

## 2017 Diesel Gas Turbine Sourcing Guide 41

This book covers the design, analysis, and optimization of the cleanest, most efficient fossil fuel-fired electric power generation technology at present and in the foreseeable future. The book contains a wealth of first principles-based calculation methods comprising key formulae, charts, rules of thumb, and other tools developed by the author over the course of 25+ years spent in the power generation industry. It is focused exclusively on actual power plant systems and actual field and/or rating data providing a comprehensive picture of the gas turbine combined cycle technology from performance and cost perspectives. Material presented in this book is applicable for research and development studies in academia and government/industry laboratories, as well as practical, day-to-day problems encountered in the industry (including OEMs, consulting engineers and plant operators).

The Gas Turbine Engineering Handbook has been the standard for engineers involved in the design, selection, and operation of gas turbines. This revision includes new case histories, the latest techniques, and new designs to comply with recently passed legislation. By keeping the book up to date with new, emerging topics, Boyce ensures that this book will remain the standard and most widely used book in this field. The new Third Edition of the Gas Turbine Engineering Hand Book updates the book to cover the new generation of Advanced gas Turbines. It examines the benefit and some of the major problems that have been encountered by these new turbines. The book keeps abreast of the environmental changes and the industries answer to these new regulations. A new chapter on case histories has been added to enable the engineer in the field to keep abreast of problems that are being encountered and

the solutions that have resulted in solving them. Comprehensive treatment of Gas Turbines from Design to Operation and Maintenance. In depth treatment of Compressors with emphasis on surge, rotating stall, and choke; Combustors with emphasis on Dry Low NO<sub>x</sub> Combustors; and Turbines with emphasis on Metallurgy and new cooling schemes. An excellent introductory book for the student and field engineers A special maintenance section dealing with the advanced gas turbines, and special diagnostic charts have been provided that will enable the reader to troubleshoot problems he encounters in the field The third edition consists of many Case Histories of Gas Turbine problems. This should enable the field engineer to avoid some of these same generic problems

Medium- and heavy-duty trucks, motor coaches, and transit buses - collectively, "medium- and heavy-duty vehicles", or MHDVs - are used in every sector of the economy. The fuel consumption and greenhouse gas emissions of MHDVs have become a focus of legislative and regulatory action in the past few years. This study is a follow-on to the National Research Council's 2010 report, Technologies and Approaches to Reducing the Fuel Consumption of Medium-and Heavy-Duty Vehicles. That report provided a series of findings and recommendations on the development of regulations for reducing fuel consumption of MHDVs. On September 15, 2011, NHTSA and EPA finalized joint Phase I rules to establish a comprehensive Heavy-Duty National Program to reduce greenhouse gas emissions and fuel consumption for on-road medium- and heavy-duty vehicles. As NHTSA and EPA began working on a second round of standards, the National Academies issued another report, Reducing the Fuel Consumption and Greenhouse Gas Emissions of Medium- and Heavy-Duty Vehicles, Phase Two: First Report, providing recommendations for the Phase II standards.

This third and final report focuses on a possible third phase of regulations to be promulgated by these agencies in the next decade.

This book describes the fast reactor (FR), a type of new reactor for nuclear plants, currently under research and development. The book targets young researchers and engineers who will be charged with commercializing this new type of reactor to lead to the development of new components and systems for improved plant reliability and economy. This volume also helps readers to understand the methods of integrating the power plant in its entirety, from the reactor core to all of the various systems and components, and teaches the way of thinking that forms the background of these methods. This background includes the various organizational and management issues that are encountered as projects move forward and will be explored in great detail based on actual design and construction experience with Japan's prototype FR, Monju.

