

Hybrid Electrical Vehicles In Ynieria Pojazd W

Global energy use is approximately 140 000 TWh per year. Interestingly, biomass production amounts to approximately 270 000 TWh per year, or roughly twice as much, whereas the official figure of biomass use for energy applications is 10-13% of the global energy use. This shows that biomass is not a marginal energy resource but more than capable of meeting all our energy and food needs, provided it is used efficiently. The use of food in generating energy has been extensively debated, but there is actually no need for it given the comprehensive resources available from agriculture and forestry waste. This book discusses the biomass resources available and aspects like efficient energy use. One way of using energy efficiently is to use waste biomass or cellulosic materials in biorefineries, where production of fibers and products from fibers is combined with production of most chemicals we need in our daily life. Such products include clothes, soap, perfume, medicines etc. Conventional pulp and paper applications, bio-fuel for vehicles and even fuel for aviation as well as heat and power production are covered. The problem with biomass is not availability, but the difficulty to use the resources efficiently without harming the long-term productivity. This book covers all types of resources on a global scale, making it unique. Many researchers from all over the world have contributed to give a good coverage of all the different international perspectives. This book will provide facts and inspiration to professionals, engineers, researchers, and students as well as to those working for various authorities and organizations.

Since the mid-1990s, the emergence of hydrogen economy and the speed with which it will arrive have been vigorously debated. As a disruptive technology, dominant designs for the production, storage and distribution of hydrogen have not yet been established. Not have performance characteristics been achieved to compete with the existing combustion engine, though the efficiency and durability of hydrogen fuel cells are improving. This publication highlights the uncertainties involved in making choices about hydrogen and fuel cells in planning the development policies on national energy, environment and transport sector.

Saving the Future is an urgent wake-up call to a new generation of leaders to rise to the historic challenge to save Nigeria and to retreat from the wasteful, destructive trajectory we have stumbled along over the decades. It is filled with golden nuggets of insights from the world of business, high finance and economic science. It diagnoses Nigerias manifold national maladies as: corruption, waste, poor governance, failure of the rule of law, the infrastructure deficit, weak property rights and the poor business environment. The author demonstrates an uncommon understanding of world economics and the structural parameters of 21st century integrated digital industrial civilization. He strongly believes that if the right things are done to put the house in order, the future of Nigeria can still be saved.

Issues in Environmental Law, Policy, and Planning: 2011 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Environmental Law, Policy, and Planning. The editors have built Issues in Environmental Law, Policy, and Planning: 2011 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Environmental Law, Policy, and Planning in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Environmental Law, Policy, and Planning: 2011 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

The Road to Intelligence in Power

Sustainable Practices: Concepts, Methodologies, Tools, and Applications

Concepts, Methodologies, Tools, and Applications

Post-Crisis Development Agenda in Asia and Africa

Industrialization and Economic Diversification

Combustion, Gasification, Pyrolysis, Torrefaction and Fermentation

In a world of earthquakes, tsunamis, and hurricanes, it is evident that emergency response plans are crucial to solve problems, overcome challenges, and restore and improve communities affected by such negative events. Although the necessity for quick and efficient aid is understood, researchers and professionals continue to strive for the best practices and methodologies to properly handle these significant events. The Handbook of Research on Environmental Policies for Emergency Management and Public Safety is a pivotal reference source for the latest research findings on the examination of environmental policies and its interface with management and public safety from various country's perspectives, its local impacts and global lessons. Featuring extensive coverage on relevant areas, such as public-private partnership, disaster management, and natural resource management, this publication is an ideal resource for academicians, practitioners, and researchers interested in understanding the effects of environmental policies on emergency management.

Internet of Things (IoT)-enabled spaces have made revolutionary advances in the utility grid. Among these advances, intelligent and energy-efficient services are gaining considerable interest. The use of the smart grid is increasing day after day around us and is not only used in saving energy but also in our daily life for intelligent health, traffic, and even farming systems. The grid enabled with IoT features is also expected to communicate with cellular networks smoothly in the next-generation networks (6G and beyond). This will open the door for other interesting research areas. In this book, we consider the most significant and emergent research topics in this domain, addressing major issues and challenges in IoT-based solutions proposed for the smart grid. The chapters provide insight on comprehensive topics in IoT-based smart grids, combining technical aspects with the most up-to-date theory. It investigates the grid under varying and potential emerging paradigms such as edge/fog computing, in addition to big data aspects considerations in the IoT era. With comprehensive surveys and case studies, this book explores basic and high-level grid aspects in the emerging smart city paradigm, which makes it especially attractive to researchers, academics, and higher-level students. This authored book can be used by computer science undergraduate and postgraduate students, researchers and practitioners, city administrators, policymakers, and government regulators.

