Handbook Of Energy Transformation And Infrastructure

#energy transformation #energy infrastructure #energy handbook #infrastructure transformation #sustainable energy

Explore the essential Handbook of Energy Transformation and Infrastructure, a comprehensive guide to understanding and implementing innovative solutions for a sustainable energy future. This resource delves into the latest technologies, strategies, and policies driving the transformation of energy systems and the development of resilient infrastructure, offering valuable insights for professionals, researchers, and policymakers alike.

Students can use these dissertations as models for structuring their own work.

Handbook of Energy Governance in Europe

This Handbook provides the most comprehensive account of energy governance in Europe, examining both energy governance at the European level and the development of energy policy in 30 European countries. Authored by leading scholars, the first part of the book offers a broad overview of the topics of energy research, including theories of energy transitions, strategies and norms of energy policy, governance instruments in the field, and challenges of energy governance. In the second part, it examines the internal and external dimensions of energy governance in the European Union. The third part presents in-depth country studies, which investigate national trajectories of energy policy, including an analysis of the policy instruments and coordination mechanisms for energy transitions. It closes with a comparative analysis of national energy governance. This book is a definitive resource for scholars in energy and climate research as well as decision makers in national governments and EU institutions.

Handbook on the Geographies of Energy

This extensive Handbook captures a range of expertise and perspectives on the changing geographies and landscapes of energy production, distribution, and use. Combining established and emerging scholarship from across disciplines, the expert contributions provide a broad overview of research frontiers for the changing geographies of energy worldwide. Interdisciplinary in nature and broad in scope, it serves to answer a range of questions and provide the reader with conceptual and methodological foundations.

International Handbook of Energy Security

ÔThis Handbook should be consulted by anybody interested in the issue of energy security. It convincingly demonstrates why the provision of energy is such a contentious issue, addressing the complex interaction of economic, social, environmental, technical and political aspects involved. The book is particularly valuable in investigating and highlighting processes in which (inter)national actors apply this variety of aspects in (re)constructing their notion of Òenergy securityÓ, its particular meaning and the implications thereof. Such understanding of energy security is helpful!Õ Ð Aad F. CorreljŽ, Delft University of Technology, The Netherlands ÔEnergy security has for long been treated as an issue of pure geopolitics. Hugh Dyer and Maria Julia Trombetta aim at broadening energy security debates and extend them to new agendas. Their excellent Handbook offers a fresh perspective on four crucial dimensions: supply, demand, environment and human security. A diverse group of international energy scholars provides for an in-depth and comprehensive analysis of key contemporary energy problems, ranging from an oil producersÕ perspectives on energy security to ethical dimensions of renewable energy and climate governance.Õ Ð Andreas Goldthau, Central European University, Hungary This Handbook brings together energy security experts to explore the implications of framing the energy

debate in security terms, both in respect of the governance of energy systems and the practices associated with energy security. The contributors expertly review and analyse the key aspects and research issues in the emerging field of energy security, test the current state of knowledge, and provide suggestions for reflection and further analysis. This involves providing an account of the multiplicity of discourses and meanings of energy security, and contextualizing them. They also suggest a rewriting of energy security discourses and their representation in purely economic terms. This volume examines energy security and its conceptual and practical challenges from the perspectives of security of supply, security of demand, environmental change and human security. It will prove essential for students in the fields of global, international and national politics of energy, economics, and society as well as engineering. It will also appeal to policy practitioners and anybody interested in keeping the lights on, avoiding climate change, and providing a secure future for humanity.

