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## **KEY=BATTERY - FIELDS JORDYN**

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### **NANO TECHNOLOGY FOR BATTERY RECYCLING, REMANUFACTURING, AND REUSING**

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*Elsevier Nanotechnology for Battery Recycling, Remanufacturing, and Reusing explores how nanotechnology is currently being used in battery recycling, remanufacturing and reusing technologies to make them economically and environmentally feasible. The book shows how nanotechnology can be used to enhance and improve battery recycling, remanufacturing and reusing technologies, covering the fundamentals of battery recycling, remanufacturing and reusing technologies, the role of nanotechnology, the separation, regeneration and reuse of nanomaterials from battery waste, nano-enabled approaches for battery recycling, and nano-enabled approaches for battery remanufacturing and reusing. This book will help researchers and engineers to better understand the role of nanotechnology in the field of battery recycling, remanufacturing and reusing. It will be an important reference source for materials scientists and engineers who would like to learn more about how nanotechnology is being used to create new battery recycling processes. Outlines practical and cost-efficient processes for recycling and reusing batteries Highlights the different types of nanomaterials used in battery recycling processes Assesses major challenges with integrating nanotechnology into battery manufacturing processes on an industrial scale*

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### **ELECTROCHEMICAL ENERGY STORAGE FOR RENEWABLE SOURCES AND GRID BALANCING**

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*Newnes Electricity from renewable sources of energy is plagued by fluctuations (due to variations in wind strength or the intensity of insolation) resulting in a lack of stability if the energy supplied from such sources is used in 'real time'. An important solution to this problem is to store the energy electrochemically (in a secondary battery or in hydrogen and its derivatives) and to make use of it in a controlled fashion at some time after it has been initially gathered and stored. Electrochemical battery storage systems are the major technologies for decentralized storage systems and hydrogen is the only solution for long-term storage systems to provide energy during extended periods of low wind speeds or solar insolation. Future electricity grid design has to include storage systems as a major component for grid stability and for security of supply. The technology of systems designed to achieve this regulation of the supply of renewable energy, and a survey of the markets that they will serve, is the subject of this book. It includes economic aspects to guide the development of technology in the right direction. Provides state-of-the-art information on all of the storage systems together with an assessment of competing technologies Features detailed technical, economic and environmental impact information of different storage systems Contains information about the challenges that must be faced for batteries and hydrogen-storage to be used in conjunction with a fluctuating (renewable energy) power supply*

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### **ENERGY STORAGE SYSTEMS BEYOND LI-ION INTERCALATION CHEMISTRY**

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Frontiers Media SA

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### **STORING ENERGY**

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### **WITH SPECIAL REFERENCE TO RENEWABLE ENERGY SOURCES**

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*Elsevier Storing Energy: With Special Reference to Renewable Energy Sources, Second Edition has been fully revised and substantially extended to provide up-to-date and essential discussion that will support the needs of the world's future energy and climate change policies. New sections cover thermal energy storage, tidal storage, sustainability issues in relation to storing energy and impacts on global energy markets. Various systems are discussed, including mechanical/kinetic, thermal, electrochemical and other chemical, as well as other emerging technologies. Incorporating advancements described in the book will help the people of the world further overcome the problems related to future energy and climate change. Covers all types of energy storage systems, allowing and encouraging comparisons to be made Written by world experts in the field to provide the latest developments in this fast moving and vital technology Covers the technical, environmental, social and political aspects related to the storing of energy, and in particular, renewable energy*

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### **FUTURE TRENDS IN PRODUCTION ENGINEERING**

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### **PROCEEDINGS OF THE FIRST CONFERENCE OF THE GERMAN ACADEMIC SOCIETY FOR PRODUCTION ENGINEERING (WGP), BERLIN, GERMANY, 8TH-9TH JUNE 2011**

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*Springer Science & Business Media To meet and adapt to the current and future trends and issues in technology and society, the science committee of The German Academic Society for Production Engineering (WGP) continues to define future topics for production*

technology. These themes represent not only the key focus for the scientific work of the WGP, but also the central themes of the first annual conference in June 2011, whose paper is publically available in this volume. Such themes, including electric mobility, medical technology, lightweight construction, and resource efficiency, as well as mass production ability have all been identified as future, large-scale, and long-term drivers of change. Future trends influence changes sustainably and fundamentally; they permeate society, technology, economics, and value systems and have an effect in virtually all areas of life. The WGP has, as part of its research, established for itself the goal of not only observing these emerging changes, but also of supervising and influencing their development in order to ensure steady progress, secure sustainability, and shape the future.

