Energy In The Uae

"With the every day increase in energy prices and environmental pollution, there is a need for a reliable and sustainable fuel sources that are not hazardous to our daily lives and are economically viable. The UAE has for a long time been using oil and gas for its electricity production. However, with increasing demands in electricity for the country's development, rises in oil and gas prices, and future possible depletion of oil and gas, the UAE has adopted an ambitious plan to opt for nuclear and solar energy as its primary energy sources in the near future. Nuclear energy has become an environmentally-promising option that could make a significant impact in energy supply with very limited changes to the global climate. The energy from a nuclear power plant is sufficiently high to back up a renewable energy source. Solar energy has been of particular interest among the renewable energy sources due to its availability and affordability in the region. There are many matured water splitting processes that can be linked with the nuclear and solar energy sources to decompose water to its constituents, among which is hydrogen. Hydrogen has risen as a sustainable and efficient energy carrier option in reducing environmental pollution, and is seen as a potential solution for the current energy crisis. The proposed model in this work is an integrated hydrogen production system combining both nuclear and solar energies, installed in the UAE. The objective of this research is to carry out a thermodynamic analysis on this system and find out how efficiently the system performs. The model is divided into its respective components and a detailed thermodynamic analysis is performed. Then, an overall thermodynamic analysis is performed for the system in order to optimize the process."--Abstract.

This book discusses renewable energy policy in oil and gas-wealthy Arab states and presents the reader with a well-informed overview of the national energy systems – both conventional and renewable. It also seeks to answer questions on the poor growth prospects by contextualizing the various national renewable energy production efforts in the other energy sectors, national and international power politics and energy markets. With a focus on the UAE and Algeria – who were both vocal in their promotion of renewable energies for domestic and export-oriented power production – these two cases studies are highlighted with common features both in terms of policies and energy systems and showing the vast differences between the governance contexts of the lower Gulf and of North Africa. Both country case studies also feature sections on the most visible renewable energy project connected to the country – the UAE’s Masdar project and Algeria’s energy efforts and relation to the trans-Mediterranean renewable energy efforts around the Desertec project. Building on original research in both countries and over 90 interviews with senior stakeholders in half a dozen states, this book seeks to contribute to both Middle Eastern and (renewable) energy policy studies. In combination with the transition management approach as innovation theory model this book covers a timely and important topic with a wide-ranging audience, both geographically and in terms of scientific background.

Gawdat Bahgat examines alternative energy (renewable and nuclear) in the Middle East. These largely under-utilized resources represent tremendous economic and environmental opportunities.

This book explores the process of policymaking and implementation in the finance, energy and security sectors in the United Arab Emirates. It looks at the role of informal advisory networks in a nascent private sector, federal politics, and historical ties in foreign relations.

The book presents high-quality research papers presented at the 2nd American University in the Emirates International research conference, AUEIRC'18, organized by the American University in the Emirates, Dubai, held on November 13th-15th, 2018. The book is broadly divided into four sections: Sustainability and Smart Technology, Sustainability and Social Responsibility, Sustainability, Human Security and

Legislation, Sustainability and Education. The topics covered under these sections are sustainable smart technology such as developing green curriculum for information technology, use ultrasonic velocity to predict quality of wheat, improve security features for visa system, factors affecting the cost of production of electricity and desalination plants, impact of smart traffic sensing in smart cities, smart healthcare system, simulation of Grey wolf optimization algorithm in painting digital forensics. The topics covered for sustainability and creative industries such as sustainable concrete production, multimedia applications in digital transformation art, integrating biomimicry principles in sustainable architecture. Sustainability, human security and legislation covered topics of urban performance and sustainable environment, Eco-certification as response on climate change, the criminal offence of tax evasion in law: case study, skills engineering in sustainable counter defense against Cyber extremism, the international law and challenges of trans-boundary water resources governance, the legal status of nuclear energy: case study, sustainable energy development and nuclear energy legislation in UAE, corruption specific safety challenge, environmental management and sustainability, sustainable farming models for desert agro-ecosystems, future directions of climate change, earth and built environment towards new concept of sustainability, institution building from emotional intelligence perspective, virtue ethics, technology and sustainability, the role of humor in a sustainable education, HEIs practices and strategic decisions toward planning for sustainable education programs, TQM in higher education for sustainable future. The papers in this book present high-quality original research work, findings and practical development experiences.