International Handbook on Mega-Projects

Providing crucial background information for those who want to understand decision-making processes on large transport infrastructure projects, this fascinating Handbook will prove an important source of information for academics, researchers and stude

Handbook of Energy and Environmental Security

Handbook of Energy and Environmental Security educates the reader about the wider dimensions of the distinctive yet intertwined subjects of ‘energy security and ‘environmental security’. The book uniquely addresses these two increasingly important topics in a comprehensive and composite manner, describing the concepts and wider dimensions of energy- and environmental security in technological, economic, social and geopolitical perspectives. Divided into three main parts, the book deals with the subject of energy security in terms of its concepts, broader dimensions and allied issues, focuses on environmental security, and covers subjects in a cohesive manner, discussing their important interfaces and commonalities. Providing valuable scholarship for academics, researchers and analysts in the fields of energy and the environment, and using case studies to illustrate national and international levels, this is a valuable resource for energy- and environmental security challenges, especially in the areas of sustainable development and climate change. Discusses the critical subjects of ‘energy security’ and ‘environmental security’ in a composite manner Incorporates up-to-date data, case studies and comparative assessments Energy and environmental policy frameworks are covered from the perspective of both developed and developing countries

Handbook of the International Political Economy of Energy and Natural Resources

This Handbook offers a comprehensive overview of the latest research from leading scholars on the international political economy of energy and resources. Highlighting the important conceptual and empirical themes, the chapters study all levels of governance, from global to local, and explore the wide range of issues emerging in a changing political and economic environment.

The Renewable City

Despite the intolerable costs of climate change and inevitably declining oil, natural gas and uranium reserves, the vast majority of cities and urban communities are planned and managed as if such existential crises did not exist. Hence the transition from fossil fuel dominated cities to an urban future marked by a radically new, renewable energy infrastructure requires entirely new tools and frames of decision-making. This is an original guide to an entirely unprecedented urban transformation, to cities and towns powered by renewable energy. Squarely focused on action, it supports design, planning and management decisions and serves as a practical guide to practitioners, academics and political leaders in communities and cities worldwide, as a useful and well-structured reference text. It is built on the most successful of past and present urban sustainability trends and emerging infrastructure directions, presenting renewable energy applications as offering new and inevitable approaches to urban infrastructure planning and the design of cities.

Handbook of Smart Energy Systems

This handbook analyzes and develops methods and models to optimize solutions for energy access (for industry and the general world population alike) in terms of reliability and sustainability. With a focus on improving the performance of energy systems, it brings together state-of-the-art

research on reliability enhancement, intelligent development, simulation and optimization, as well as sustainable development of energy systems. It helps energy stakeholders and professionals learn the methodologies needed to improve the reliability of energy supply-and-demand systems, achieve more efficient long-term operations, deal with uncertainties in energy systems, and reduce energy emissions. Highlighting novel models and their applications from leading experts in this important area, this book will appeal to researchers, students, and engineers in the various domains of smart energy systems and encourage them to pursue research and development in this exciting and highly relevant field.

Handbook on Energy Justice

Offering a unique and critical perspective on energy justice, this Handbook delves into an emerging field of inquiry encapsulating multiple strands of scholarship on energy systems. Covering key topics including generation, transmission, distribution and demand, it explores fundamental questions surrounding policy, climate change, security and social movements.

Handbook of Energy Politics

Starting with the fundamentals of the global energy industry, Handbook of Energy Politics goes on to cover the evolution of capital and financial markets in the energy industry, the effects of technology, environmental issues and global warming and geopolitics. The book concludes by considering the future, including the lessons learned from history, where we are most likely to be heading and what steps we can take to mitigate potential energy risks. This Handbook will be an invaluable resource for upper level graduates and postgraduate scholars.

The Oxford Handbook of Energy Politics

The global, regional, and local energy landscape has changed dramatically in the twenty-first century. Many factors have affected what we know about energy: a consensus among scientists on climate change and related support for renewable energy, evolving energy and resource extraction technologies, growing resource demand in the developing world, new regional and global energy governance actors, new major fossil fuel discoveries on land and underwater in states that have previously been under-resourced, rising interest in corporate social responsibility in energy companies, and the need for energy justice. The Oxford Handbook of Energy Politics synthesizes the diverse literature on these topics to provide a foundational resource for teaching and research on critical energy issues in international relations and comparative politics. Through chapters authored by both scholars and practitioners, the Handbook further develops the energy politics scholarship and community, and generates sophisticated new work that will benefit all who work on energy issues.

