consequences of this change, and particularly, to determine the possible amounts of energy resources which could be conserved (energy "reserves") in different spheres of the national economy. An increased interest towards energy conservation in industry, one of the largest energy consumers, is quite natural and is manifested by the large number of publications on this topic. But the majority of publications are devoted to the solution of narrowly defined problems, determination of energy reserves in specific processes and plants, efficiency estimation of individual energy conservation measures, etc. However, it is necessary to develop a general methodological approach to the solution of such problems and create a scientific and methodical base for realizing an energy conservation policy. Such an effort is made in this book, which is concerned with methods for studying energy use efficiency in technological processes and estimation of the theoretical and actual energy reserves in a given process, technology, or industrial sector on the basis of their complete energy balances.

This new International Version includes all material covered in the standard eighth edition, but numerical data and calculations are expressed in Systeme International (SI) units. Completely revised, this latest edition includes new chapters on electrical systems; motors and drives; commissioning; and human behavior and facility energy management. Also updated are chapters on lighting, HVAC systems, web-based building automation, control systems, green buildings, and greenhouse gas management. Written by respected professionals, this book examines objectives of energy management and illustrates techniques proven effective for achieving results. The Routledge Handbook of Energy in Asia presents a comprehensive review of the unprecedented growth of Asian energy over the past quarter of a century. It provides insightful analysis into variation across the continent, whilst highlighting areas of cross-learning and regional cooperation between the developed and developing countries of Asia. Prepared by a team of leading international experts, this book not only captures the East Asian domination, particularly that of China, but also highlights the growing influence of South Asia and the ASEAN. Organised into four parts, the sections include: the demand for energy in the region and its main drivers at the sector level; developments in energy supply, including fossil fuels and renewable energy sources; energy policies and issues such as sector reform and climate change; the transition to a low carbon pathway. This handbook offers a complete picture of Asian energy, covering supply and demand, as well as contemporary challenges in the sector. As such, it is a valuable resource for students and scholars of energy policy, Environmental Studies, and Asian Studies.

Provides a bibliography of more than three thousand handbooks in various aspects of science and technology, from abrasives and band structures to yield strength and zero defects

Energy Information Handbook

Renewable Energy Resources

Analysis, Optimization, and Control

Efficiency and Sustainability in the Energy and Chemical Industries

Principles and Applications

Responding to concerns about global warming, carbon dioxide emissions, and the political instability that threatens the US supply, this book enables management, system analysts, and performance engineers to develop and apply an operating strategy for the on-line optimization and control of energy systems in industrial plants. It provides proven techniques for analysis that can guide equipment selection and flowsheet adjustments to reduce plant energy consumption without affecting the productive capacity of the plant. Originating in the 1970s and 1980s when high energy costs and the OPEC crises fostered energy conservation, these techniques have been applied successfully in many industries in the United States, as well as in several industrialized countries in the Middle and Far East. Industrial energy systems channel fuels and power into a variety of energy types such as steam, direct heat, hot fluids and gases, and shaft power for compressors, fans, pumps, and other machine-driven equipment. All of these processes impact the environment and are impacted by external energy and environmental policies and regulations. Therefore many environmental management issues are closely related to energy use and efficiency. Applied Industrial Energy and Environmental Management provides a comprehensive and application oriented approach to the technical and managerial challenges of efficient energy performance in industrial plants. Written by leading practitioners in the field with extensive experience of working with development banks, international aid organizations, and multinational companies, the authors are able to offer real case studies as a basis to their method. The book is divided into three main parts: Part one describes Energy and Environmental Management Systems (EEMS) in current use and management techniques for energy and environmental performance improvement. Part two focuses on the engineering aspects of industrial energy management, describing main industrial energy systems and how to analyse and improve their energy performance. Part three is the TOOLBOX on an accompanying website, which contains data, analytical methods and questionnaires as well as software programs, to support the practical application of the methods elaborated on in the first two parts of the book. This book will be a valuable resource to practising energy and environmental management engineers, plant managers and consultants in the energy and manufacturing industries. It will also be of interest to graduate engineering and science students taking courses in industrial energy and environmental management