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## **ENGINES AND FUELS FOR FUTURE TRANSPORT**

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*Springer Nature* This book focuses on clean transport and mobility essential to the modern world. It discusses internal combustion engines (ICEs) and alternatives like battery electric vehicles (BEVs) which are growing fast. Alternatives to ICEs start from a very low base and face formidable environmental, material availability, and economic challenges to unlimited and rapid growth. Hence ICEs will continue to be the main power source for transport for decades to come and have to be continuously improved to improve transport sustainability. The book highlights the need to assess proposed changes in the existing transport system on a life cycle basis. The volume includes chapters discussing the challenges faced by ICEs as well as chapters on novel fuels and fuel/ engine interactions which help in this quest to improve the efficiency of ICE and reduce exhaust pollutants. This book will be of interest to those in academia and industry alike.

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## **ELEKTROCHEMISCHE SPEICHER**

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### **SUPERKONDENSATOREN, BATTERIEN, ELEKTROLYSE-WASSERSTOFF, RECHTLICHE RAHMENBEDINGUNGEN**

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*Springer-Verlag* Dieses praxisnahe Lehrbuch und Nachschlagewerk zeigt anschaulich die Welt der elektrochemischen Energiewandler und ihre modernen Anwendungen für nachhaltige Energiekonzepte. Wie speichert man überschüssige Wind- und Solarenergie, wie lässt sich Wasserstoff aus nicht-fossilen Ressourcen als chemische Speicherform nutzen? Jeder Themenbereich behandelt die physikalischen, chemischen, ingenieurtechnischen und materialwissenschaftlichen Grundlagen und erlaubt so eine interdisziplinäre Sicht auf die technischen Anwendungen. Eine Übersicht über die rechtlichen Rahmenbedingungen gibt verlässliche Informationen zu rechtlichen Fragestellungen. Für die zweite Auflage wurden zahlreiche Leserzuschriften berücksichtigt und dabei viele Kapitel überarbeitet und erweitert. Die rechtlichen Grundlagen wurden gründlich nach dem Stand der Gesetzgebung im März 2018 aktualisiert.

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## **ENABLING MANUFACTURING COMPETITIVENESS AND ECONOMIC SUSTAINABILITY**

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### **PROCEEDINGS OF THE 4TH INTERNATIONAL CONFERENCE ON CHANGEABLE, AGILE, RECONFIGURABLE AND VIRTUAL PRODUCTION (CARV2011), MONTREAL, CANADA, 2-5 OCTOBER 2011**

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*Springer Science & Business Media* The changing manufacturing environment requires more responsive and adaptable manufacturing systems. The theme of the 4th International Conference on Changeable, Agile, Reconfigurable and Virtual production (CARV2011) is "Enabling Manufacturing Competitiveness and Economic Sustainability". Leading edge research and best implementation practices and experiences, which address these important issues and challenges, are presented. The proceedings include advances in manufacturing systems design, planning, evaluation, control and evolving paradigms such as mass customization, personalization, changeability, re-configurability and flexibility. New and important concepts such as the dynamic product families and platforms, co-evolution of products and systems, and methods for enhancing manufacturing systems' economic sustainability and prolonging their life to produce more than one product generation are treated. Enablers of change in manufacturing systems, production volume and capability scalability and managing the volatility of markets, competition among global enterprises and the increasing complexity of products, manufacturing systems and management strategies are discussed. Industry challenges and future directions for research and development needed to help both practitioners and academicians are presented.