Introduction to Project Finance in Renewable Energy Infrastructure

What is project finance? What makes project or structured finance so relevant for large renewable energy infrastructure? Which vocabulary do I need to know in order to speak the same language during meetings with lawyers, investors, bankers and engineers? These questions and many more are answered throughout this book, offering real world examples to bridge the gap between theory and practice. The book details the role of each stakeholder in the development of renewable energy projects, the interconnection between all the agreements, the financial process from fundraising to financial close, the processes of due diligence, risk analysis, project investment valuation and much more. It also provides with an introduction to Portfolio Management using renewable energy assets and an explanation of the role of Climate Finance in green energy investments. The commented glossary enables readers to unpick the jargon used in project finance for renewable energy, and the numerous creative figures and comprehensive tables aid with understanding. Offering a complete picture of the discipline, Introduction to Project Finance in Renewable Energy Infrastructure will be of value to professionals, engineers and academics alike interested in understanding the process and components of project finance in renewable energy infrastructures, in both private and public-private contexts.

Handbook of Energy Transitions

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

Routledge Handbook of Energy Law

The Routledge Handbook of Energy Law provides a definitive global survey of the discipline of Energy Law, capturing the essential and relevant issues in Energy today. Each chapter is written by a leading expert, and provides a contemporary overview of a significant area within the field. The book is divided into six geographical regions based on continents, with a separate section on Russia, an energy powerhouse that straddles both Europe and Asia. Each section contains highly topical chapters from authors who address a number of core themes in Energy Law and Regulation: • Energy security and the role of markets • Regulating the growth of renewable energy • Regulating shifts in traditional forms of energy • Instruments in regulating disputes in energy • Impact of energy on the environment • Key issues in the future of energy and regulation. Offering an analysis of the full spectrum of current issues in Energy Law, the Routledge Handbook of Energy Law is an essential resource for advanced students, researchers, academics, legal practitioners and industry experts. Chapter 12 of this book is freely available as a downloadable Open Access PDF at http://www.taylorfrancis.com under a Creative Commons Attribution-Non Commercial-No Derivatives (CC-BY-NC-ND) 4.0 license.

Routledge Handbook of Energy Transitions

The Routledge Handbook of Energy Transitions draws upon a unique and multidisciplinary network of experts from around the world to explore the expanding field of energy transitions. This Handbook recognizes that considerable changes are underway or are being developed for the modes in which energy is sourced, delivered, and utilized. Employing a sociotechnical approach that accounts for economics and engineering, as well as more cross-cutting factors, including innovation, policy and planning, and management, the volume considers contemporary ideas and practices that characterize the field. The book explores pressing issues, including choices about infrastructure, the role of food systems and materials, sustainability, and energy democracy. Disruption is a core theme throughout, with the authors examining topics such as digitalization, extreme weather, and COVID-19, along with regional similarities and differences. Overall, the Routledge Handbook of Energy Transitions advances the field of energy transitions by connecting ideas, taking stock of empirical insights, and challenging how we think about the theory and practice of energy systems change. This innovative volume functions as an authoritative roadmap with both regional and global relevance. It will be an essential resource for students, policymakers, researchers, and practitioners researching and working in the fields of energy transitions, planning, environmental management and policy, sustainable business, engineering, science and technology studies, political science, geography, design anthropology, and environmental justice. “With the exception of Chapter 26, no part of this book may be reprinted or reproduced or utilised in any form or by any electronic, mechanical, or other means, now known or hereafter invented, including photocopying and recording, or in any information storage or retrieval system, without permission in writing from the publishers.” Chapter 26 of this book is freely available as a downloadable Open Access PDF at http://www.taylorfrancis.com under a Creative Commons [Attribution-Non Commercial-No Derivatives (CC-BY-NC-ND)] 4.0 license.