The world's deserts are sufficiently large that, in theory, covering a fraction of their landmass with PV systems could generate many times the current primary global energy supply. In three parts, this study details the background and concept of VLS-PV, maps out a development path towards the realization of VLS-PV systems and provides firm recommendations to achieve long-term targets. This represents the first study to provide a concrete set of answers to the questions that must be addressed in order to secure and exploit the potential for VLS-PV technology and its global benefits.

This book collects the edited and reviewed contributions presented in the 3rd International Conference on Renewable Energy: Generation and Applications” ICREGA’14, organized by the UAE University in Al-Ain. This conference aims to disseminate knowledge on methods, policies and technologies related to renewable energy and it acknowledges the leadership of the UAE which committed to a 7% renewable energy target by 2020. The demands and developments in renewable energy generations and applications are rapidly growing and are facing many challenges on different levels such as basic science, engineering system design, energy policies and sustainable developments. This edition presents new contributions related to recent renewable energy case studies, developments in biofuel, energy storage, solar and wind energy, integrated systems and sustainable power production. In the spirit of the ICREGA’14, the volume has been produced after the conference so that the authors had the possibility to incorporate comments and discussions raised during the meeting. The contributions have been grouped in the following topics: - Efficient Energy Utilization - Electrical Energy Market, Management and Economics - Energy Storage Systems - Environmental Issues - Fuel Cells Systems - Green Buildings - Intelligent Energy/Power Transmission and Distribution - Solar Photovoltaic and Thermal Energy - Wind Energy Systems.

This 2017 Article IV Consultation highlights that the economic performance of the United Arab Emirates was subdued during most of 2016. Together with weaker oil prices and slower oil output growth, the postponement of some public infrastructure projects and a slowdown in global trade caused growth to moderate to 3 percent from 3.8 percent in 2015. Economic activity is expected to strengthen gradually in the coming years with firming oil prices and other global indicators, and an easing pace of fiscal consolidation. Non-oil growth is projected to rise

to 3.3 percent in 2017 from 2.7 percent in 2016, reflecting increased domestic public investment and a pickup in global trade.

Over the years, the dissemination of technology across society has increased exponentially. As technology continues to improve worldwide connectivity, positive relations between countries is paramount to achieving cultural and economic progression. The Handbook of Research on Sociopolitical Factors Impacting Economic Growth in Islamic Nations is a pivotal scholarly resource on the current factors impacting international relations between Islamic countries. Featuring extensive coverage on sociopolitical structures, economic sector analysis, sociocultural properties, and political policies, this publication is ideal for academicians, students, and researchers interested in discovering more about the current trends and techniques in the economic infrastructures of Islamic nations.

This book highlights the rightful role of citizens as per the constitution of the country for participation in Governance of a smart city using electronic means such as high speed fiber optic networks, the internet, and mobile computing as well as Internet of Things that have the ability to transform the dominant role of citizens and technology in smart cities. These technologies can transform the way in which business is conducted, the interaction of interface with citizens and academic institutions, and improve interactions between business, industry, and city government.

Energy weaves the tapestry of our lives, and it does so in more ways than we usually recognize. While it is clear that it powers our homes, airplanes, and factories, its overwhelming influence often goes without notice in other areas, from the heartbreak of poverty to the motivation for war. While maintaining its availability has the potential to create jobs and contribute to competitive economies, nonrenewable energy sources are scarring our landscapes, polluting our air, and fouling our water. Understanding how we use energy and what we are willing to do to maintain our access to it can help us prepare for the complex and daunting challenges that linger as we look for alternatives. In The Thread of Energy, Martin J. Pasqualetti homes in on this vital driver of human actions and decisions. He exposes the impact of energy according to multiple scales of measurement and assessment, from everyday applications to global entanglements. The book traces our increasing dependence on Earth's nonrenewable energy resources by comparing lifestyle changes throughout history. Pasqualetti showcases the many ways energy infiltrates communication methods in all its forms (e.g., print, visuals, digital, etc.). The final chapters detail various approaches used by democratic societies looking to lessen their energy usage, including the critical importance of environmentally conscious policymakers. The Thread of Energy treats energy as a social issue with a technical component, rather than the other way around.