Economic diversification entails a shift away from a single income source toward multiple income sources from an increasing spectrum of sectors and markets. A persistent concern for some Asian and African economies is their reliance on commodity exports and how they are exposed to the risk of export volatility and income instability. The Covid-19 pandemic and previous oil crashes have demonstrated the adverse impact on such economies. This book provides a systemic analysis of sustainable economic development through economic diversification. The book analyzes diversification and development experiences from comparative perspectives of Asia and Africa. It also investigates determinants of export diversification differentiated by commodities-dependence versus manufactured products and looks at the roles of various institutions and governance of institutions in export diversification. This book will provide policy insights into how different degrees of specialisation in exports across countries have affected outcomes in terms of living standards, economic growth and employment.

The energy transition initiated in recent years has enabled the growing integration of renewable production into the energy mix. Microgrids make it possible to maximize the efficiency of energy transmission from source to consumer by bringing the latter together geographically and by reducing losses linked to transport. However, the lack of inertia and the micro-grid support system makes it weak, and energy storage is necessary to ensure its proper functioning. Current storage technologies do not make it possible to provide both a large capacity of energy and power at the same time. Hybrid storage is a solution that combines the advantages of several technologies and reduces their disadvantages. Modeling and Control of Static Converters for Hybrid Storage Systems covers the modeling, control theorems, and optimization techniques that solve many scientific problems for researchers in the field of power converter control for renewable energy hybrid storage and places particular emphasis on the modeling and control of static converters for hybrid storage systems. Covering topics ranging from energy storage to power generation, this book is ideal for automation engineers, electrical engineers, mechanical engineers, professionals, scientists, academicians, master's and doctoral students, and researchers in the disciplines of electrical and mechanical engineering.

Towards 100% Renewable Energy

Transport Issues for Developing Countries

Making Choices about Hydrogen

Future Oil Demands of China, India, and Japan

Saving the Future

The Sustainable City

A fiery spirit dances from the pages of the Great Book. She brings the aroma of scorched sand and ozone. She has a story to tell... The Book of Phoenix is a unique work of magical futurism. A prequel to the highly acclaimed, World Fantasy Award-winning novel, Who Fears Death, it features the rise of another of Nnedi Okorafor’s powerful, memorable, superhuman women. Phoenix was grown and raised among other genetic experiments in New York’s Tower 7. She is an “accelerated woman”—only two years old but with the body and mind of an adult, Phoenix’s abilities far exceed those of a normal human. Still innocent and inexperienced in the ways of the world, she is content living in her room speed reading e-books, running on her treadmill, and basking in the love of Saeed, another biologically altered human of Tower 7. Then one evening, Saeed witnesses something so terrible that he takes his own life. Devastated by his death and Tower 7’s refusal to answer her questions, Phoenix finally begins to realize that her home is really her prison, and she becomes desperate to escape. But Phoenix’s escape, and her destruction of Tower 7, is just the beginning of her story. Before her story ends, Phoenix will travel from the United States to Africa and back, changing the entire course of humanity’s future.

Worldwide, many regions have a great potential to cover part of their pressing water needs by renewable energy powered water treatment processes using either thermal or membrane based technologies. Not only arid and semiarid regions are increasingly suffering from water shortage but also many other regions face a limitation of freshwater resources either by increasing contamination of surface water bodies or groundwater resources unsuitable for drinking and irrigation purposes either due to their high grade of mineralization or their contents of toxic components. In many areas without centralized water supply, treatment techniques using locally available renewable energy resources such as wind, solar and geothermal can provide an economical, social and environmentally sustainable option for clean water production from seawater and from highly mineralized or otherwise unsuitable ground- and surface water. This book provides an overview on possible cost-efficient techniques and application opportunities for different scales and shows why the implementation of these technologies faces numerous technological, economic and policy barriers and provides suggestions how they can be overcome. It serves as a synoptic compendium of the fundamentals of freshwater production using renewable energies, applicable to all types of water, ranging from brackish to marine water and also including industrial and communal residual water. The book is aimed at professionals, academics and decision makers worldwide, working in the areas of water resources, water supply, land planning, energy planning, greenhouse gases emission mitigation and rural development.