Routledge Handbook of Planning and Management of Global Strategic Infrastructure Projects

This book examines complex challenges in managing major strategic economic and social infrastructure projects. It is divided into four primary themes: value-based approach to infrastructure systems appraisal, enabling planning and execution, financing and contracting strategies for infrastructure systems and digitising major infrastructure delivery. Within these four themes, the chapters of the book cover: the value and benefits of infrastructure projects planning for resilient major infrastructure projects sustainable major infrastructure development and management, including during mega events improving infrastructure project financing stakeholder engagement and multi-partner collaborations delivering major infrastructure projects effectively and efficiently whole-life-cycle performance, operations and maintenance relationship risks on major infrastructure projects public-private partnerships, design thinking principles, and innovation and technology. By drawing on insights from their research, the editors and contributors bring a fresh perspective to the transformation of major strategic infrastructure projects. This text is designed to help policymakers and investors select and prioritise their infrastructure needs beyond the constraining logic of political cycles. It offers a practical set of recommendations for governments on attracting private capital for infrastructure projects while creating clear social and economic value for their citizens. Through theoretical underpinning, empirical data and in-depth informative global case studies, the book presents an essential resource for students, researchers, practitioners and policymakers interested in all aspects of strategic infrastructure planning, project management, construction management, engineering and business management.

Handbook of Transitions to Energy and Climate Security

An original contribution to our understanding of a phenomenon that is reshaping the world, this title thoroughly discusses the transformation of the energy security policy arena brought on by two dramatic developments – the increased potential availability of energy in many parts of the world on the supply side, and on the demand side increasing concerns over the harmful effects on the environment brought on by the use of fossil fuels. An in depth discussion specifically focuses on what energy security means to different countries, and examines which of those countries appear to be managing their energy/climate transitions successfully and which are having a more difficult time adapting to the new environment. Part 1 introduces the topic, covering the main themes and provides an overview of the chapters Part 2 provides a framework for policy evaluation, considering the evolving factors affecting energy security and the energy/climate policy trilemma Parts 3 to 6 discuss energy transitions in the carbon producing countries (Saudi Arabia, Canada, Iran, Russia, Mexico), in intermediate carbon/producing/consuming countries (China, United States, UK, Brazil, Argentina, South Africa), in carbon consuming countries (Germany, Japan, South Korea, Israel, India, Spain) and finally in carbon reduction countries (France, Denmark, Switzerland) Part 7 looks at attempts at regional/international cooperation Part 8 considers the prospects for the future, examining technological breakthroughs. This title builds on the theme of unfolding energy transformations driven by, but increasingly constrained by climate/environmental considerations. It is ideal for researchers and students in the areas of environmental politics and policy, climate change, and energy and climate security, as well as for academics and professionals.

Handbook of Energy Transitions

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

GREEN ENERGY AND INFRASTRUCTURE

This Handbook examines the subject of energy security: its definition, dimensions, ways to measure and index it, and the complicating factors that are often overlooked. The volume identifies varying definitions and dimensions of energy security, including those that prioritize security of supply and affordability alongside those that emphasize availability, energy efficiency, trade, environmental quality, and social and political stewardship. It also explores the various metrics that can be used to give energy security more coherence, and also to enable it to be measured, including recent attempts to measure energy security progress at the national level, with a special emphasis placed on countries within the Organization of Economic Cooperation and Development (OECD), countries within Asia, and industrialized countries worldwide. This Handbook: • Broadens existing discussions of energy security that center on access to fuels, including "oil security" and "coal security." • Focuses not only on the supply side of energy but also the demand, taking a hard look at energy services and politics along with technologies and infrastructure; • Investigates energy security issues such as energy poverty, equity and access, and development; • Analyzes ways to index and measure energy security progress at the national and international level. This book will be of much interest to students of energy security, energy policy, economics, environmental studies, and IR/Security Studies in general.