Brought to you by the creator of numerous bestselling handbooks, the Handbook of Energy Efficiency and Renewable Energy provides a thorough grounding in the analytic techniques and technological developments that underpin renewable energy use and environmental protection. The handbook emphasizes the engineering aspects of energy conservation and renewable energy. Taking a world view, the editors discuss key topics underpinning energy efficiency and renewable energy systems. They provide content at the forefront of the contemporary debate about energy and environmental futures. This is vital information for planning a secure energy future. Practical in approach, the book covers technologies currently available or expected to be ready for implementation in the near future. It sets the stage with a survey of current and future world-wide energy issues, then explores energy policies and incentives for conservation and renewable energy, covers

economic assessment methods for conservation and generation technologies, and discusses the environmental costs of various energy generation technologies. The book goes on to examine distributed generation and demand side management procedures and gives a perspective on the efficiencies, economics, and environmental costs of fossil and nuclear technologies. Highlighting energy conservation as the cornerstone of a successful national energy strategy, the book covers energy management strategies for industry and buildings, HVAC controls, co-generation, and advances in specific technologies such as motors, lighting, appliances, and heat pumps. It explores energy storage and generation from renewable sources and underlines the role of infrastructure security and risk analysis in planning future energy transmission and storage systems. These features and more make the Handbook of Energy Efficiency and Renewable Energy the tool for designing the energy sources of the future.

Addressing the needs of engineers, energy planners, and policy makers, CRC Handbook of Energy Efficiency provides up-to-date information on all important issues related to efficient energy use, including: Efficient energy technologies Economics Utility restructuring Integrated resource planning Energy efficient building design Industrial energy conservation Wind energy Solar thermal systems Photovoltaics Renewable energy Cogeneration Fossil fuel cost projections The rapid changes that characterize the technology of energy generation systems, and the forthcoming competition among energy producers, make this handbook a must for anyone involved in the science, technology, or policy of energy. The 53 expert contributors from industry, government, and universities, and the 600+ figures and tables make CRC Handbook of Energy Efficiency a professional and valuable resource.

Handbook of Industrial Energy Analysis

Guide to Energy Management, Fifth Edition

Applications for Energy-efficient Building Operations

Energy Analysis of 108 Industrial Processes

Industrial Energy Management Strategies

The Handbook of Clean Energy Systems brings together an international team of experts to present a comprehensive overview of the latest research, developments and practical applications throughout all areas of clean energy systems. Consolidating information which is currently scattered across a wide variety of literature sources, the handbook covers a broad range of topics in this interdisciplinary research field including both fossil and renewable energy systems. The development of intelligent energy systems for efficient energy processes and mitigation technologies for the reduction of environmental pollutants is explored in depth, and environmental, social and economic impacts are also addressed. Topics covered include: Volume 1 - Renewable Energy: Biomass resources and biofuel production; Bioenergy Utilization; Solar Energy; Wind Energy; Geothermal Energy; Tidal Energy. Volume 2 - Clean Energy Conversion Technologies: Steam/Vapor Power Generation; Gas Turbines Power Generation; Reciprocating Engines; Fuel Cells; Cogeneration and Polygeneration. Volume 3 - Mitigation Technologies: Carbon Capture; Negative Emissions System; Carbon Transportation; Carbon Storage; Emission Mitigation Technologies; Efficiency Improvements and Waste Management; Waste to Energy. Volume 4 - Intelligent Energy Systems: Future Electricity Markets; Diagnostic and Control of Energy Systems; New Electric Transmission Systems; Smart Grid and Modern Electrical Systems; Energy Efficiency of Municipal Energy Systems; Energy Efficiency of Industrial Energy Systems; Consumer Behaviors; Load Control and Management; Electric Car and Hybrid Car; Energy Efficiency Improvement. Volume 5 - Energy Storage: Thermal Energy Storage; Chemical Storage;