This book provides an insight into the complexities of weaning Nigeria from its fossil fuels addiction while growing the economy on low carbon trajectory. Nigeria faces a carbon catch 22 with the proliferation of renewable energy alternatives and scale-up of electric vehicles. The dilemma Nigeria is confronted with is to grow its fossil-led economy or face the challenge of its fossil infrastructure becoming stranded assets. It is a roadmap for plotting an environmentally benign path out of the country’s economic, social and environmental crises. This book is, therefore, a valuable resource for students, Civil Society Organizations, policymakers, academics and climate change adaptation practitioners who are interested in finding an environmentally sensitive path out of Nigeria’s economic cul-de-sac fostered by the decarbonization of the global energy economy. Findings of this study will trigger a national conversation on the looming exit from fossil fuels. In doing so, accelerate the integration of renewable energy into the Nigerian national development plan while building a carbon neutral society. Lessons learnt from the handling of Nigeria’s precarious circumstance will be of immense benefit to other oil prospecting, oil producing and non-producing nations who are interested in finding an equitable way of pursuing two inversely related goals of meeting their decarbonization commitments while simultaneously growing their economies in the post-Paris era.

Advances in Sustainable Polymer Composites reviews recent scientific findings on the production and use of sustainable polymers and composites as innovative new materials. The book discusses the importance of sustainable polymers in terms of current practices and how to address environmental and economic issues. Attention is focused on the physical, chemical and electrical properties of these composites. The book also looks at the lifecycle of both single and hybrid polymers and nanocomposites, with chapters covering the latest research findings on sustainable polymer composites with various filler loadings and their improvement on compatibility. From the viewpoint of polymer composites, this book covers not only well-known sustainable future trends in sustainable polymers and composites, but also advanced materials produced from micro, nano and pico-scale fillers that achieve better physical and mechanical results. Features advanced materials produced from micro, nano and pico-scale fillers Emphasizes the modeling and prediction of thermal, rheological and mechanical behavior Covers various types of fillers and different reinforcement agents Focuses on all aspects of fabrication, characterization and applications Addresses sustainability approaches and solutions

Intelligence in IoT-enabled Smart Cities

Smart-Grid in IoT-Enabled Spaces

The Complete Idiot's Guide to Hybrid and Alternative Fuel Vehicles

Nigeria in Comparative Perspective

Blindside

Strategies for Climate Protection

HYBRID, ELECTRIC AND FUEL-CELL VEHICLES, Second Edition, covers the cutting-edge technology and technology that are revolutionizing today's automotive industry. Author Jack Erjavec combines in-depth industry expertise with an engaging, reader-friendly style, providing extensive detail on new and upcoming electric vehicles, including hybrids in production today and the fuel cell vehicles of tomorrow. Expansive coverage ranges from basic theory related to vehicle construction, electricity, batteries, and motors, to the political and social impact of these high-profile vehicles. In addition to up-to-date, highly accurate technical information on vehicles available today—including service procedures and safe shop practices—the text provides an informed look into the future with material on vehicles currently under development. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

The latest developments in the field of hybrid electric vehicles Hybrid Electric Vehicles provides an introduction to hybrid vehicles, which include purely electric, hybrid electric, hybrid hydraulic, fuel cell vehicles, plug-in hybrid electric, and off-road hybrid vehicular systems. It focuses on the power and propulsion systems for these vehicles, including issues related to power and energy management. Other topics covered include hybrid vs. pure electric, HEV system architecture (including plug-in & charging control and hydraulic), off-road and other industrial utility vehicles, safety and EMC, storage technologies, vehicular power and energy management, diagnostics and prognostics, and electromechanical vibration issues. Hybrid Electric Vehicles, Second Edition is a comprehensively updated new edition with four new chapters covering recent advances in hybrid vehicle technology. New areas covered include battery modelling, charger design, and wireless charging. Substantial details have also been included on the architecture of hybrid excavators in the chapter related to special hybrid vehicles. Also included is a chapter providing an overview of hybrid vehicle technology, which offers a perspective on the current debate on sustainability and the environmental impact of hybrid and electric vehicle technology. Completely updated with new chapters Covers recent developments, breakthroughs, and technologies, including new drive topologies Explains HEV fundamentals and applications Offers a holistic perspective on vehicle electrification Hybrid Electric Vehicles: Principles and Applications with Practical Perspectives, Second Edition is a great resource for researchers and practitioners in the automotive industry, as well as for graduate students in automotive engineering.

What steps must be taken to keep within the boundary of the planet's carrying capacity? What are the strategies that governments can pursue to reduce population growth and energy consumption and to preserve and increase the supply of fresh water and energy resources? Natural Resources and Sustainable Development explores the impact that over-consumption has had on natural resources as well as possible alternative strategies in the U.S., China, India, Germany, and Brazil.