Biojet fuels have the potential to make an important contribution towards decarbonising the aviation sector. *Biojet Fuel in Aviation Applications: Production, Usage and Impact of Biofuels* covers all aspects of this sustainable aviation fuel including aviation biofuel public policies, production technologies, physico-chemical properties, combustion performances, techno-economics of sustainable fuel production, sustainability and energywater-food (EWF) nexus. This must-have book also charts the current state of the industry by discussing the relevant industry players who are currently producing alternative aviation fuels and flight tests, while also providing a glimpse of the future of the industry. This comprehensive book is written for undergraduate students, postgraduate students, researchers, engineers and policy makers wanting to build up knowledge in the specific area of biojet fuel or the broader fields of

sustainable energy and aeronautics. Reviews major aviation and biojet fuel policies, legislations, initiatives and roadmaps around the world Features existing and emerging biojet fuel production pathways from various feedstocks Highlights the key properties of biojet fuels that ensures inter-operability with conventional jet aviation fuel Discusses the economic aspects of the biojet fuel industry and the barriers preventing its commercialisation Examines the sustainability of biojet fuel from a life cycle assessment, energy balance and EWF nexus point of views

Israel Investment and Business Guide - Strategic and Practical Information

2017 CFR Annual Print Title 46 Shipping Parts 90 to 139IntraWEB, LLC and Claitor's Law PublishingIntroduction to Energy EssentialsInsight into Nuclear, Renewable, and Non-Renewable EnergiesAcademic Press

Advanced Biofuels: Applications, Technologies, and Environmental Sustainability presents recent developments and applications of biofuels in the field of internal combustion engines, with a primary focus on the recent approaches of biodiesel applications, low emission alternative fuels, and environmental sustainability. Editors Dr. Azad and Dr. Rasul, along with their team of expert contributors, combine a collection of extensive experimental investigations on engine performance and emissions and combustion phenomena using different types of oxygenated fuel with in-depth research on fuel applications, an analysis of available technologies and resources, energy efficiency improvement methods,

and applications of oxygenated fuel for the sustainable environment. Academics, researchers, engineers and technologists will develop a greater understanding of the relevant concepts and solutions to the global issues related to achieving alternative energy application for future energy security, as well as environmental sustainability in medium and large-scale industries. Fills a gap in the literature on alternative fuel applications with in-depth research and experimental investigations of different approaches, technologies and applications Considers the important issue of sustainability using case studies to deepen understanding Includes energy security within various industries, including aviation and transport

Republic of Iraq Public Expenditure Review: Toward More Efficient Spending for Better Service Delivery provides an integrated perspective on how Iraq needs to provide better public service delivery while maintaining macroeconomic stability and fiscal discipline. These goals exist amid a challenging context of revenue volatility, the need to diversify the economy, weak accountability mechanisms, and residual conflict. Reflecting these challenges, key socioeconomic developmental indicators are stalled or are even declining despite rapid growth in public spending. Growth in spending has not been matched by absorptive capacity, let alone improved outcomes. The difficult task of encouraging fiscal

institutions to embed practices of good economic management remains a work in progress. The task for Iraqi authorities will be to turn oil revenues into sustained welfare improvements. Macroeconomic stability alone is not enough to address social and economic development issues and to avoid a 'resource curse'.

Economic diversification is imperative for the goals of creating jobs and promoting income-generating opportunities for the Iraqi population. In the years ahead, Iraqi government authorities will have the following key challenges: (i) to remove constraints to nonhydrocarbon economic activities; (ii) to ensure the efficient use of oil revenue, and (iii) to restrain the growth of current spending to free up resources for public investment, while maintaining essential safety nets and social support for the poor and disadvantaged. Senior policymakers at the Ministry of Finance, Ministry of Planning, and line ministries have the opportunity to take concrete steps now. As economic growth prospects are favorable in the medium term, the Iraqi government needs to lay the foundations of a broadly diversified economy and to provide decent public services and security while facilitating adequate economic freedom.

Safety of Sea Transportation is the second of two Conference Proceedings of TransNav 2017, June 21-23 in Gdynia, Poland. Safety of Sea Transportation will focus on the following themes: Sustainability, intermodal and multimodal