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## **ISUW 2020**

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### **PROCEEDINGS OF THE 6TH INTERNATIONAL CONFERENCE AND EXHIBITION ON SMART GRIDS AND SMART CITIES**

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*Springer Nature*

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## **POWER CONVERTERS FOR ELECTRIC VEHICLES**

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*CRC Press* Power Converters for Electric Vehicles gives an overview, topology, design, and simulation of different types of converters used in electric vehicles (EV). It covers a wide range of topics ranging from the fundamentals of EV, Hybrid EV and its stepwise approach, simulation of the proposed converters for real-time applications and corresponding experimental results, performance improvement paradigms, and overall analysis. Drawing upon the need for novel converter topologies, this book provides the complete solution for the power converters for EV applications along with simulation exercises and experimental results. It explains the need for power electronics in the improvement of performance in EV. This book: Presents exclusive information on the power electronics of EV including traction drives. Provides step-by-step procedure for converter design. Discusses various topologies having different isolated and non-isolated converters. Describes control circuit design including renewable energy systems and electrical drives. Includes practical case studies incorporated with simulation and experimental results. Power Converters for Electric Vehicles will provide researchers and graduate students in Power Electronics, Electric Drives, Vehicle Engineering a useful resource for stimulating their efforts in this important field of the search for renewable technologies.

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## **ADVANCES IN BATTERY TECHNOLOGIES FOR ELECTRIC VEHICLES**

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Woodhead Publishing *Advances in Battery Technologies for Electric Vehicles* provides an in-depth look into the research being conducted on the development of more efficient batteries capable of long distance travel. The text contains an introductory section on the market for battery and hybrid electric vehicles, then thoroughly presents the latest on lithium-ion battery technology. Readers will find sections on battery pack design and management, a discussion of the infrastructure required for the creation of a battery powered transport network, and coverage of the issues involved with end-of-life management for these types of batteries. Provides an in-depth look into new research on the development of more efficient, long distance travel batteries. Contains an introductory section on the market for battery and hybrid electric vehicles. Discusses battery pack design and management and the issues involved with end-of-life management for these types of batteries.

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## **LITHIUM-ION BATTERIES HAZARD AND USE ASSESSMENT**

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Springer Science & Business Media *Lithium-Ion Batteries Hazard and Use Assessment* examines the usage of lithium-ion batteries and cells within consumer, industrial and transportation products, and analyzes the potential hazards associated with their prolonged use. This book also surveys the applicable codes and standards for lithium-ion technology. *Lithium-Ion Batteries Hazard and Use Assessment* is designed for practitioners as a reference guide for lithium-ion batteries and cells. Researchers working in a related field will also find the book valuable.

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## **HANDBOOK ON BATTERY ENERGY STORAGE SYSTEM**

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Asian Development Bank This handbook serves as a guide to deploying battery energy storage technologies, specifically for distributed energy resources and flexibility resources. Battery energy storage technology is the most promising, rapidly developed technology as it provides higher efficiency and ease of control. With energy transition through decarbonization and decentralization, energy storage plays a significant role to enhance grid efficiency by alleviating volatility from demand and supply. Energy storage also contributes to the grid integration of renewable energy and promotion of microgrid.

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## **NEW MEGA TRENDS**

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### **IMPLICATIONS FOR OUR FUTURE LIVES**

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Springer *YOUR GUIDE TO A FULFILLING BUSINESS AND PERSONAL FUTURE* Based on research by one of the world's largest growth-consulting companies, *New Mega Trends* identifies the ten most important global trends that will define our future, including business models, smart technology, connectivity and convergence and radical social trends. *New Mega Trends* will give you the tools to not only identify and evaluate these game-changing trends, but also help you to translate them into market opportunities for your everyday business and personal life. How will we travel to work in the cities of the future? Will Zero be the new big thing? How will we stay connected in the Mega Trends World? Will our Wellness and Well-Being top business agenda? If you are a leader with a corporate vision, or a strategic planner within your organization, or just plain curious about your future, *New Mega Trends* will provide you with stimulating stories, startling facts and thought-provoking case studies that will not only inform your future but entertain you today.