This book provides a comprehensive overview of the latest developments and materials used in electrochemical energy storage and conversion devices, including lithium-ion batteries, sodium-ion batteries, zinc-ion batteries, supercapacitors and conversion materials for solar and fuel cells. Chapters introduce the technologies behind each material, in addition to the fundamental principles of the devices, and their wider impact and contribution to the field. This book will be an ideal reference for researchers and individuals working in industries based on energy storage and conversion technologies across physics, chemistry and engineering. FEATURES Edited by established authorities, with chapter contributions from subject-area specialists Provides a comprehensive review of the field Up to date with the latest developments and research Editors Dr. Mesfin A. Kebede obtained his PhD in Metallurgical Engineering from Inha University, South Korea. He is now a principal research scientist at Energy Centre of Council for Scientific and Industrial Research (CSIR), South Africa. He was previously an assistant professor in the Department of Applied Physics and Materials Science at Hawassa University, Ethiopia. His extensive research experience covers the use of electrode materials for energy storage and energy conversion. Prof. Fabian I. Ezema is a professor at the University of Nigeria, Nsukka. He obtained his PhD in Physics and Astronomy from University of Nigeria, Nsukka. His research focuses on several areas of materials science with an emphasis on energy applications, specifically electrode materials for energy conversion and storage.

The Quest

Planning of Hybrid Renewable Energy Systems, Electric Vehicles and Microgrid

Renewable Energy Applications for Freshwater Production

After the Car

Scientific and Technical Aerospace Reports

Policy Scenarios and Implications

This book redefines climate protection measures and readjusts climate protection targets in line with what is scientifically necessary and economically feasible. The reader is provided with an overview of recent developments and failings in, and successful instruments for, fighting climate change and global warming.Effective climate protection meas

Environmental Science: A Global Concern is a comprehensive presentation of environmental science for non-science majors which emphasizes critical thinking, environmental responsibility, and global awareness. This book is intended for use in a one or two-semester course in environmental science, human ecology, or environmental studies at the college or advanced placement high school level. As practicing scientists and educators, the Cunningham author team brings decades of experience in the classroom, in the practice of science, and in civic engagement. This experience helps give students a clear sense of what environmental science is and why it matters in this exciting, new 13th edition. Environmental Science: A Global Concern provides readers with an up-to-date, introductory global view of essential themes in environmental science. The authors balance evidence of serious environmental challenges with ideas about what we can do to overcome them. An entire chapter focuses on ecological restoration; one of the most important aspects of ecology today. Case studies in most chapters show examples of real progress, and “What Can You Do?” lists give students ideas for contributing to solutions

This book examines how China will most likely address its growing oil energy dependence and what the consequences will be for Indian and Japanese foreign policies. It is useful for scholars and policymakers interested in Chinese, Indian, and Japanese energy security, foreign policy, political economy, and political risk analysis.

Important factor in political decision-making is a public opinion as well. Therefore, it is very important to raise global ecological awareness and wider public education regarding ecology. Goal of this book is to bring closer to the readers new drive technologies that are intended to environment and nature protection. The book presents modern technique achievements and technologies applied in the implementation of electric vehicles. Special attention was paid to energy efficiency of EV's. Also today's trends, mathematical models and computer design elements of future cars are presented.

Promoting Petrol Conservation in the Transport Sector in Nigeria

Biomass as Energy Source

Global Cooling

Electric Vehicles and the Future of Energy Efficient Transportation

Advances in Sustainable Polymer Composites

Energy, Security, and the Remaking of the Modern World

The discussion about energy perspectives beyond 2020, up to 2030 and eventually 2050 has started. There seems to be a verbal consensus on the necessity of ambitious climate change mitigation policies, without a convincing perspective of the necessary policy decisions to be reached in due time. Methods to achieve greenhouse gas reduction as well as 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 is not used ver need for new methods for converting biomass into refined products like chemicals, fuels, wood and paper products, heat, cooling and electric power. Obviously, some biomass is also used as food – our primary life necessity. The different types of conversion methods covered in this volume are biogas production, bio-ethanol production, torrefaction, pyrolysis, high temperature combustion. This book covers the suitability of different methods for conversion of different types of biomass. Different versions of the conversion methods are presented – both existing methods and those being developed for the future. System optimization using modeling methods and simulation are analyzed to determine advantages and disadvantages of different methods. Experts have contributed to provide an up-to-date view of the situation all over the world. These global perspectives and the inclusion of so much expertise of distinguished international researchers and professionals make this book unique. This book will prove useful and inspiring to professionals, engineers, researchers and students as well as to those working for related organizations.