The Routledge Handbook of Energy Security

The Oxford Handbook of Energy and Society presents an overview of this expanding area that has evolved dramatically over the past decade, away from one largely dominated by structural, political economic treatments on the one hand, and social-psychological studies of individual-level attitudes and behaviors on the other, toward a far more conceptually and methodologically rich and exciting field that brings in, for example, social practices, system complexity, risk theory, social studies of science, and social movements theories. This volume seeks to capture the variety of scales and methods, and range of both conceptual and empirical analyses that define the field, while drawing particular attention to indigenous peoples, poverty, political power, communities and cities. Organized into seven sections, chapters cover social theory and energy-society relations, political-economic perspectives, consumption dynamics, energy equity and energy poverty, energy and publics, energy and governance, as well as emerging trends.

The Oxford Handbook of Energy and Society

Providing a coherent and multidisciplinary approach to digitalization, this Modern Guide aims to systematize how the digitalization process affects infrastructure-based industries, including telecommunications, transport, energy, water and postal services.

A Modern Guide to the Digitalization of Infrastructure

Many of the economic road blocks which have previously served to discourage the implementation of alternative power generation technologies can now be readily overcome through effective energy resource optimization. It is now a fact that solid financial returns can be achieved from combined heating, cooling and power generation projects by integrating energy and cost efficiency goals, and seeking a match between power production and heating/cooling requirements. This book is intended to serve as a road map to those seeking to realize optimum economic returns on such projects. The first section provides an introduction to basic heat and power thermodynamics, with an overview of heat and power generation technologies and equipment. The second section explores the infrastructure in which the project must be implemented, including environmental considerations, as well as utility rate structures. The third section provides detailed coverage of a broad range of technology types, and discusses how opportunities for their application can be identified and successfully exploited. The final section takes you through each step of project development, implementation and operation. Numerous examples are provided of actual field applications, with supporting documentation of system layouts and performance. The text is supplemented with more than one thousand graphics, including photos, cutaway drawings, layout schematics, performance curves, and data tables.

Combined Heating, Cooling & Power Handbook

The low-carbon transition is ongoing everywhere. This Handbook, written by a group of senior and junior scholars from six continents and nineteen countries, explores the legal pathways of decarbonisation in the energy sector. What emerges is a composite picture. There are many roadblocks, but also a lot of legal innovation. The volume distils the legal knowledge which should help move forward the transition. Questions addressed include the differences between the decarbonization strategies of developed and developing countries, the pace of the transition, the management of multi-level governance systems, the pros and cons of different policy instruments, the planning of low-carbon infrastructures, the roles and meanings of energy justice. The Handbook can be drawn upon by legal scholars to compare decarbonisation pathways in several jurisdictions. Non-legal scholars can find information to be included in transition theories and decarbonization scenarios. Policymakers can discover contextual factors that should be taken into account when deciding how to support the transition.

Handbook of Energy Law in the Low-Carbon Transition

The Palgrave Handbook of Natural Gas and Global Energy Transitions provides an in-depth and authoritative examination of the transformative implications of the ongoing global energy transitions for natural gas markets across the world. With case studies from Africa, Asia, Europe, North America, Latin America, South America, Australia, and the Middle East, the volume introduces readers to the latest legal, policy, technological, and fiscal innovations in natural gas markets in response to ongoing global energy transitions. It outlines the risk mitigation strategies and contractual techniques — focusing on resilience planning, low-carbon business models, green procurement, climate-smart infrastructure development, accountability, gender justice, and other sustainability safeguards — that are required to maximize the full value of natural gas as a catalyst for a just and equitable energy transition and for energy security across the world. Written in an accessible style, this book outlines the guiding principles for a responsible and low-carbon approach to the design, financing, and implementation of natural gas development and commercialization. It is an indispensable text and reference work for students, scholars, practitioners, and stakeholders in natural gas, energy, infrastructure, and environmental investments and projects.