Mechanical Storage; Electrochemical Storage; Integrated Storage Systems. Volume 6 - Sustainability of Energy Systems: Sustainability Indicators, Evaluation Criteria, and Reporting; Regulation and Policy; Finance and Investment; Emission Trading; Modeling and Analysis of Energy Systems; Energy vs. Development; Low Carbon Economy; Energy Efficiencies and Emission Reduction. Key features: Comprising over 3,500 pages in 6 volumes, HCES presents a comprehensive overview of the latest research, developments and practical applications throughout all areas of clean energy systems, consolidating a wealth of information which is currently scattered across a wide variety of literature sources. In addition to renewable energy systems, HCES also covers processes for the efficient and clean conversion of traditional fuels such as coal, oil and gas, energy storage systems, mitigation technologies for the reduction of environmental pollutants, and the development of intelligent energy systems. Environmental, social and economic impacts of energy systems are also addressed in depth. Published in full colour throughout. Fully indexed with cross referencing within and between all six volumes. Edited by leading researchers from academia and industry who are internationally renowned and active in their respective fields. Published in print and online. The online version is a single publication (i.e. no updates), available for one-time purchase or through annual subscription.

Originally published two decades ago, the Energy Management Handbook has become recognized as the definitive stand-alone energy manager's desk reference, used by thousands of energy management professionals throughout the industry. Known as the bible of energy management, it has helped more energy managers reach their potential than any other resource. Completely revised and updated, the fifth edition includes new chapters on building commissioning and green buildings. You'll find in-depth coverage of every component of effective energy management, including boiler and steam system optimization, lighting and electrical systems, HVAC system performance, waste heat recovery, cogeneration, thermal energy storage, energy management control systems, energy systems maintenance, building envelope, industrial insulation, indoor air quality, energy economic analysis, energy procurement decision making, energy security and reliability, and overall energy management program organization. You'll also get the latest facts on utility deregulation, energy project financing, and in-house vs. outsourcing of energy services. The energy industry has change radically since the initial publication of this reference over 20 years ago. Looking back on the energy arena, one thing becomes clear: energy is the key element that must be managed to ensure a company's profitability. The Energy Management Handbook, Fifth Edition is the definitive reference to guide energy managers through the maze of changes the industry has experienced.

Energy is the mainstay of industrial societies, and without an adequate supply of energy the social, political and economic stability of nations is put into jeopardy. With supplies of inexpensive fossil fuels decreasing, and climate change factors becoming more threatening, the need to conserve energy and move steadily to more sustainable energy sources is more urgent than ever before. The updated Second Edition of this successful handbook includes chapters from leading experts on the economics and fiscal management of energy, with a focus on the tools available to advance efficiency and conservation measures. Updated coverage of renewable energy sources, energy storage technologies, energy audits for buildings and building systems, and demand-side management is provided. The appendix of the handbook provides extensive data resources for analysis and calculation.

The analysis of energy systems is of paramount importance in modern societies, since it is fundamental to guarantee a sustainable economic development. It combines technical and economic research with a specific focus on quantitative modelling, in order to optimize the modalities of energy demand and supply globally. The book covers major advanced topics related to the analysis of energy by considering different aspects, namely management,

planning and policies. The most recent trends, such as smart grids, transition from fossil fuels to renewables based energy systems and distributed generation, are also discussed in this book. Intended to be a collection of various contributions from experts all around the world, it includes latest research results, innovations and methodologies about the analysis of energy systems. The book also focuses to contribute to the current debate related to the evolution of energy systems, by discussing in an open way the pro ' s and con ' s without any pre-constitute point of view. Title is aimed to be a reference for the academic community, students and professionals with a wider interdisciplinary background. Key Features: Presents integration of renewable sources with conventional energy systems. Topic is addressed from a multidisciplinary point of view, i.e. economy, technical, modelling, planning. Investigates management and planning aspects of future energy supplies. Multidimensional nature of energy systems is highlighted and discussed. Contributes towards implementing policy measures to reduce primary energy consumptions and carbon footprint.