Biomass as Energy SourceResources, Systems and ApplicationsCRC Press

A host of catastrophes, natural and otherwise, as well as some pleasant surprises—like the sudden end of the cold war without a shot being fired—have caught governments and societies unprepared many times in recent decades. September 11 is only the most obvious recent example among many unforeseen events that have changed, even redefined our lives. We will see more such events in future. Several kinds of unanticipated scenarios—particularly those of low probability and high impact—have the potential to escalate into systemic crises. Even positive surprises can be major policy challenges. Anticipating and managing low-probability events is a critically important challenge to contemporary policymakers, who increasingly rely on risk analysis tools to do so. Developing such tools is the focus of this insightful and perceptive volume, edited by renowned author Francis Fukuyama and sponsored by The American Interest magazine. BI indside is organized into four main sections. “Thinking about Strategic Surprise” addresses the psychological and institutional obstacles that prevent leaders from planning for low-probability events, allocating the necessary resources to deal with them. The following two sections pinpoint the failures—institutional as well as personal—that allowed key historical events to take leaders by surprise, and examine the philosophies and methodologies of forecasting. In “Pollyana vs. Cassandra,” for example, James Kurth and Gregg Easterbrook debate the future state of the world. Waldrop explores why technology forecasting is so poor and why that is likely to remain the case. In the book’s final section, “What Could Be,” internationally renowned authorities discuss low probability, high-impact contingencies in their area of expertise. For example, Scott Barrett looks at emerging infectious diseases, while Gal Luft and Anne Korin discuss energy security. What are we being blindsided by unforeseen events? There is no easy or obvious answer. But it is essential that we understand the obstacles that prevent us first from seeing the future clearly and then from acting appropriately on our insights. This readable and fascinating book is an important step in that direction.

Natural Resources and Sustainable Development

Energy Systems, Power Electronics and Drives for Hybrid, Electric and Fuel Cell Vehicles

Artificial Intelligent Techniques for Electric and Hybrid Electric Vehicles

Electrode Materials for Energy Storage and Conversion

Oil Mortality in Post-Fossil Fuel Era Nigeria

Resources, Systems and Applications

This book breaks new ground in the studies of green transition. It frames the ongoing transformation in terms of a "battle of modernities" with the emerging vision of ecomodernity as the final destination. It also offers a systematic exploration of the potential for extensive transformation of carbon-intensive sectors – with a focus on energy and transport – towards a low or post-carbon economy. The book does so in a comparative perspective, by pointing to a diversity of techno-economic and institutional solutions in the mature Western economies, and in the rapidly growing East and developing South. The contributors highlight a broad spectrum of available alternatives as well as illuminate conflicting interests involved. They also demonstrate how solutions to the climate challenge require parallel technological and governance innovation. The book advocates a new, overarching vision and agenda of ecomodernity – based on a synergistic paradigm-shift in industry, politics and culture – to trigger and sustain the ecological innovation necessary to tip development in a green direction. This vision cannot be monolithic; rather, it should reflect the diverse interests and conditions of the global population. This book is aimed at researchers and postgraduate students of energy, transport, environmental and climate policies, as well as development, environment, innovation and sustainability.

"This reference explores some of the most recent developments in sustainability, delving into topics beyond environmental science to cover issues of sustainable economic, political, and social development"--Provided by publisher.

This textbook details five strategies through which petrol (gasoline), a critical and non-renewable energy resource, can be conserved in Nigeria. While several developed countries, due to the rising price of petrol and its negative environmental impact, are promoting conservation of the product, several developing countries are paying little or no attention to this. It then became pertinent to draw the attention of policy-makers in Nigeria to this problem and explain possible strategies to promote conservation of petrol. This text shows that the rising consumption of petrol in Nigeria can be curbed, in the short-term, through higher petrol price and utilization of public transport; adoption of new, fuel-efficient vehicles in the medium-term; and adoption of hybrid electric vehicles and attitude change towards fuel consumption in the longer-term. In achieving this, governments are advised to enlighten the people about the benefits of conserving petrol while improving electricity supply which epileptic nature has promoted intensive consumption of petrol in the country. This text is invaluable to students, policy-makers, petrol marketers, individual motorists and environmentalists.

Cars.

Principles and Applications with Practical Perspectives

Energy Issues in the Asia-Pacific Region

New Generation of Electric Vehicles

Modeling and Control of Static Converters for Hybrid Storage Systems

Beyond the Oil Age

Electric Powertrain

The Pew Group provides one of the thirteen essays here, plainly stating that hybrid and electric cars make the United States more competitive, so why don't we see these cars everywhere? Readers will explore this issue across several topics relating to these cars, including what to do with mileage taxes, whether the government should subsidize the cars, and why China does not embrace these cars.