transportation Safety and hydrodynamic study of hydrotechnical structures  
Bunkering and fuel consumption Gases emission, water pollution and  
environmental protection Occupational accidents Supply chain of blocks and  
spare parts Electrotechnical problems Ships stability and loading strength Cargo  
loading and port operations Maritime Education and Training (MET) Human  
factor, crew manning and seafarers problems Economic analysis Mathematical  
models, methods and algorithms Fishery Legal aspects Aviation  
Energy managers need to learn new and diverse ways to approach energy  
management in their company's assets as technology continues to evolve. Built  
into one cohesive and fundamental resource, Introduction to Energy Essentials:  
Insight into Nuclear, Renewable, and Non-Renewable Energies delivers an  
informative tool to understand the main steps for introducing and maintaining an  
energy management system (EnMS). Starting with a high-level introduction, the  
reference then takes a structured approach and dives into different sources of  
energy along with their contribution to energy efficiency, focusing on nuclear  
power, renewable and non-renewable energies. Multiple options are further  
discussed including economic considerations and cost comparisons per energy  
source, energy storage technology, and how to introduce an energy management  
system into your company. More advanced topics include nuclear reactor power

plant systems and their thermal hydraulic analysis as well as cyber resiliency for future electric power and well plant control systems. Authored by experts, Introduction to Energy Essentials: Insight into Nuclear, Renewable, and Non-Renewable Energies gives today's energy managers and engineers a solid starting point to meeting the energy demands of today and in the future. Understand key concepts, techniques, and tools surrounding energy management Learn how to include smarter energy efficiency in your daily management decisions Gain the fundamental technical skills and knowledge on renewable and non-renewable energy systems

This book focuses on developing strategies for ultra-lean combustion of natural gas and hydrogen, and contributes to the research on extending the lean flammability limit of hydrogen and air using a hot supersonic jet. The author addresses experimental methods, data analysis techniques, and results throughout each chapter and: Explains the fundamental mechanisms behind turbulent hot jet ignition using non-dimensional analysis Explores ignition characteristics by impinging hot jet and multiple jets in relation to better controllability and lean combustion Explores how different instability modes interact with the acoustic modes of the combustion chamber. This book provides a potential answer to some of the issues that arise from lean engine operation,

such as poor ignition, engine misfire, cycle-to-cycle variability, combustion instability, reduction in efficiency, and an increase in unburned hydrocarbon emissions. This thesis was submitted to and approved by Purdue University. Sharjah is well known, not only for its heritage sites, culturally rich sites, and vivid modern quarters, but also for its promising business environment and high level of human talent, with all the resources needed to make the next leap. Thanks to the great efforts of its leaders, Emirati students have access to world-class level universities, are fluent in several languages, and possess a broad, international outlook that can serve any business format. The Business Year's country-specific publications, sometimes featuring over 150 face-to-face interviews, are among the most comprehensive annual economic publications available internationally. This 118-page publication covers finance, investment, energy, green economy, IT and media, industry, transport, construction, real estate, health, education, and tourism.

The comprehensive guide to engineering alternative and renewable energy systems and applications—updated for the latest trends and technologies This book was designed to help engineers develop new solutions for the current energy economy. To that end it provides technical discussions, along with numerous real-world examples of virtually all existing alternative energy sources,

applications, systems and system components. All chapters focus on first-order engineering calculations, and consider alternative uses of existing and renewable energy resources. Just as important, the author describes how to apply these concepts to the development of new energy solutions. Since the publication of the critically acclaimed first edition of this book, the alternative, renewable and sustainable energy industries have witnessed significant evolution and growth. Hydraulic fracturing, fossil fuel reserve increases, the increasing popularity of hybrid and all-electric vehicles, and the decreasing cost of solar power already have had a significant impact on energy usage patterns worldwide. Updated and revised to reflect those and other key developments, this new edition features expanded coverage of topics covered in the first edition, as well as entirely new chapters on hydraulic fracturing and fossil fuels, hybrid and all-electric vehicles, and more. Begins with a fascinating look at the changing face of global energy economy Features chapters devoted to virtually all sources of alternative energy and energy systems Offers technical discussions of hydropower, wind, passive solar and solar-thermal, photovoltaics, fuel cells, CHP systems, geothermal, ocean energy, biomass, and nuclear Contains updated chapter review questions, homework problems, and a thoroughly revised solutions manual, available on the companion website While Alternative Energy Systems and Applications, Second

Edition is an ideal textbook/reference for advanced undergraduate and graduate level engineering courses in energy-related subjects, it is also an indispensable professional resource for engineers and technicians working in areas related to the development of alternative/renewable energy systems.