Industrial Energy Management: Principles and Applications

Prospects for Implementation

Analysis of Energy Systems

Handbook for Combining Process and Input-output Analysis

A Handbook of Industrial Ecology

Life Cycle Inventory (LCI) Analysis is the second phase in the Life Cycle Assessment (LCA) framework. Since the first attempts to formalize life cycle assessment in the early 1970, life cycle inventory analysis has been a central part. Chapter 1 "Introduction to Life Cycle Inventory Analysis" discusses the history of inventory analysis from the 1970s through SETAC and the ISO standard. In Chapter 2 "Principles of Life Cycle Inventory Modeling", the general principles of setting up an LCI model and LCI analysis are described by introducing the core LCI model and extensions that allow addressing reality better. Chapter 3 "Development of Unit Process Datasets" shows that developing unit processes of high quality and transparency is not a trivial task, but is crucial for high-quality LCA studies. Chapter 4 "Multi-functionality in Life Cycle Inventory Analysis: Approaches and Solutions" describes how multi-functional processes can be identified. In Chapter 5 "Data Quality in Life Cycle Inventories", the quality of data gathered and used in LCI analysis is discussed. State-of-the-art indicators to assess data quality in LCA are described and the fitness for purpose concept is introduced. Chapter 6 "Life Cycle Inventory Data and Databases" follows up on the topic of LCI data and provides a state-of-the-art description of LCI databases. It describes differences between foreground and background data, recommendations for starting a database, data exchange and quality assurance concepts for databases, as well as the scientific basis of LCI databases. Chapter 7 "Algorithms of Life Cycle Inventory Analysis" provides the mathematical models underpinning the LCI. Since Heijungs and Suh (2002), this is the first time that this aspect of LCA has been

fundamentally presented. In Chapter 8 "Inventory Indicators in Life Cycle Assessment", the use of LCI data to create aggregated environmental and resource indicators is described. Such indicators include the cumulative energy demand and various water use indicators. Chapter 9 "The Link Between Life Cycle Inventory Analysis and Life Cycle Impact Assessment" uses four examples to discuss the link between LCI analysis and LCIA. A clear and relevant link between these phases is crucial.

The subject of this book, The Exergy Method also known as the Availability Analysis, is a method of thermodynamic analysis in which the basis of evaluation of thermodynamic losses follows from both the First and the Second Law of Thermodynamics rather than just the First Law. This book is particularly intended for engineers and students specializing in thermal and chemical plant design or operation as well as applied scientists concerned with various aspects of conservation of energy. It introduces the subject in a manner which can be understood by anyone who is familiar with the fundamentals of Applied Thermodynamics. Numerous examples are used in the book to aid the reader in assimilating the basic concepts and in mastering the techniques. Dr Tadeusz J. Kotas joined the Department of Mechanical Engineering of Queen Mary College as a member of teaching staff in 1957. His main areas of interest were Mechanics of Fluids and Applied Thermodynamics, obtaining a PhD degree for his work in the former subject. His work in the latter subject focused on the Exergy Method, contributing to its development through his research and publications and to its dissemination through courses which he ran in Britain and in a number of European countries for practicing engineers and academics.

Written by an author with over 38 years of experience in the chemical and petrochemical process industry, this handbook will present an analysis of the process steps used to produce industrial hydrocarbons from various raw materials. It is the first book to offer a thorough analysis of external factors effecting production such as: cost, availability and environmental legislation. An A-Z list of raw materials and their properties are presented along with a commentary regarding their cost and availability. Specific processing operations described in the book include: distillation, thermal cracking and coking, catalytic methods, hydroprocesses, thermal and catalytic reforming, isomerization, alkylation processes, polymerization processes, solvent processes, water removal, fractionation and acid gas removal. Flow diagrams and descriptions of more than 250 leading-edge process technologies An analysis of chemical reactions and process steps that are required to produce chemicals from various raw materials

Properties, availability and environmental impact of various raw materials used in hydrocarbon processing
Industrial Energy Management: Principles and Applications provides an overall view of the energy management approach by following the stream of energy from factory boundaries to end users. All topics are examined from the point of view of plant users rather than from that of designers and only the basic concepts necessary to clarify the operation of the plants are outlined. *Industrial Energy Management: Principles and Applications* is written both as a textbook for university courses in engineering and as a work of reference for professionals in energy management. Readers are assumed to have a basic knowledge of thermodynamics, heat and mass transfer, electric systems and power electronics, as well as computer programming. This book can be used not only by technicians involved in the field of energy management but also by managers who may find it a useful tool for understanding investment proposals and even a spur to solicit new ones. *Industrial Energy Management: Principles and Applications* consists of 21 chapters concerning general principles of energy transformation and energy sources, transformation plants such as electrical substations and boiler plants, cogeneration plants, electrical and thermal fluid distribution lines, facilities plants such as pumps and fans, air compressors, cooling, HVAC and lighting systems, heat recovery equipment, principles of energy auditing and accounting by using computers, correlation between energy and waste, education in the field. At the end of the book a chapter has been dedicated to economic analysis of energy saving investments and evaluation is given of all the cases studied in the book.