Smart Cities and intelligence are among the most significant topics in IoT. Intelligence in communication and infrastructure implementation is at the heart of this concept, and its development is a key issue in smart cities. This book addresses the challenges in realizing intelligence in smart cities and sensing platforms in the era of cloud computing and IoT, varying from cost and energy efficiency to availability and service quality. It focuses on both the design and implementation aspects of artificial intelligence approaches in smart cities and sensing applications that are enabled and supported by IoT paradigms, and mainly on data delivery approaches and their performability aspects.

Lists citations with abstracts for aerospace related reports obtained from world wide sources and announces documents that have recently been entered into the NASA Scientific and Technical Information Database.

“A sprawling story richly textured with original material, quirky details and amusing anecdotes . . .” —Wall Street Journal “It is a cause for celebration that Yergin has returned with his perspective on a very different landscape . . . [I]t is impossible to think of a better introduction to the essentials of energy in the 21st century. The Quest is . . . the definitive guide to how we got here.” —The Financial Times This long-awaited successor to Daniel Yergin’s Pulitzer Prize-winning The Prize provides an essential, overarching narrative of global energy, the principal engine of geopolitical and economic change A master storyteller as well as a leading energy expert, Daniel Yergin continues the riveting story begun in his Pulitzer Prize–winning book, The Prize. In The Quest, Yergin shows us how energy is an engine of global political and economic change and conflict, in a story that spans the energies on which our civilization has been built and the new energies that are competing to replace them. The Quest tells the inside stories, tackles the tough questions, and reveals surprising insights about coal, electricity, and natural gas. He explains how climate change became a great issue and leads readers through the rebirth of renewable energies, energy independence, and the return of the electric car. Epic in scope and never more timely, The Quest vividly reveals the decisions, technologies, and individuals that are shaping our future.

How to Anticipate Forcing Events and Wild Cards in Global Politics

Sustainable Energy Policies for Europe

Ebook: Environmental Science: A Global Concern

Energy and Transport in Green Transition

The Book of Phoenix

Modeling, Control and Optimization

In 2010, we can expect that oil and gas prices will again increase beyond the US\$100 per barrel, as the global economy recovers gradually from the global recession and uses more oil and gas. It is therefore important for the general public to read and understand more about complex energy issues which affect their lives. This useful energy book, based on lectures delivered at the ISEAS Energy Forum, as well as papers written by invited experts, provides a means to access energy information. It is part of the ISEAS Energy books series which serves to educate and raise public awareness on energy issues."e:As the author of The Grand Energy Transition (GET), I am naturally interested in energy books which discuss renewable energy and electric vehicles. The Grand Energy Transition shows us how to accelerate the transition to the sustainable energy gases of natural gas, wind, solar and hydrogen. What is clear is that we cannot continue with business as usual. It is imperative that energy consumption patterns should immediately begin to change dramatically. For this to happen, the public must be kept informed and mobilized. One excellent tool for public education is the ISEAS energy book with its wealth of information and which covers a wide range of energy issues. I appreciate ISEAS' good work done via the energy seminars and books, and I commend this book as an important read on energy issues."e: - Robert A. Hefner III, Founder, The GHK Company."e:The issues of environment, climate change and energy continue to feature prominently on the international agenda. There is clearly a higher level of public awareness and debate. The Copenhagen Conference focuses global attention on global warming and the rise in sea level, and provides opportunity to take a step towards transition to a low-carbon economy. Shell is working on energy and environmental issues, and continues to contribute resources, technology and skills to these global challenges. This ISEAS energy volume is timely, and a comprehensive in-depth analysis and recounting of the facts and challenges."e: - Lee Tzu Yang, Chairman, Shell Companies in Singapore