Special edition of the Federal Register, containing a codification of documents of general applicability and future effect ... with ancillaries.

Kurz und prägnant werden die Energieumwandlungsprozesse dargestellt. Die Schwerpunkte reichen von der kompletten Beschreibung der nachhaltigen, erneuerbaren Energietechniken, über Gas- und Dampfturbinen-Kraftwerke sowie Kraft-Wärme-Kälte-Kopplungsanlagen bis hin zur Energieverteilung und zum Kyoto-Protokoll. Zu allen Kapiteln gibt es Aufgaben mit vollständigen Lösungen im Anhang. In der aktuellen Auflage sind die Grundlagen der Energiewandlung deutlich um verfügbare Energiequellen, Energieträger und den globalen Energiebedarf erweitert. Das Kapitel 19 wurde von seinem neuen Autor grundlegend neu gefasst und heißt nun „Marktliberalisierung und Energiewende“. Alle Kapitel wurden aktualisiert und die Inhalte didaktisch noch verständlicher dargestellt.

Over a decade ago the World Petroleum Council launched an initiative to hold an international professional youth forum. The first forum took place in October 2004 in China, and had as its motto: "Young people and innovations are the future of the oil industry." It was the first major event in the history of the WPC in which young professionals and academics had the leading role, and had the opportunity to exchange their ideas in insights on the oil and gas industry with industry leaders and main representatives of the oil and gas industry. Since then, issues

of professional development and the disclosure of the creative potential of young industry professionals have been on the agenda of the World Petroleum Council as one of the key areas for the development of international cooperation focused on a strategic perspective. The Future Leaders Forum of the World Petroleum Council VI is the largest international platform for professional communication of young specialists in the oil and gas industry. The contributions in this book are much of interest to professionals and scientists interested or involved in the oil and gas industry or related areas.

This book discusses advanced Small Modular Reactors (SMRs) as a way to provide safe, clean, and affordable nuclear power options. The advanced SMRs currently under development in the U.S. represent a variety of sizes, technology options and deployment scenarios. These advanced reactors, envisioned to vary in size from a couple megawatts up to hundreds of megawatts can be used for power generation, process heat, desalination, or other industrial uses. In-depth chapters describe how advanced SMRs offer multiple advantages, such as relatively small size, reduced capital investment, location flexibility, and provisions for incremental power additions. SMRs also offer distinct safeguards, security and nonproliferation advantages. The authors present a thorough examination of the technology and defend methods by which the new generation of nuclear power plants known as GEN-IV can safely be used as an efficient source of renewable energy. Provides a unique and innovative approach to the implementation of Small Modular Reactor as part of GEN-IV technology; Discusses how Small Modular Reactors (SMRs) can deliver a viable alternative to Nuclear Power Plants (NPPs); Presents an argument defending the need for nuclear power plant as a source of energy, its efficiency and cost effectiveness, as well as safety related issues.

Aircraft Propulsion and Gas Turbine Engines, Second Edition builds upon the success of the book's first edition, with the addition of three major topic areas: Piston Engines with integrated propeller coverage; Pump Technologies; and Rocket Propulsion. The rocket propulsion section extends the text's coverage so that both Aerospace and Aeronautical topics can be studied and compared. Numerous updates have been made to reflect the latest advances in turbine engines, fuels, and combustion. The text is now divided into three parts, the first two devoted to air breathing engines, and the third covering non-air breathing or rocket engines.

This revised text covers the fundamentals of thermodynamics required to understand electrical power generation systems and the application of these principles to nuclear reactor power plant systems. The book begins with fundamental definitions of units and dimensions, thermodynamic variables and the Laws of Thermodynamics progressing to sections on specific applications of the Brayton and Rankine cycles for power generation and projected reactor systems design issues. It is not a traditional general thermodynamics text, per se, but a practical thermodynamics volume intended to explain the fundamentals and apply them to the challenges facing actual nuclear power plants systems, where thermal hydraulics comes to play. There have been significant new findings for intercooled systems since the previous edition published and they will be included in this volume. New technology plans for using a Nuclear Air-Brayton as a storage system for a low carbon grid are presented along with updated component sizes and performance criteria for Small Modular Reactors. Written in a lucid, straight-forward style while retaining scientific rigor, the content is accessible to upper division undergraduate students and aimed at practicing engineers in nuclear power facilities and engineering scientists and technicians in industry, academic research groups, and national

laboratories. The book is also a valuable resource for students and faculty in various engineering programs concerned with nuclear reactors.