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## **BATTERIES IN A PORTABLE WORLD**

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### **A HANDBOOK ON RECHARGEABLE BATTERIES FOR NON-ENGINEERS**

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Ec & M Books

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## **NANOTECHNOLOGY RESEARCH DIRECTIONS FOR SOCIETAL NEEDS IN 2020**

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### **RETROSPECTIVE AND OUTLOOK**

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Springer Science & Business Media This volume presents a comprehensive perspective on the global scientific, technological, and societal impact of nanotechnology since 2000, and explores the opportunities and research directions in the next decade to 2020. The vision for the future of nanotechnology presented here draws on scientific insights from U.S. experts in the field, examinations of lessons learned, and international perspectives shared by participants from 35 countries in a series of high-level workshops organized by Mike Roco of the National Science Foundation (NSF), along with a team of American co-hosts that includes Chad Mirkin, Mark Hersam, Evelyn Hu, and several other eminent U.S. scientists. The study performed in support of the U.S. National Nanotechnology Initiative (NNI) aims to redefine the R&D goals for nanoscale science and engineering integration and to establish nanotechnology as a general-purpose technology in the next decade. It intends to provide decision makers in academia, industry, and government with a nanotechnology community perspective of productive and responsible paths forward for nanotechnology R&D.

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## **GLOBAL AUTOMOBILE DEMAND**

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### **MAJOR TRENDS IN MATURE ECONOMIES; VOLUME 1**

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Springer *Global Automobile Demand* is a two-volume work analysing the impact of the Great Recession and the structural factors which shape automobile demand in developed and emerging countries. The first volume of *Global Automobile Demand* examines the automobile demand in mature economies: the USA, the UK, France, Germany, Spain, Japan and Korea.

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## **MANUFACTURING AND ENGINEERING DEVELOPMENTS**

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Trans Tech Publications Ltd The volume contains selected, peer reviewed papers from the 2nd International Conference on Innovation Manufacturing and Engineering Management (IMEM2012), December 14-16, 2012, Chongqing, China. Chapter 1: Manufacturing and

Engineering Management; Chapter 2: General Mechanical Engineering; Chapter 3: Mechanical Transmission, Vibration and Noise; Chapter 4: Electrical and Electronics Engineering; Chapter 5: Materials and Raw for Manufacturing; Chapter 6: Sensors and Intelligent Instrument; Chapter 7: Detection and Diagnosis; Chapter 8: Control and Information Engineering; Chapter 9: Methods and Algorithms of Research and Designing.

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## **UNSUSTAINABLE WORLD**

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### **ARE WE LOSING THE BATTLE TO SAVE OUR PLANET?**

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*Routledge Using a cross-disciplinary, science- and economics-based approach, this book provides a sobering and comprehensive assessment of the multifaceted barriers to achieving sustainability at a global level. Organized into three parts, the book defines sustainability in part I and sets the context of the historical and current difficulties facing the world today. In parts II and III, it outlines the sustainability challenges faced in transportation, manufacturing, and agriculture, and then in turn addresses the solutions, conditional solutions, and nonsolutions to these challenges. These include electric and autonomous automobiles, nuclear power, renewable energy, geoengineering, and carbon capture and storage. The author attempts to differentiate among those proposed solutions and discusses which are most promising and which are infeasible, counterproductive, and potentially a waste of time and money. In each of the book's chapters, the scientific evidence is presented in detail, in keeping with the advice of the young Swedish climate activist, Greta Thunberg, to let the science speak for itself. The author outlines why sustainability is unlikely to be achieved in several key areas of human endeavor and readers are challenged to weigh the scientific evidence for themselves. Using an economic business-based approach, this book introduces students and general readers to the challenges of sustainability and the environmental difficulties facing humanity today.*

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## **THE FLEXIBLE MULTI-PARTNER MECHANISM (FMM)**

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### **2019 ANNUAL PROGRESS REPORT**

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*Food & Agriculture Org. The year 2019 marked a time of growth and renewed commitments for FAO's Flexible Multi-Partner Mechanism (FMM), the main pooled funding mechanism for resource partners to contribute flexible, voluntary, annual, and multi-year resources to the Organization for the achievement of results under FAO's Strategic Framework and the realization of catalytic impact. This annual report provides an overview of major improvements and transformational changes to the FMM since 2018, in addition to presenting key achievements, challenges, and lessons learned thus far in the implementation of the Fund in 2019.*

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## **MINERALS YEARBOOK**

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### **AREA REPORTS: INTERNATIONAL REVIEW 2014 ASIA AND THE PACIFIC**