2011 Updated Reprint. Updated Annually. Dubai Energy Policy, Laws and Regulations Handbook

The Cooperation Council for the Arab States of the Gulf (GCC) has been at the epicenter of global energy markets because of its substantial endowment of hydrocarbons. Yet countries in the region have also stated their intent to be global leaders in renewable energy. This collection explores the drivers for the widespread adoption of renewable energy around the GCC, the need for renewable energy and the policy-economic factors that can create success. All six countries within the GCC have plans to include renewable energy power generation in their energy mix for various reasons including: a growing demand for electricity because of increasing populations, an increasing government fiscal deficit due to inefficient subsidies, the need to diversify the economy and global pressure to meet climate change requirements. However, the decision of when and by how much to introduce renewable

energy is fraught with complications. In this book, a stellar cast of regional policy and academic experts explore the reasons behind these renewable energy plans and the potential impediments to success, whether it be the declining cost of producing energy from hydrocarbons, an infrastructure which needs to be updated, social acceptance, lack of financing and even harsh weather. Weighing up all these factors, the book considers the route forward for renewable energy in the Gulf region. The Economics of Renewable Energy in the Gulf offers an excellent examination of the adoption of renewable energy in the area. It will be of great interest to academic researchers and policy makers alike, particularly those working in the areas of energy economics, public policy and international relations.

This book provides a comprehensive discussion and analysis of global energy resources, international energy markets, international energy forecasts for the first quarter of the 21st century, conventional and alternative energy technologies and pertinent historical developments of world energy. It is organized into four parts with 27 chapters that cover advance energy technologies, primary and alternative energy resources and country profiles. Part I introduces conventional energy resources; Part II covers alternative energy sources and conservation; Part III covers energy modelling and forecast methods for anlaysing energy development in the United States of America and the world; Part IV provides a country-by-country analysis of energy issues, law, resources and programs. It is indeed an assessment of the outlook for international energy that relates to major fuels, transportation, electricity and the environment.

This edited volume presents chapters on the dynamics of global climate change and global warming in the Middle East. In this region, it should be noted that even slightly warmer weather can result in an increased demand of energy along with its lower supply, as well as lower labor productivity. This text focuses on modeling, simulation, system dynamics, and agent-based modeling in dealing with these issues. The latest decision making tools, techniques, and innovative solutions used to overcome these challenges are presented. Many distinguished researchers contribute their work herein. The audience for this volume includes policy makers, researchers, and students unified by the common goal of making better decisions in the sustainable production and consumption of energy. The practical orientation of the chapters within each part is intended to suit the practitioners: managers and decision makers in the energy sector of the Middle East region.

In light of the Arab Spring, media professionals and academics have expanded the scope of their focus on the Middle East and North Africa (MENA) region. Yet, relatively little attention has been paid to two powerful forces that could significantly affect its economic and political landscape: power sector reform and renewable energy development initiatives. This paper attempts to outline the history and future of these initiatives in the region by focusing on three MENA region countries, the United Arab Emirates (UAE), with a focus on Abu Dhabi, along with Egypt, and Morocco. Furthermore, this paper analyzes how these two initiatives are affecting one another in the context of the domestic political landscape and economy. The results of this analysis point to three key aspects of power sector reform initiatives

affecting domestic renewable energy development: the level of governmental financial supervision, electricity subsidies, and the terms of engagement between the state-run single buyer utility and independent power producers (IPPs).

The United Arab Emirates (UAE) as a recently formed state has undergone a transition, the speed of which has brought the country to the forefront of promoting a global sustainability discourse. Through the introduction of numerous sustainable development initiatives, a self-contained renewable energy city at Masdar, and a large 5.6GWe nuclear energy program the UAE is pursuing diversification through a number of substantive technologies. Yet despite these programs designed to reduce domestic consumption of oil, the UAE has become addicted to Western cosmopolitan lifestyles that engender support for the ruling regime by tying in consumer subsidies for regime legitimacy. As the UAE is a rentier state, despite its display of exceptionalism in the physical transformation of the land, the rulers bargain with the population will continue to permit consumption at the cost of ushering in an era of sustainable development.

Global Warming: Causes, Impacts and Solutions covers all aspects of global warming including its causes, impacts, and engineering solutions. Energy and environment policies and strategies are scientifically discussed to expose the best ways to reduce global warming effects and protect the environment and energy sources affected by human activities. The importance of green energy consumption on the reduction of global warming, energy saving and energy security are also discussed. This book also focuses on energy management and conservation strategies for better utilization of energy sources and technologies in buildings and industry as well as ways of improving energy efficiency at the end use, and introduces basic methods for designing and sizing cost-effective systems and determining whether it is economically efficient to invest in specific energy efficiency or renewable energy projects, and describes energy audit producers commonly used to improve the energy efficiency of residential and commercial buildings as well as industrial facilities. These features and more provide the tools necessary to reduce global warming and to improve energy management leading to higher energy efficiencies. In order to reduce the negative effects of global warming due to excessive use of fossil fuel technologies, the following alternative technologies are introduced from the engineering perspective: fuel cells, solar power generation technologies, energy recovery technologies, hydrogen energy technologies, wind energy technologies, geothermal energy technologies, and biomass energy technologies. These technologies are presented in detail and modeling studies including case studies can also be found in this book.