*Design and Operation of Solid Oxide Fuel Cells: The Systems Engineering Vision for Industrial Application* presents a comprehensive, critical and accessible review of the latest research in the field of solid oxide fuel cells (SOFCs). As well as discussing the theoretical aspects of the field, the book explores a diverse range of power applications, such as hybrid power plants, polygeneration, distributed electricity generation, energy storage and waste management—all with a focus on modeling and computational skills. Dr. Sharifzadeh presents the associated risks and limitations throughout the discussion, providing a very complete and thorough analysis of SOFCs and their control and operation in power plants. The first of its kind, this book will be of particular interest to energy engineers, industry experts and academic researchers in the energy, power and transportation industries, as well as those working and researching in the chemical, environmental and material sectors. Closes the gap between various power engineering disciplines by considering a diverse variety of applications and sectors. Presents and reviews a variety of modeling techniques and considers regulations throughout. Includes CFD modeling examples and process simulation and optimization programming guidance.

*Physics and the Environment* directly connects the physical world to environmental issues that the world is facing today and will face in the future. It shows how the first and second laws of thermodynamics limit the efficiencies of fossil fuel energy conversions to less than 100%, while also discussing how clever technologies can

enhance overall performance. It also extensively discusses renewable forms of energy, their physical constraints and how we must use science and engineering as tools to solve problems instead of opinion and politics. Dr. Kyle Forinash takes you on a journey of understanding our mature and well developed technologies for using fossil fuel resources and how we are unlikely to see huge gains in their efficiency as well as why their role in climate change ought to be an argument for their replacement sooner rather than later. He also discusses the newest technologies in employing renewable resources and how it is important to understand their physical constraints in order to make a smooth transition to them. An entire chapter is dedicated to energy storage, a core question in renewable energy as well as another chapter on the technical issues of nuclear energy. The book ends with a discussion on how no environmental solution, no matter how clever from a technical aspect, will succeed if there are cheaper alternative, even if those alternatives have undesirable features associated with them.

Pipeline engineering has struggled to develop as a single field of study due to the wide range of industries and government organizations using different types of pipelines for all types of solids, liquids, and gases. This fragmentation has impeded professional development, job mobility, technology transfer, the diffusion of knowledge, and the movement of manpower. No single, authoritative course or book has existed to unite practitioners. In response, Pipeline Engineering covers the essential aspects and types of pipeline engineering in a single volume. This work is divided into two parts. Part I,

Pipe Flows, delivers an integrated treatment of all variants of pipe flow including incompressible and compressible, Newtonian and non-Newtonian, slurry and multiphase flows, capsule flows, and pneumatic transport of solids. Part II, Engineering Considerations, summarizes the equipment and methods required for successful planning, design, construction, operation, and maintenance of pipelines. By addressing the fundamentals of pipeline engineering-concepts, theories, equations, and facts-this groundbreaking text identifies the cornerstones of the discipline, providing engineers with a springboard to success in the field. It is a must-read for all pipeline engineers. Revised edition of: Integration of alternative sources of energy / Felix A. Farret, M. Godoy Simaoes.