The Palgrave Handbook of Natural Gas and Global Energy Transitions

This is the first handbook to provide a global policyperspective on energy, bringing together a diverse range ofinternational energy issues in one volume. Maps the emerging field of global energy policy both forscholars and practitioners; the focus is on global issues, but italso explores the regional impact of international energypolicies Accounts for the multi-faceted nature of global energy policychallenges and broadens discussions of these beyond the prevalentdebates about oil supply Analyzes global energy policy challenges across the dimensionsof markets, development, sustainability, and security, andidentifies key global policy challenges for the future Comprises newly-commissioned research by an international teamof scholars and energy policy practitioners

The Handbook of Global Energy Policy

Global Sustainable Communities Handbook is a guide for understanding and complying with the various international codes, methods, and legal hurtles surrounding the creation of sustainable communities all over the world. The book provides an introduction to sustainable development, technology and infrastructure outlines, codes, standards, and guidelines written by experts from across the globe. Includes methods for the green use of natural resources in built communities Clearly explains the most cutting edge green technologies Provides a common approach to building green communities Covers green practices from architecture to construction

Global Sustainable Communities Handbook

Annotation Currently gaining momentum on the world stage, sustainable development is beginning to significantly redefine the policies and decision making of both corporations and governmental entities. Sustainability development initiatives can vary widely in scope, application, and success. This book is intended clarifies critical issues, delineates proven approaches, and examines potential pitfalls associated with such initiatives. It covers underlying concepts, renewable energy solutions, environmental issues, green design and LEED programs, sustainable industrial processes, sustainable development policy considerations, local government programs, corporate programs, tracking results, and future trends.

Sustainable Development Handbook

This authoritative Research Handbook presents, for the first time, a comprehensive overview of the most important research and latest trends in EU energy law and policy. It offers high-quality original contributions that provide state-of-the-art research in this rapidly evolving area, situated in the broader context of international economic law and governance.

Research Handbook on EU Energy Law and Policy

A handbook of sustainable energy, covering entire energy aspects from present status to future alternatives under one umbrella This book takes an interdisciplinary system approach to evaluating energy systems so that readers can gain the necessary technical foundation to perform their own performance evaluations and understand their interactions with socioeconomic indicators. Topics include the current and future availability of primary sources, energy supply chain, conversion between different forms of energy, security of energy supply, and efficient end-use of energy sources. Each chapter provides readers with comprehensive background information, an outline of the current technologies, and potential future developments. The book also examines the global, economic, societal, ethical, and environmental issues associated with currently used energy technologies. Energy for Sustainable Society: From Resources to Users starts with ageneral overview of energy systems, and describes the major elements of energy transformation and supply chain. It then discusses interdisciplinary career opportunities in the “energy engineering” field. The fundamental concepts of energy conversion, transmission, and load flow in electrical systems are covered, as are conventional and unconventional fossil fuels, and the basics of nuclear power generation and reactor types. Other chapters look at: the fundamental concepts of thermodynamics and basic operation of steam turbines, gas turbines, and combined cycle heat engines used in fossil fuel and nuclear power plants; current technologies in hydroelectric power generation; renewable and alternative energy sources; energy security issues; and more. Contains up-to-date information on renewable energy technologies such as grid-tie, net-zero energy, battery backup, and utility-independent micro grids Presents the status of the share of renewable sources in the current and future energy supply mix Provides solved examples, case studies, self-assessment quizzes, and problems to enhance the understanding of readers Includes an exclusive chapter on energy security issues Supplemented with a companion web site featuring a solutions manual, sample problems, and additional reading material Energy for Sustainable Society gives readers a solid foundation to study energy related subjects and is an ideal book for a first course on energy systems for upper division undergraduate and first year graduate students.

Handbook of Energy Engineering

Latin Lawyer's The Guide to Infrastructure and Energy Investmentis a tool for providing valuable information for potential investors, legal advisors and policymakers operating in the field of project finance in Latin America. It examines the many aspects involved in the complex task of modernising