Energy Management Handbook, Fifth Edition

CRC Handbook of Energy Efficiency

Handbook of Industrial Hydrocarbon Processes

Proceedings of the national conference on advances in contemporary physics and energy

Analysis of Energy Efficiency of Industrial Processes

Here is the most complete reference ever developed for identifying quantity and of industrial waste energy which may be economically practical to recover. Based on years of research, the detailed heat and material balances which are presented were developed from process flow diagrams of 108 industrial processes, with techniques from consultants and manufacturers, and extensive on-site verification studies. Parameters such as process temperature, pressure, fuel requirements, thermal efficiency and radiation, and convection losses are determined for varying industrial operations spanning the food products, textile, lumber and wood, paper, chemical, petroleum, rubber and plastics, glass, metals, machinery, transportation equipment, and instrument manufacturing industries.

Newly revised and edited, this bestselling handbook is updated with new chapters on energy assessment and computer software. It includes detailed analysis of the latest technologies and software available for optimizing the audit process. It provides the information necessary to plan and carry out a thorough and accurate energy audit of any electrical, mechanical and building system for any facility. Clear, easy-to-follow instructions guide readers through accounting procedures, rate of return, and life cycle cost analysis. Loaded with forms, checklists, and handy aids, this book is essential for anyone responsible for overseeing a facility energy audit.

Using classic thermodynamic principles as the point of departure, this new edition of a popular resource supplies the understanding and tools required to measure process efficiency and sustainability with much improved accuracy. Exploring the driving forces in the chemical and power industries, *Efficiency and Sustainability in the Chemical and Power Industries: Scientific Principles and Case Studies, Second Edition* investigates why losses occur and explains how to reduce such losses. Numerous case studies, examples, and problems illustrate the thermodynamic analysis of process performance to explain how to effectively analyze and optimize work and environmental resources. The authors compare the present industrial society with an emerging one in which mass production and consumption are in harmony with the natural environment through closure of material cycles. In this second edition, the book's structure of Basics, Thermodynamic Analysis of Processes, Case Studies, and Sustainability has been unaffected, but a few additions have been made. New and updated information includes: A new chapter dedicated to the increasing levels of greenhouse gas emissions, with special attention to the removal and storage of CO₂ A new chapter on the rapidly emerging hydrogen economy An extended chapter on lifecycle analysis that examines the fate of the quality of energy during the lifecycle Increased focus on integrating the environment into the thermodynamic analysis of the systems and processes considered New problem sets and exercises Complete with the keys to the quantification of process efficiency and sustainability, this cutting-edge resource is an ideal guide for those engaged in the transition from fossil-based fuels to renewable and sustainable energy sources using low-waste procedures.

Research in natural products has advanced tremendously through the fields of chemistry, life, food and material sciences. Comparisons of natural products from microorganisms, lower eukaryotes, animals, higher plants and marine organisms are now well documented. Natural products are ubiquitous in our everyday lives. They are the active constituents of many medicines, vitamins, food additives, flavours and fragrances, agrochemicals and pesticides used for plant protection. Most of the natural products are optically active.

Handbook of Energy Audits, Seventh Edition

Selected Works

Creating a Culture of Continuous Improvement

Energy Analysis and Policy

Global Economic and Environmental Aspects of Biofuels

The importance of energy management has grown in recent years

due to the heightened awareness of the impact of energy use on the environment and its very real impact on a company's bottom line. This book provides a detailed and knowledgeable reference for those engaged in the energy management field or those just starting out by illustrating a practical approach to implementing energy management programs using case studies and real-world experience. Topics covered include new areas of development such as CUSUM and multivariate regression analysis. Also included is coverage of all systems and standards that affect energy management, including ISO50001, EMIS, Industrial Refrigeration, Cooling Water System and Industrial Ventilation System. Technical, organizational and behavioral considerations are covered. The book is designed as a quick reference guide for practicing energy managers.