TERI Energy & Environment Data Diary and Yearbook (TEDDY) is an annual publication brought out by The Energy and Resources Institute (TERI) since 1986. It is the only comprehensive energy and environment yearbook in India that provides updated information on the energy supply sectors (coal and lignite, petroleum and natural gas, power, and renewable energy sources), energy demand sectors (agriculture, industry, transport, household), and local and global environment sectors (environment and climate change). The publication also provides a review of the government policies that have implications for the sectors of the Indian economy. In TEDDY, an account of India's commercial energy balances is given, which provide comprehensive information on energy flows within different sectors of the economy and

how they have been changing over time. These energy balances and conversion factors are a valuable ready reckoner for researchers, scholars, and organizations working in the energy sector. After the introductory chapters, for the ease of readers, TEDDY has been divided into sections on energy supply, energy demand, and local and global environment. Interactive graphs, figures, maps, and tables have been used throughout the chapters to explain facts, which make the book an interesting read. In addition, detailed tables at the end of each chapter represent statistical data on each of the above-mentioned sectors. The publication is accompanied by a complimentary CD containing full text. The publication has more than 15,000 readers across the globe and is often cited in international peer-reviewed journals and policy documents.

The Federal Government of Nigeria has adopted an ambitious strategy to make Nigeria the world's 20th largest economy by 2020. This book analyzes options for Nigeria to achieve these development objectives and pursue low-carbon development in the sectors agriculture and land use, oil and gas, power, and transport.

Uses up-to-date examples from real vehicles, both private and commercial, but shows that optimum efficiency can be achieved only by treating the vehicle as a system. The book will be of great interest not only to student and recently qualified engineers specialising in Automobile Engineering, but also to general readers who take a keen interest in the design and maintenance of their own vehicles.

A great resource for beginner students and professionals alike Introduction to Energy,

Renewable Energy and Electrical Engineering: Essentials for Engineering Science (STEM) Professionals and Students brings together the fundamentals of Carnot's laws of thermodynamics, Coulomb's law, electric circuit theory, and semiconductor technology. The book is the perfect introduction to energy-related fields for undergraduates and non-electrical engineering students and professionals with knowledge of Calculus III. Its unique combination of foundational concepts and advanced applications delivered with focused examples serves to leave the reader with a practical and comprehensive overview of the subject. The book includes: A combination of analytical and software solutions in order to relate aspects of electric circuits at an accessible level A thorough description of compensation of flux weakening (CFW) applied to inverter-fed, variable-speed drives not seen anywhere else in the literature Numerous application examples of solutions using PSPICE, Mathematica, and finite difference/finite element solutions such as detailed magnetic flux distributions Manufacturing of electric energy in power systems with integrated renewable energy sources where three-phase inverter supply energy to interconnected, smart power systems Connecting the energy-related technology and application discussions with urgent issues of energy conservation and renewable energy—such as photovoltaics and ground-water heat pump resulting in a zero-emissions dwelling—Introduction to Energy, Renewable Energy, and Electrical Engineering crafts a truly modern and relevant approach to its subject matter.

Generation of Electrical Energy is written primarily for the undergraduate students of electrical engineering while also covering the syllabus of AMIE and act as a refresher for the professionals in the field. The subject itself is now rejuvenated with important new developments. With this in view, the book covers conventional topics like load curves, steam generation, hydro-generation parallel operation as well as new topics like new sources of energy generation, hydrothermal coordination, static reserve reliability evaluation among others. The second edition of this book includes the most up-to-date details on the advantages of Nuclear Air-Brayton Power Plant Cycles for advanced reactors. It demonstrates significant advantages for typical sodium cooled reactors and describes how these advantages will grow as higher temperature systems (molten salts) are developed. It also describes how a Nuclear Air-Brayton system can be integrated with significant renewable (solar and wind) energy systems to build a low carbon grid. Starting with basic principles of thermodynamics as applied to power plant systems, it moves on to describe several types of Nuclear Air-Brayton systems that can be employed to meet different requirements. It provides estimates of component sizes and performance criteria for Small Modular Reactors (SMR). This book has been revised to include updated tables and significant new results that have become available for intercooled systems in

the time since the previous edition published. In this edition also, the steam tables have been updated and Chapters 9 and 10 have been rewritten to keep up with the most up-to-date technology and current research.