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*Minerals Yearbook: Volume 3: A - Minerals Yearbook, 2014, V. 3: Area Reports: International: Asia and the Pacific. Volume III, Area Reports: International, is published as four separate reports. These regional reports contain the latest available minerals data on more than 180 foreign countries and discuss the importance of minerals to the economies of these nations and the United States. Each report begins with an overview of the region's mineral industries during the year. It continues with individual country chapters that examine the mining, refining, processing, and use of minerals in each country of the region and how each country's mineral industry relates to U.S. industry. Most chapters include production tables and industry structure tables, information about Government policies and programs that affect the country's mineral industry, and an outlook section.*

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## **HANDBOOK OF ENERGY ECONOMICS AND POLICY**

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### **FUNDAMENTALS AND APPLICATIONS FOR ENGINEERS AND ENERGY PLANNERS**

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*Elsevier Handbook of Energy Economics and Policy: Fundamentals and Applications for Engineers and Energy Planners presents energy engineers and managers with analytical skills and concepts that enable them to apply simple economic logic to understand the interrelations between energy technologies, economics, regulation and governance of the industry. Sections cover the origins, types and measurement of energy sources, transportation networks, and regulatory and policy issues on electricity and gas at a global level, new economic and policy issues, including innovation processes in the energy industry and economic and policy implications. Final sections cover state-of-the-art methods for modeling and predicting the dynamics of energy systems. Its unique approach and learning path makes this book an ideal resource for energy engineering practitioners and researchers working to design, develop, plan or deploy energy systems. Energy planners and policymakers will also find this to be a solid foundation on which to base decisions. Presents key-concepts and their interrelation with energy technologies and systems in a clear way for ready application during planning and deployment of energy technologies and systems Includes global case studies covering a wide array of energy sources and regulatory models Explores methodologies for modeling and forecasting the impacts of energy technologies and systems, as well as their costs and possible business models*

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## **MINERALS YEARBOOK**

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### **METALS AND MINERALS**

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*This volume, covering metals and minerals, contains chapters on approximately 90 commodities. In addition, this volume has chapters on mining and quarrying trends and on statistical surveying methods used by Minerals Information, plus a statistical summary.*

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## **HYBRID POWER**

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## **GENERATION, STORAGE, AND GRIDS**

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*CRC Press Hybrid energy systems integrate multiple sources of power generation, storage, and transport mechanisms and can facilitate increased usage of cleaner, renewable, and more efficient energy sources. Hybrid Power: Generation, Storage, and Grids discusses hybrid energy systems from fundamentals through applications and discusses generation, storage, and grids. Highlights fundamentals and applications of hybrid energy storage Discusses use in hybrid and electric vehicles and home energy needs Discusses issues related to hybrid renewable energy systems connected to the utility grid Describes the usefulness of hybrid microgrids and various forms of off-grid energy such as mini-grids, nanogrids, and stand-alone systems Covers the use of hybrid renewable energy systems for rural electrification around the world Discusses various forms and applications of hybrid energy systems, hybrid energy storage, hybrid microgrids, and hybrid off-grid energy systems Details simulation and optimization of hybrid renewable energy systems This book is aimed at advanced students and researchers in academia, government, and industry, seeking a comprehensive overview of the basics, technologies, and applications of hybrid energy systems.*

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## **CIRCULAR ECONOMY: RECENT TRENDS IN GLOBAL PERSPECTIVE**

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*Springer Nature This book presents the advantages of the circular economy as a powerful - and inevitable - model for tackling the current challenges against shrinking resources and establishing the resource efficient economy. The experienced contributors present the status and strategies of circular economy implementation in several countries with hands on experience to protect the environment while promoting the circular economy through legislative requirements, best practices adopted and popularizing the idea of circulation of resources amongst the researchers & academia, policy makers, industry, and the general public at large. The book advocates model that consists of designing products and processes with a view to endlessly recycling them evolving a greater scope of sustainable development.*