Industrial Ecology (IE) is an emerging multidisciplinary field. University departments and higher education programs are being formed on the subject following the lead of Yale University, The Norwegian University of Science and Technology (NTNU), Leiden University, University of Michigan at Ann Arbor, Carnegie Mellon University, University of California at Berkeley, Institute for Superior Technology in Lisbon, Eidgenössische Technische Hochschule (ETH) Zürich, and The University of Tokyo. IE deals with stocks and flows in interconnected networks of industry and the environment, which relies on a basic framework for analysis. Among others, Input-Output Analysis (IOA) is recognized as a key conceptual and analytical framework for IE. A major challenge is that the field of IOA manifests a long history since the 1930s with two Nobel Prize Laureates in the field and requires considerable analytical rigor. This led many instructors and researchers to call for a high-quality publication on the subject which embraces both state-of-the-art theory and principles as well as practical applications.

Energy Analysis and Policy: Selected Works discusses the major aspect of electricity economics, including pricing, demand forecasting, investment analysis, and system reliability. This book provides a clear and comprehensive overview of the diversity of problems in analyzing energy markets and designing sound energy policies. Organized into 14 chapters, this book first discusses the energy economics in developing countries; integrated national energy planning (INEP) in developing countries; energy pricing; practical application of INEP using microcomputers; and energy strategies for oil-importing developing countries. Subsequent chapters describe the energy demand management and conservation; national energy policy implementation; energy demand analysis and forecasting; and energy project evaluation and planning. Other chapters explore

non-conventional energy project analysis and national energy policy; rural energy issues and supply options; and bioenergy management policy. Rural-industrial energy and fossil fuel issues, as well as energy R&D decision-making in developing countries, are also presented. As the issues in this book are very important, this book will be helpful to a wide and appreciative audience.

This last volume of the Energy in World Agriculture series is in many ways the series' Alpha and its Omega. It addresses the broad issues related to the use of energy in agricultural production, and also characterizes and quantifies the energy involvements of many agricultural production technologies. It is a compilation of descriptive and analytical information and design principles and data of energy use in this field. A significant aspect is the relationship between energy and agricultural productivity, increased knowledge and resulting improved management of energy-consuming operations on the farm. Information provided here has not been published elsewhere before. Throughout the book are examples of the important role that energy inputs have played in increasing productivity of the world's agricultural systems. Together with a revived interest in energy for agricultural production due to increases in energy costs, this volume meets that interest with valuable information and insights.

Renewable Energy

Energy Management Handbook

Guide to Energy Management, Eighth Edition - International Version

Energy Management and Conservation Handbook

Scientific Principles and Case Studies, Second Edition

In Indian context.

Biofuels and food are dependent on the same resources for production: land, water, and energy. The conjuncture of food, energy, and climate crises demands a new direction in how to harness agriculture to the joint tasks of energy-saving, emissions reduction, and food security. Global Economic and Environmental Aspects of Biofuels focuses on the all This textbook provides an introduction to energy analysis for those students who want to specialise in this challenging field. In comparison to other textbooks, this book provides a balanced treatment of complete energy systems, covering the demand side, the supply side, and the energy markets that connect these. The emphasis is very much on presenting a range of tools and methodologies that will help students find their way in analysing real world problems in energy systems. This new edition has been updated throughout and contains additional

content on energy transitions and improvements in the treatment of several energy systems analysis approaches. Featuring learning objectives, further readings and practical exercises in each chapter, Introduction to Energy Analysis will be essential reading for upper-level undergraduate and postgraduate students with a background in the natural sciences and engineering. This book may also be useful for professionals dealing with energy issues, as a first introduction into the field.

This book gives energy professionals all the information they need to optimize energy efficiency throughout their organizations. In this new third edition, nearly every chapter has been revised or totally rewritten. Boiler coverage has been revised to simplify procedures and calculations. Lighting coverage now includes the latest lighting and control technologies; electricity coverage now includes new induction motor management technologies. Other comprehensive revisions bring coverage fully up to date on HVAC system optimization, building envelope, natural gas purchasing, codes and standards, energy economic analysis, and program organization. Other coverage includes energy security and reliability; electric and gas rate schedules, indoor air quality, cogeneration, waste heat recovery, thermal energy storage, alternative energy, systems maintenance, and more. All managers and professionals responsible for energy usage in their organizations.