This book is an annual research report prepared by the cruise industry experts and scholars at home and abroad invited by Shanghai International Cruise Business Institute based on the current development situations of the international cruise industry, is an important part of the “X Book Series” of the Social Science Academic Press (China). This book consists of five parts, i.e., “General Report”, “Special Articles for High-quality Tourism: Common Value and Government Management”, “The Cruise Industry”, “Policy Suggestions” and “Appendix”, and it has richer and more perfect contents in comparison with the previous versions. Under the Book, the development environment of the cruise industry at home and abroad during 2017-2018 as well as the development situations, strategic paths and future trends is analyzed in the form of the General Report and the current development trend of the cruise industry in China is introduced based on the top ten hot topics. With the economic development trend from the high-speed growth to the high-quality development in China, the new topic “Special Articles for High-quality Tourism: Common Value and Government Management” is presented in the Book to discuss the quality

development patterns and paths of the cruise tourism in China, the high-quality development mechanism of the cruise tourism as well as the cruise tourism market cultivation and standardization system, so as to better enhance the quality of the cruise market development in China. In Part 3 “The Cruise Industry” and Part 4 “Policy Suggestions” under the Book, the whole picture of the cruise economy in China in the new era is presented, problems during the industrial development are analyzed and corresponding policy suggestions are given.

The Philippines currently has a low level of per capita greenhouse gas emissions. However, emission levels are growing at an increasing rate, with 4% annual growth between 2006 and 2012. The country's energy system is becoming more carbon intensive to satisfy escalating energy demand caused by strong economic growth. This study assesses how the Philippines can take a low-carbon pathway by drawing on detailed modeling of the power, residential, and transport sectors. It identifies low-carbon development options that can be deployed at approximately zero net cost to reduce energy sector greenhouse gas emissions by 70% by 2050. With energy use levels still low, the country has an opportunity to follow a low-carbon development trajectory—if action is taken soon.

This book presents an integrated approach to sustainably fulfilling energy

requirements, considering various energy-usage sectors and applicable technologies in those sectors. It discusses smart cities, focusing on the design of urban transport systems and sources of energy for mobility. It also shares thoughts on individual consumption for ensuring the sustainability of energy resources and technologies for emission reductions for both mobility and stationary applications. For the latter, it examines case studies related to energy consumption in the manufacturing sector as well as domestic energy requirements. In addition it explores various distribution and policy aspects related to the power sector and sources of energy such as coal and biomass. This book will serve as a valuable resource for researchers, practitioners, and policymakers alike.

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.

This Public Expenditure Review (PER) provides an integrated perspective on Iraq's need to provide better public service delivery, while maintaining macroeconomic stability and fiscal discipline. The achievement of these objectives unfolds within a challenging context of revenue volatility, the need to

diversify the economy, weak accountability mechanisms, and residual conflict. Reflecting these challenges, key socio-economic developmental indicators are stalled or even declining despite rapid growth in public spending. Indeed, the review shows that growth in spending has not been matched by absorptive capacity, let alone improved outcomes. The difficult task of constructing the fiscal institutions to embed the practices of good economic management remains a work-in-progress. The PER is one component of World Bank assistance to the government to improve public expenditure policy and management. The challenge for the Iraqi authorities in the years ahead will be to turn oil revenues into sustained welfare improvements. Macroeconomic stability alone is not enough to address social and economic development issues and to avoid a resource curse. Iraq's oil wealth alone cannot generate sustainably high living standards for the majority of its population. Economic diversification is an imperative—both to create jobs and to promote income-generating opportunities for the Iraqi population. The key challenges for the authorities therefore are (i) to remove constraints to non-hydrocarbon economic activities; (ii) to ensure the efficient use of oil revenue; and (iii) to restrain the growth of current spending (in particular wage bill and subsidies) to free up resources for public investment, while maintaining essential safety nets and social support for the poor and

disadvantaged. Public investment management is a crosscutting capability that is needed to meet Iraq's development objectives. The government has the opportunity to take concrete steps now. The PER proposes approaches and actions to better use Iraq's oil revenues by shifting to a save and invest via curbing inefficient spending and redirecting resources to public investment and basic services. As economic growth prospects are favorable in the medium-term, the Iraqi government has the opportunity to lay the foundations of a broadly diversified economy, with a reasonable footprint that provides decent public services and security while facilitating adequate economic freedom. Senior policy makers at the Ministry of Finance, Ministry of Planning and line ministries are the primary audience of this work.

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