The why, what and how of the electric vehicle powertrain Empowers engineering professionals and students with the knowledge and skills required to engineer electric vehicle powertrain architectures, energy storage systems, power electronics converters and electric drives. The modern electric powertrain is relatively new for the automotive industry, and engineers are challenged with designing affordable, efficient and high-performance electric powertrains as the industry undergoes a technological evolution. Co-authored by two electric vehicle (EV) engineers with decades of experience designing and putting into production all of the powertrain technologies presented, this book provides readers with the hands-on knowledge, skills and expertise they need to rise to that challenge. This four-part practical guide provides a comprehensive review of battery, hybrid and fuel cell EV systems and the associated energy sources, power electronics, machines, and drives. The first part of the book begins with a historical overview of electromobility and the related environmental impacts motivating the development of the electric powertrain. Vehicular requirements for electromechanical propulsion are then presented. Battery electric vehicles (BEV), fuel cell electric vehicles (FCEV), and conventional and hybrid electric vehicles (HEV) are then described, contrasted and compared for vehicle propulsion. The second part of the book features in-depth analysis of the electric powertrain traction machines, with a particular focus on the induction machine and the surface- and interior-permanent magnet ac machines. The brushed dc machine is also considered due to its ease of operation and understanding, and its historical place, especially as the traction machine on NASA’s Mars rovers. The third part of the book features the theory and applications for the propulsion, charging, accessory, and auxiliary power electronics converters. Chapters are presented on isolated and non-isolated dc-dc converters, traction inverters, and battery charging. The fourth part presents the introductory and applied electromagnetism required as a foundation throughout the book. • Introduces and holistically integrates the key EV powertrain technologies. • Provides a comprehensive overview of existing and emerging automotive solutions. • Provides experience-based expertise for vehicular and powertrain system and sub-system level study, design, and optimization. • Presents many examples of powertrain technologies from leading manufacturers. • Discusses the dc traction machines of the Mars rovers, the ultimate EVs from NASA. • Investigates the environmental motivating factors and impacts of electromobility. • Presents a structured university teaching stream from introductory undergraduate to postgraduate. • Includes real-world problems and assignments of use to design engineers, researchers, and students alike. • Features a companion website with numerous references, problems, solutions, and practical assignments. • Includes introductory material throughout the book for the general scientific reader. • Contains essential reading for government regulators and policy makers. Electric Powertrain: Energy Systems, Power Electronics and Drives for Hybrid, Electric and Fuel Cell Vehicles is an important professional resource for practitioners and researchers in the battery, hybrid, and fuel cell EV transportation industry. The book is a structured holistic textbook for the teaching of the fundamental theories and applications of energy sources, power electronics, and electric machines and drives to engineering undergraduate and postgraduate students. Textbook Structure and Suggested Teaching Curriculum This is primarily an engineering textbook covering the automotive powertrain, energy storage and energy conversion, power electronics, and electrical machines. A significant additional focus is placed on the engineering design, the energy for transportation, and the related environmental impacts. This textbook is an educational tool for practicing engineers and others, such as transportation policy planners and regulators. The modern automobile is used as the vehicle upon which to base the theory and applications, which makes the book a useful educational reference for our industry colleagues, from chemists to engineers. This material is also written to be of interest to the general reader, who may have little or no interest in the power electronics and machines. Introductory science, mathematics, and an inquiring mind suffice for some chapters. The general reader can read the introduction to each of the chapters and move to the next as soon as the material gets too advanced for him or her. Part I Vehicles and Energy Sources Chapter 1 Electromobility and the Environment Chapter 2 Vehicle Dynamics Chapter 3 Batteries Chapter 4 Fuel Cells Chapter 5 Conventional and Hybrid Powertrains Part II Electrical Machines Chapter 6 Introduction to Traction Machines Chapter 7 The Brushed DC Machine Chapter 8 Induction Machines Chapter 9 Surface-permanent-magnet AC Machines Chapter 10: Interior-permanent-magnet AC Machines Part III Power Electronics Chapter 11 DC-DC Converters Chapter 12 Isolated DC-DC Converters Chapter 13 Traction Drives and Three-phase Inverters Chapter 14 Battery Charging Chapter 15 Control of the Electric Drive Part IV Basics Chapter 16 Introduction to Electromagnetism, Ferromagnetism, and Electrochemical Energy Conversion The first third of the book (Chapters 1 to 6), plus parts of Chapters 14 and 16, can be taught to the general science or engineering student in the second or third year. It covers the introductory automotive material using basic concepts from mechanical, electrical, environmental, and electrochemical engineering. Chapter 14 on electrical charging and Chapter 16 on electromagnetism can also be used as a general introduction to electrical engineering. The basics of electromagnetism, ferromagnetism and electromechanical energy conversion (Chapter 16) and dc machines (Chapter 7) can be taught to second year (sophomore) engineering students who have completed introductory electrical circuits and physics. The third year (junior) students typically have covered ac circuit analysis, and so they can cover ac machines, such as the induction machine (Chapter 8) and the surface permanent-magnet ac machine (Chapter 9). As the students typically have studied control theory, they can investigate the control of the speed and torque loops of the motor drive (Chapter 15). Power electronics, featuring non-isolated buck and boost converters (Chapter 11), can also be introduced in the third year. The final-year (senior) students can then go on to cover the more advanced technologies of the interior-permanent-magnet ac machine (Chapter 10). Isolated power converters (Chapter 12), such as the full-bridge and resonant converters, inverters (Chapter 13), and power-factor-corrected battery chargers (Chapter 14), are covered in the power electronics section. This material can also be covered at the introductory postgraduate level. Various homework, simulation, and research exercises are presented throughout the textbook. The reader is encouraged to attempt these exercises as part of the learning experience. Instructors are encouraged to contact the author, John Hayes, direct to discuss course content or structure.