and revitalising infrastructure and energy systems throughout Latin America. The chapters are filled with advice and insight from leading lawyers and law firms in Latin America and abroad, as well as from professionals from banks and other finance institutions operating on the cutting edge of project finance in the region. The project has been initiated by Latin Lawyer and Claudette Christian of Hogan Lovells LLP, who, along with her partners Daniel E Gonzalez, Thomas Hechl, Miguel Angel Mateo Simon, Carlos Ramos Miranda, Crispin Rapinet and Peter S Spivack have contributed 5 of the 14 chapters. They're supported by an array of other well-known names including Daniel D Bartfeld, Roland Estevez (Milbank, Tweed, Hadley & McCloy LLP), Alejandro Candioti (Candioti Gatto Bicain & Ocantos), Jose Virgilio Lopes Enei, Mauro Bardawil Penteado (Machado, Meyer, Sendacz e Opice Advogados), Diego Gosis, Quinn Smith, Ignacio Torterola (GST LLP), Giovani Loss (Mattos Filho, Viega Filho, Marrey Jr e Quiroga Advogados), Alejandro Manayalle (Rodrigo Elias & Medrano), Juan Manuel Marchan (Perez Bustamante & Ponce) and Juan Carlos Serra (Basham, Ringe y Correa, SC)There is also a foreword by Albright Stonebridge Group's Anthony S Harrington, a former US ambassador to Brazil, and a contribution from Marc Z Michael, the assistant general counsel for AES Corporation.The book is 180 pages, and is divided into six parts: I: Public-Private Partnerships II. Project Finance Models III. Dispute Resolution's Evolving Role in Major Transactions IV. The Impact of Compliance on Project Development and Financing V. Securing the Future of the Oil and Gas Sector VI. Transport Infrastructure &quote;One would be hard pressed to think of another issue that will play a more decisive role in the trajectory of the region and its citizens than its ability to tackle infrastructure challenges&quote; - Anthony Harrington, Albright Stonebridge Group

Energy for Sustainable Society

A guide to a multi-disciplinary approach that includes perspectives from noted experts in the energy and utilities fields Advances in Energy Systems offers a stellar collection of articles selected from the acclaimed journal Wiley Interdisciplinary Review: Energy and Environment. The journalcovers all aspects of energy policy, science and technology, environmental and climate change. The book covers a wide range of relevant issues related to the systemic changes for large-scale integration of renewable energy as part of the on-going energy transition. The book addresses smart energy systems technologies, flexibility measures, recent changes in the marketplace and current policies. With contributions from a list of internationally renowned experts, the book deals with the hot topic of systems integration for future energy systems and energy transition. This important resource: Contains contributions from noted experts in the field Covers a broad range of topics on the topic of renewable energy Explores the technical impacts of high shares of wind and solar power Offers a review of international smart-grid policies Includes information on wireless power transmission Presents an authoritative view of micro-grids Contains a wealth of other relevant topics Written forenergy planners, energy market professionals and technology developers, Advances in Energy Systems is an essential guide with contributions from an international panel of experts that addresses the most recent smart energy technologies.

Guide to Infrastructure and Energy Investment

This open access book discusses current thinking and presents the main issues and challenges associated with climate change in Africa. It introduces evidences from studies and projects which show how climate change adaptation is being - and may continue to be successfully implemented in African countries. Thanks to its scope and wide range of themes surrounding climate change, the ambition is that this book will be a lead publication on the topic, which may be regularly updated and hence capture further works. Climate change is a major global challenge. However, some geographical regions are more severly affected than others. One of these regions is the African continent. Due to a combination of unfavourable socio-economic and meteorological conditions, African countries are particularly vulnerable to climate change and its impacts. The recently released IPCC special report "Global Warming of 1.5o C" outlines the fact that keeping global warming by the level of 1.5o C is possible, but also suggested that an increase by 2o C could lead to crises with crops (agriculture fed by rain could drop by 50% in some African countries by 2020) and livestock production, could damage water supplies and pose an additonal threat to coastal areas. The 5th Assessment Report produced by IPCC predicts that wheat may disappear from Africa by 2080, and that maize— a staple—will fall significantly in southern Africa. Also, arid and semi-arid lands are likely to increase by up to 8%, with severe ramifications for livelihoods, poverty eradication and meeting the SDGs. Pursuing appropriate adaptation strategies is thus vital, in order to address the current and future challenges posed by a changing climate. It is against this background that the "African Handbook of Climate

Change Adaptation" is being published. It contains papers prepared by scholars, representatives from social movements, practitioners and members of governmental agencies, undertaking research and/or executing climate change projects in Africa, and working with communities across the African continent. Encompassing over 100 contribtions from across Africa, it is the most comprehensive publication on climate change adaptation in Africa ever produced.