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## **CURRENT TRENDS AND FUTURE DEVELOPMENTS ON (BIO-) MEMBRANES**

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### **RENEWABLE ENERGY INTEGRATED WITH MEMBRANE OPERATIONS**

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*Elsevier Current Trends and Future Developments in (Bio-) Membranes: Renewable Energy Integrated with Membrane Operations offers an overview of advanced technologies in the field of water desalination, wastewater treatment and hydrogen production that is coupled with renewable energy sources. Membrane processes are well-recognized technologies in the field of water and wastewater treatment. This book reviews their potential and lists new technologies which allow for the use of solar, hydroelectric, wind, hydrothermal and other forms of renewable energy with the same effect. In addition, it highlights what has already been achieved in the integration of membrane reactors and energy produced by biomass. Provides an overview of the interconnections between membrane technology and renewable energy sources Provides a comprehensive review of advanced research on membrane processes for water desalination, wastewater treatment and hydrogen production Relates the various processes to energy sources, including solar, wind, biomass and geothermal energy Addresses key issues involved in the use of renewable energy in wastewater treatment*

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## **NUEVOS SECTORES PRODUCTIVOS EN LA ECONOMÍA ARGENTINA**

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### **IMPACTOS SOBRE EL DESARROLLO Y POLÍTICAS PÚBLICAS**

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*EUDEBA El debate en torno a las relaciones entre estructura productiva y desarrollo económico ha regresado al centro de la escena a nivel internacional. La complejidad del escenario actual ha producido algunos cambios en cuanto a los ejes de discusión que ya no se agotan en la tensión economía versus recursos. Por un lado, la creciente relevancia del sector servicios y, por otro, las grandes cadenas globales de valor determinan que ya no importa analizar únicamente el patrón de especialización sectorial de un país, sino también el lugar que ocupa en las diversas etapas de las respectivas cadenas de valor. En este nuevo contexto, el objetivo de los nueve estudios incluidos en el libro es el de aportar elementos para el debate sobre el proceso de transformación de la estructura productiva en la Argentina y sus perspectivas. El análisis considera nueve sectores que muestran características diversas respecto de algunas dimensiones (tamaño, uso de factores, determinantes de la competitividad, etcétera), pero que comparten la condición de ser relativamente nuevos para la economía local. Además de entender la naturaleza, el desempeño y los impactos de estos sectores, los estudios aquí presentados intentan identificar estrategias y recomendaciones de política pública para potenciar su crecimiento y fortalecer su relación con el resto de la economía.*

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## **PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON INFORMATION ENGINEERING, MANAGEMENT AND SECURITY 2015**

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### **ICIEMS 2015**

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*Association of Scientists, Developers and Faculties (ASDF) ICIEMS 2015 is the conference aim is to provide a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in Engineering Technology, Industrial Engineering, Application Level Security and Management Science. This conference provides opportunities for the delegates to exchange new ideas and application experiences face to face, to establish business or research relations and to find global partners for future collaboration.*

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## **THE REPORT: OMAN 2011**

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*Oxford Business Group*

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## **E-MOBILITY IN EUROPE**

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### **TRENDS AND GOOD PRACTICE**

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*Springer* Focusing on technical, policy and social/societal practices and innovations for electrified transport for personal, public and freight purposes, this book provides a state-of-the-art overview of developments in e-mobility in Europe and the West Coast of the USA. It serves as a learning base for further implementing and commercially developing this field for the benefit of society, the environment and public health, as well as for economic development and private industry. A fast-growing, interdisciplinary sector, electric mobility links engineering, infrastructure, environment, transport and sustainable development. But despite the relevance of the topic, few publications have ever attempted to document or promote the wide range of electric mobility initiatives and projects taking place today. Addressing this need, this publication consists of case studies, reports on technological developments and examples of successful infrastructure installation in cities, which document current initiatives and serve as an inspiration for others.

### **RECYCLING OF LITHIUM-ION BATTERIES**

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#### **THE LITHOREC WAY**

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*Springer* This book addresses recycling technologies for many of the valuable and scarce materials from spent lithium-ion batteries. A successful transition to electric mobility will result in large volumes of these. The book discusses engineering issues in the entire process chain from disassembly over mechanical conditioning to chemical treatment. A framework for environmental and economic evaluation is presented and recommendations for researchers as well as for potential operators are derived.