Using clear, jargon-free language, a look at the new hybrid and alternative fuel vehicles available describes each type of car, as well as their advantages and disadvantages, specifications, and more. Original.

The electric vehicle market has been gradually gaining prominence in the world due to the rise in pollution levels caused by traditional IC engine-based vehicles. The advantages of electric vehicles are multi-pronged in terms of cost, energy efficiency, and environmental impact. The running and maintenance cost are considerably less than traditional models. The harmful exhaust emissions are reduced, besides the greenhouse gas emissions, when the electric vehicle is supplied from a renewable energy source. However, apart from some Western nations, many developing and underdeveloped countries have yet to take up this initiative. This lack of enthusiasm has been primarily attributed to the capital investment required for charging infrastructure and the slow transition of energy generation from the fossil fuel to the renewable energy format. Currently, there are very few charging stations, and the construction of the same needs to be ramped up to supplement the growth of electric vehicles. Grid integration issues also crop up when the electric vehicle is used to either do supply addition to or draw power from the grid. These problems need to be fixed at all the levels to enhance the future of energy efficient transportation. Electric Vehicles and the Future of Energy Efficient Transportation explores the growth and adoption of electric vehicles for the purpose of sustainable transportation and presents a critical analysis in terms of the economics, technology, and environmental perspectives of electric vehicles. The chapters cover the benefits and limitations of electric vehicles, techno-economic feasibility of the technologies being developed, and the impact this has on society. Specific points of discussion include electric vehicle architecture, wireless power transfer, battery management, and renewable resources. This book is of interest for individuals in the automotive sector and allied industries, policymakers, practitioners, engineers, technicians, researchers, academicians, and students looking for updated information on the technology, economics, policy, and environmental aspects of electric vehicles.

Economic Development & Prosperity

Hybrid, Electric, and Fuel-Cell Vehicles

Perspectives on Ecomodernity

Hybrid and Electric Cars

Handbook of Research on Environmental Policies for Emergency Management and Public Safety

Electric vehicles/hybrid electric vehicles (EV/HEV) commercialization is still a challenge in industries in terms of performance and cost. The performance along with cost reduction are two tradeoffs which need to be researched to arrive at an optimal solution. This book focuses on the convergence of various technologies involved in EV/HEV. The book brings together the research that is being carried out in the field of EV/HEV whose leading role is by optimization techniques with artificial intelligence (AI). Other featured research includes green drive schemes which involve the possible renewable energy sources integration to develop eco-friendly green vehicles, as well as Internet of Things (IoT)-based techniques for EV/HEVs. Electric vehicle research involves multi-disciplinary expertise from electrical, electronics, mechanical engineering and computer science. Consequently, this book serves as a point of convergence wherein all these domains are addressed and merged and will serve as a potential resource for industrialists and researchers working in the domain of electric vehicles.

Living sustainably is not just about preserving the wilderness or keeping nature pristine. The transition to a green economy depends on cities. Economic, technological, and cultural forces are moving people out of rural areas and into urban areas. If we are to avert climate catastrophe, we will need our cities to coexist with nature without destroying it. Urbanization holds the key to long-term sustainability, reducing per capita environmental impacts while improving economic prosperity and social inclusion for current and future generations. The Sustainable City provides a broad and engaging overview of the urban systems of the twenty-first century. It approaches urban sustainability from the perspectives of behavioral change, organizational management, and public policy, looking at case studies of existing legislation, programs, and public-private partnerships that strive to align modern urban life and sustainability. The book synthesizes the disparate strands of sustainable city planning in an approachable and applicable guide that highlights how these issues touch our lives on a daily basis, including the transportation we take, the public health systems that protect us, where our energy comes from, and what becomes of our food waste. This second edition of The Sustainable City dives deeper into the financing of sustainable infrastructure and initiatives and puts additional emphasis on the roles that individual citizens and varied stakeholders can play. It also reviews current trends in urban inequality and discusses whether a model of sustainability that embraces a multidimensional approach to development and a multistakeholder approach to decision making can foster social inclusion. It features many more examples and new international case studies spanning the globe.

Hybrid Electric Vehicles

Technologies for Converting Biomass to Useful Energy

Issues in Environmental Law, Policy, and Planning: 2011 Edition

Healthcare and Economic Restructuring