Advances in Energy Systems

This open access handbook is distinguished by its emphasis on international energy, rather than domestic energy policies or international geopolitic aspects. Addressing key topics such as energy production and distribution, renewables and corporate energy structures, alongside global energy trends, regional case studies and emerging areas such as the digitalization of energy and energy transition, this handbook provides a major new contribution to the field of international energy economics. Written by academics, practitioners and policy-makers, this handbook is a valuable and timely addition to the literature on international energy economics. This book was published open access with the support of Eni.

African Handbook of Climate Change Adaptation

To best serve current and future generations, infrastructure needs to be resilient to the changing world while using limited resources in a sustainable manner. Research on and funding towards sustainability and resilience are growing rapidly, and significant research is being carried out at a number of institutions and centers worldwide. This handbook brings together current research on sustainable and resilient infrastructure and, in particular, stresses the fundamental nexus between sustainability and resilience. It aims to coalesce work from a large and diverse group of contributors across a wide range of disciplines including engineering, technology and informatics, urban planning, public policy, economics, and finance. Not only does it present a theoretical formulation of sustainability and resilience but it also demonstrates how these ideals can be realized in practice. This work will provide a reference text to students and scholars of a number of disciplines.

The Palgrave Handbook of International Energy Economics

Energy and man; Fossil and mineral energy resources; Renewable energy resources; Energy concumption trends; Energy consumption projections; Recovery of fossil fuels; Nuclear power; Geothermal energy; Solar energy; Energy consersion and storage; Energy transport.

Routledge Handbook of Sustainable and Resilient Infrastructure

Understanding why renewable energy policies succeed and fail is essential for a range of stakeholders in the energy and environmental sectors. Clear information on why and how to secure successful renewable energy markets is much needed. Renewable Energy Policy and Politics meets that need, bringing together the experience of world leaders in this field. The book addresses the politics of renewable energy, the key players required to drive energy reform and those likely to resist change. The interplay between government, industry and society is discussed and explained with a balanced hand, offering a rare insight into political campaigning on energy. International case studies are included, complemented by a step-by-step breakdown of the elements required to achieve legislation. This book sets out the rules of the game, the stakes and the strategies for success. It will be an invaluable tool for policy makers, energy consultants, non-governmental organizations and other professionals working in the fields of energy policy, climate change and environmental policy. Students and researchers keen to enhance their knowledge of renewable energy markets and policy development will also find this essential reading.

Energy Handbook

This book provides an in-depth assessment of the modern geopolitics of hydrocarbon resources in the territorial waters of the Eastern Mediterranean, highlighting the current conflicts and disputes in the maritime territories of Egypt, Israel, Lebanon, Cyprus, and Turkey. Further, these geopolitical aspects are analyzed within the broader context of the tensions between and competing interests of big powers such as the USA, Russia, and the European Union. To what extent can major powers influence regional actors and guide them toward rational outcomes? To what extent can economic self-interest contain nationalistic impulses? What are the most practical and sustainable ways of promoting win-win

scenarios? This book focuses on such questions and presents a number of clear policy guidelines to help the conflict-laden Eastern Mediterranean region gain a more peaceful and sustainable footing for the greater benefit of the peoples living there.

Renewable Energy Policy and Politics

This Research Handbook offers crucial ethical perspectives on navigating the increasingly complex and contested landscape of contemporary energy law. Taking an interdisciplinary approach, it brings together diverse scholarship and expertise from academia, international organizations, legal practice and the judiciary to address wide-ranging issues linking energy and law to ethical drivers such as wealth, peace and war, development, climate change, and use and abuse of natural resources.

Modern Geopolitics of Eastern Mediterranean Hydrocarbons in an Age of Energy Transformation

Research Handbook on Energy, Law and Ethics