### **BEHAVIOUR OF LITHIUM-ION BATTERIES IN ELECTRIC VEHICLES**

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#### **BATTERY HEALTH, PERFORMANCE, SAFETY, AND COST**

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*Springer* This book surveys state-of-the-art research on and developments in lithium-ion batteries for hybrid and electric vehicles. It summarizes their features in terms of performance, cost, service life, management, charging facilities, and safety. Vehicle electrification is now commonly accepted as a means of reducing fossil-fuels consumption and air pollution. At present, every electric vehicle on the road is powered by a lithium-ion battery. Currently, batteries based on lithium-ion technology are ranked first in terms of performance, reliability and safety. Though other systems, e.g., metal-air, lithium-sulphur, solid state, and aluminium-ion, are now being investigated, the lithium-ion system is likely to dominate for at least the next decade – which is why several manufacturers, e.g., Toyota, Nissan and Tesla, are chiefly focusing on this technology. Providing comprehensive information on lithium-ion batteries, the book includes contributions by the world's leading experts on Li-ion batteries and vehicles.

### **NA-ION BATTERIES**

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*John Wiley & Sons* This book covers both the fundamental and applied aspects of advanced Na-ion batteries (NIB) which have proven to be a potential challenger to Li-ion batteries. Both the chemistry and design of positive and negative electrode materials are examined. In NIB, the electrolyte is also a crucial part of the batteries and the recent research, showing a possible alternative to classical electrolytes – with the development of ionic liquid-based electrolytes – is also explored. Cycling performance in NIB is also strongly associated with the quality of the electrode-electrolyte interface, where electrolyte degradation takes place; thus, Na-ion Batteries details the recent achievements in furthering knowledge of this interface. Finally, as the ultimate goal is commercialization of this new electrical storage technology, the last chapters are dedicated to the industrial point of view, given by two startup companies, who developed two different NIB chemistries for complementary applications and markets.

### **ELECTRIC VEHICLES**

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#### **THE BENEFITS AND BARRIERS**

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*BoD – Books on Demand* In this book, theoretical basis and design guidelines for electric vehicles have been emphasized chapter by chapter with valuable contribution of many researchers who work on both technical and regulatory sides of the field. Multidisciplinary research results from electrical engineering, chemical engineering and mechanical engineering were examined and merged together to make this book a guide for industry, academia and policy maker.

### **FACTOR X**

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#### **RE-SOURCE - DESIGNING THE RECYCLING SOCIETY**

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*Springer Science & Business Media* Factor X: Re-source—Designing the Recycling Society explores the role of recycling in efforts to achieve the sustainable world envisioned in the Federal Environment Ministry's Resource Efficiency Programme, known as ProgRes. The chapters build a roadmap to a Recycling Society in which the decoupling of resource consumption and economic growth is accomplished.

### **THE ROUTLEDGE HANDBOOK OF GERMAN POLITICS & CULTURE**

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*Routledge* The Routledge Handbook of German Politics and Culture offers a wide-ranging and authoritative account of Germany in the 21st century. It gathers the expertise of internationally leading scholars of German culture, politics, and society to explore and explain historical pathways to contemporary Germany the current 'Berlin Republic' society and diversity Germany and Europe Germany and the world. This is an essential resource for students, researchers, and all those looking to understand contemporary German politics and culture.

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## **HANDBOOK OF ENERGY TRANSITIONS**

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*CRC Press* The global energy scenario is undergoing an unprecedented transition. In the wake of enormous challenges—such as increased population, higher energy demands, increasing greenhouse gas emissions, depleting fossil fuel reserves, volatile energy prices, geopolitical concerns, and energy insecurity issues—the energy sector is experiencing a transition in terms of energy resources and their utilization. This modern transition is historically more dynamic and multidimensional compared to the past considering the vast technological advancements, socioeconomic implications and political responses, and ever-evolving global policies and regulations. Energy insecurity in terms of its critical dimensions—access, affordability, and reliability—remains a major problem hindering the socioeconomic progress in developing countries. The Handbook of Energy Transitions presents a holistic account of the 21st-century energy transition away from fossil fuels. It provides an overview of the unfolding transition in terms of overall dimensions, drivers, trends, barriers, policies, and geopolitics, and then discusses transition in terms of particular resources or technologies, such as renewable energy systems, solar energy, hydropower, hydrogen and fuel cells, electric vehicles, energy storage systems, batteries, digitalization, smart grids, blockchain, and machine learning. It also discusses the present energy transition in terms of broader policy and developmental perspectives. Further, it examines sustainable development, the economics of energy and green growth, and the role of various technologies and initiatives like renewables, nuclear power, and electrification in promoting energy security and energy transition worldwide. Key Features Includes technical, economic, social, and policy perspectives of energy transitions Features practical case studies and comparative assessments Examines the latest renewable energy and low-carbon technologies Explains the connection between energy transition and global climate change