This book explores the evolving roles of energy stakeholders and geopolitical considerations, leveraging on the dizzying array of planned and actual projects for solar, wind, hydropower, waste-to-energy, and nuclear power in the region. Over the next few decades, favorable economics for low carbon energy sources combined with stagnant oil demand growth will facilitate a shift away from today’s fossil fuel-based energy system. Will the countries of the Middle East and North

Africa be losers or leaders in this energy transition? Will state–society relations undergo a change as a result? It suggests that ultimately, politics more so than economics or environmental pressure will determine the speed, scope, and effects of low carbon energy uptake in the region. This book is of interest to academics working in the fields of International Relations, International Political Economy, Comparative Political Economy, Energy Economics, and International Business. Consultants, practitioners, policy-makers, and risk analysts will also find the insights helpful.

Dubai (UAE) Oil, Gas Exploration and Energy Sector Laws and Regulation HandbookLulu.comThe UAE State of Energy ReportUnited Arab Emirates Energy Policy, Laws and Regulations Handbook: Strategic Information and RegulationsLulu.com

This book provides an up-to-date analysis of state-of-the-art concentrating solar power (CSP) generation. It focuses on the economic analysis of CSP generation technologies as well as the policies that have been and are being used around the globe to support it. The book describes the industrial sectors whose products make up the solar field, including the traditional manufacturers of turbines and generators.The authors provide the main theoretical tools needed to comprehend the costs of CSP technologies compared to other competing technologies (both conventional and renewable) and discuss the conceptual rationale behind creating public support for these technologies and the costs of various promotional techniques. Further, the book examines the concepts from different disciplinary traditions in economics (including environmental, innovation, industrial and public), which are then combined and integrated for an analysis of the costs and policies of CSP electricity.Addressing the main findings and the challenges for future CSP, the book is a valuable resource for researchers and practitioners. It is also of use to industrial engineers, as it identifies the features of the sector’s supply chain value, rooted in and supported by an industrial economics approach.

Water and Energy systems that were once considered disparate, are coupled in many ways. Generation, transmission and distribution of each system relies on the other system. The interaction becomes significantly stronger in economies dependent on desalination for their water resources. One such country is the United Arab Emirates. The water-energy nexus faces serious challenges under climate change as cooling needs and outdoor water demands rise. This thesis models the impact of climate change on the water-energy nexus in the UAE. It explores a set of climate change adaptation policy scenarios and quantifies their respective economic, water and energy savings. Hence, it provides an analytical assessment of the nexus that can inform data-driven policy making. This thesis views the nexus through a qualitative lens and a quantitative lens. The qualitative piece presents the organizational mapping and structuring of the UAE institutions across the water-energy-climate nexus. It highlights gaps in cross-sectoral interactions that need to be overcome for a sustainable future. The second piece presented in this thesis is analytical in nature. It uses two

specialized water and energy softwares called the Water Evaluation and Planning System (WEAP) and the Long-range Energy Alternatives Planning System (LEAP) and couples them together to model the nexus. The water-energy nexus model is tested for different individual and aggregate adaptation policy scenarios to assess a wide range of effects on the nexus. These scenarios are also run for six sub-regions within the UAE (Abu Dhabi, Al Ain, Western region, Dubai, Eastern region and Fujairah) to understand the underlying demand sectors driving the water-energy nexus in these sub-regions. The results of this extensive scenario analysis have informed policy recommendations for long-term planning of the water-energy nexus in the UAE. Important findings from this study include the huge savings potential from indoor consumption reduction (up to 1200 million cubic meters of water and 60 million gigajoules of electricity per year by 2060) and the need for irrigated land regulation (saves up to 700 million cubic meters of water and 5 million gigajoules of electricity per year by 2060) in the UAE. The sub-regional analysis highlights the need for sub-regionalized policy goals that govern regions based on their demand differences.

At today's growth rate the United Arab Emirates expects demand for electricity to double by 2020. To meet these demands, the government concluded that nuclear power was the best way forward.

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