Primary Exergy Cost of Goods and Services

Methods and Data

An Input – Output Approach

Energy Analysis

Management, Planning and Policy

This book describes the Exergy-based Input – Output (ExIO) framework, a comprehensive methodology for assessing the primary fossil fuels requirements for the production of goods and services within a given economy from a lifecycle perspective. In the ExIO approach, exergy is assumed to be the best suited thermodynamic metric for characterizing fossil fuels. The mathematical formulation of ExIO is based on Input-Output analysis, which defines boundaries in time and space for any system or product analyzed, encompassing its entire lifecycle. The Hybrid-ExIO approach has been developed to increase the accuracy of results and to analyze energy systems in detail, leading to the definition of criteria and indicators for identifying and optimizing the primary fossil fuels requirements of system products. Lastly, the Bioeconomic ExIO model has been proposed to account for the side effects that the working hours required for producing goods and services have on the total primary fossil fuels consumption. As such, the book will be of considerable interest to both researchers and engineers in industry, offering them essential guidelines on the utilization of exergy and thermo-economic analysis.

"Completely revised and edited throughout, this latest edition includes new chapters on creating green buildings and web-based building automation controls along with a comprehensive revision of the chapter on lighting. Written by three of the most respected energy professionals in the industry, this book examines the fundamental objectives of energy management and illustrates techniques and tools proven effective for achieving results. Topics include distributed generation, energy auditing, rate structures, and economic evaluation techniques as well as

lighting efficiency improvement, HVAC optimization, combustion and use of industrial wastes, and steam generation and distribution system performance."--Publisher description.

Written by three of the most respected energy professionals in the industry, this fifth edition of a bestseller is an energy manager's guide to the most important areas of energy cost cutting. It examines the core objectives of energy management and illustrates the latest and most effective strategies, techniques, and tools for improving lighting efficiency, combustion processes, steam generation/distribution, and industrial waste reutilization. The book thoroughly brings up to date such topics as energy system management, energy auditing, rate structures, economic evaluation, HVAC optimization, control systems and computers, process energy, renewable energy, and industrial water management.

Renewable Energy: Prospects for Implementation contains papers that were originally commissioned by the journal Energy Policy for a series on renewable energy appearing between January 1991 to September 1992. In view of the fast-changing demands on conventional energy supply to meet environmental imperatives, it seemed timely to reproduce here a selection of those papers with a new introduction and a revised concluding chapter by the Editor of the series, Dr Tim Jackson, a research fellow with the Stockholm Environment Institute. The book is organized into four parts. The papers in Part I cover the individual renewable energy technology types from a broad perspective, addressing the technological aspects of improved power capture and conversion efficiency, but also providing a broad overview of costs, environmental aspects, and institutional factors for each technology category. Part II of this collection examines questions of feasibility and system integration. Renewables and development is the theme of Part III of the book while Part IV is dedicated to policy aspect and the development of strategies for implementation of renewable energy technologies.

Handbook of Energy Efficiency and Renewable Energy

Routledge Handbook of Energy in Asia

The Exergy Method of Thermal Plant Analysis

Guide to Energy Management

Handbooks and Tables in Science and Technology

'The editors of this handbook have brought together 58 of the world's greatest environmental systems experts. These professionals have, in 46 specific topic headings, divided into six major sections, provided very insightful information and guidance as to what industrial ecology entails, how it can be implemented, and its benefits . . . a very valuable tool . . . This book provides essential information to mid- and top-level management that can enable industry to make more prudent business decisions regarding the manufacturing of its products.' - **Robert John Klancko, Environmental Practice Industrial ecology is coming of age and this superb book brings together leading scholars to present a state-of-the-art overviews of the subject.**

Introduction to Energy Analysis

Life Cycle Inventory Analysis

Basic Principles and Applications

Energy Abstracts for Policy Analysis

Applied Industrial Energy and Environmental Management