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## **OPERATIONS RESEARCH PROCEEDINGS 2014**

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### **SELECTED PAPERS OF THE ANNUAL INTERNATIONAL CONFERENCE OF THE GERMAN OPERATIONS RESEARCH SOCIETY (GOR), RWTH AACHEN UNIVERSITY, GERMANY, SEPTEMBER 2-5, 2014**

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*Springer* This book contains a selection of refereed papers presented at the "International Conference on Operations Research (OR 2014)", which took place at RWTH Aachen University, Germany, September 2-5, 2014. More than 800 scientists and students from 47 countries attended OR 2014 and presented more than 500 papers in parallel topical streams, as well as special award sessions. The theme of the conference and its proceedings is "Business Analytics and Optimization".

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## **OECD ENVIRONMENTAL PERFORMANCE REVIEWS: ISRAEL 2011**

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*OECD Publishing* This 2011 review of Israel's environmental conditions and policies evaluates progress in sustainable development, improving natural resource management, integrating environmental and economic policies, and strengthening international co-operation.

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## **EL OLIGOPOLIO QUE DOMINA EL SISTEMA ELÉCTRICO**

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*Ediciones AKAL* Cinco grandes compañías eléctricas poseen la mayor parte de la capacidad instalada y de la energía producida en España, a la vez que controlan la totalidad de las redes de distribución y venden la mayor parte de la electricidad a los clientes finales. Forman un oligopolio que domina tanto el mercado mayorista como el minorista de energía eléctrica. De modo que el funcionamiento del sistema eléctrico constituye un negocio de colosales dimensiones, que proporciona grandes beneficios a esas grandes compañías, está garantizado por los poderes públicos y lo financian los consumidores. Consecuentemente, esa posición de poder es un factor determinante para calibrar las posibilidades y los límites del curso que pueda seguir la transición eléctrico-energética. Alrededor de la transformación del sistema eléctrico entran en juego cuestiones vitales para toda la sociedad, en las que se dilucida cómo garantizar el suministro de un producto fundamental, cómo evitar los precios abusivos y cómo contribuir a un drástico descenso de la emisión de gases de efecto invernadero. Este trabajo pretende aportar una reflexión sobre lo que ha venido ocurriendo en el sistema eléctrico, como condición imprescindible para explicar sus características actuales y para afrontar el debate sobre qué transición, con qué prioridades y con qué actores cabe llevar a cabo la transformación del sistema. Después de un capítulo introductorio en el que se plantean las premisas básicas del análisis, el libro se estructura en dos partes que abordan la posición de poder del oligopolio eléctrico desde perspectivas complementarias. Una lo hace a través del dominio que ejercen en las diferentes tecnologías con las que se genera la electricidad. La otra lo hace a través del dominio que ejercen en los sucesivos segmentos (producción, distribución, comercialización) y los mercados (mayorista y minorista) que componen el sistema eléctrico. Por último, el capítulo final presenta un conjunto de consideraciones y propuestas acerca de la estrategia a seguir para transformar el sistema eléctrico. Las características que adopte la transición eléctrica dependerán fundamentalmente del acierto con que se fije y se aplique esa estrategia de transformación, guiada por objetivos económicos, sociales y ecológicos. Lo cual inevitablemente tendrá que ir acompañado de la solvencia con la que los poderes públicos (parlamento, gobierno, reguladores del mercado, garantes de la competencia) entablen una negociación "disputada" con las grandes compañías para que prevalezcan los intereses democráticos de la mayoría de la sociedad. Por consiguiente, el contenido del libro está orientado hacia un público interesado en conocer las características del sistema eléctrico, como condición imprescindible para valorar la envergadura de los desafíos pendientes y para participar en el debate sobre la transición eléctrica, energética y ecológica.