Financing Energy Projects In Developing Countries

This book is an essential primer in the core principles of sustainable energy project development through concept, design, feasibility and reality and takes a holistic approach to the development and financing of such projects, setting out the technical, commercial and financial aspects in a straightforward and practical manner. It sets out a first principles-based approach to developing sustainable projects in markets which are not extensively covered by project finance handbooks and which offer a particular set of challenges to the would-be developer. Drawing from over twenty years of experience in the sustainable energy sector, this practical guide will be a valuable resource to both those considering and already involved in projects in developing and emerging countries. Readers can expect to come away with a strong foundation in a core set of guiding principles that can be applied to a wide range of sustainable energy projects in any geographical location.

The world is currently undergoing an historic energy transition, driven by increasingly stringent decarbonisation policies and rapid advances in low-carbon technologies. The large-scale shift to low-carbon energy is disrupting the global energy system, impacting whole economies, and changing the political dynamics within and between countries. This open access book, written by leading energy scholars, examines the economic and geopolitical implications of the global energy transition, from both regional and thematic perspectives. The first part of the book addresses the geopolitical implications in the world’s main energy-producing and energy-consuming regions, while the second presents in-depth case studies on selected issues, ranging from the geopolitics of renewable energy, to the mineral foundations of the global energy transformation, to governance issues in connection with the changing global energy order. Given its scope, the book will appeal to researchers in energy, climate change and international relations, as well as to professionals working in the energy industry.

Renewable Energy Finance: Theory and Practice integrates the special characteristics of renewable energy with key elements of project finance. Through a mixture of fundamental analysis and real-life examples, readers learn how renewable energy project finance works in actual deals that mix finance, public policy, legal, engineering and environmental issues. The skills developed in analyzing non-recourse cash flow-based finance are applicable not only to green energy, but also apply more widely in project finance and infrastructure investing. The book’s comparisons of developed and developing countries make it valuable to readers worldwide. Presents real world cases in each chapter Includes a companion website that contains renewable energy project finance models and other resources Supports efforts to achieve environmental sustainability through renewable financing projects and cleaner production techniques

Investing in Renewable Energy
Financing Rural Energy Projects in Developing Countries
Introduction to Project Finance in Renewable Energy Infrastructure
Energy and Environmental Project Finance Law and Taxation
Risk Mitigation Strategies and Innovative Financing Structures

While energy efficiency projects could partly meet new energy demand more cheaply than new supplies, weak economic institutions in developing and transitional economies impede developing and financing energy efficiency retrofits. This book analyzes these difficulties, suggests a 3-part model for projectizing and financing energy efficiency retrofits, and presents thirteen case studies to illustrate the issues and principles involved.

This book is the first comprehensive assessment of the state of low-carbon investments in Asia, analyzing the rationales, mandates and public-private financing activities. Based on the experiences of several regional initiatives wherein public financing is catalyzing private investments in low-carbon infrastructure, this book proposes a framework that can be used as a tool to identify factors that influence private investment decisions and policy instruments that can scale up the private capital. Placing the Asian economies onto a low-carbon development pathway requires an unprecedented shift in investments. This book addresses this situation by asking questions such as: • What is the central role of private finance in achieving the Paris Agreement targets? • What key policy levers and risk mitigation can governments use in an effort to unlock the potentials of private capital? • How can regionally coordinated actions hold significant promise for scaling up private investments?

This book assesses the long-term future viability of current business models in electricity, water, rail, and urban public transport and presents policy recommendations.

Financing Clean Energy Access in Sub-Saharan Africa
The Infrastructure Finance Challenge
Mapping Policy for Electricity, Water and Transport
Financing Clean Energy in Developing Asia—Volume 1
Financing Mechanisms for Renewable Energy Development in the Pacific Islands

Financing Renewable Energy Projects

This handbook deals with various financial instruments, policies, and strategies in a policy-oriented approach for financing green energy projects. Recently, global investment in renewables and energy efficiency has declined, and there is a risk that it will slow further. Clearly, fossil fuels still dominate energy investments. This trend could threaten the expansion of green energy needed to meet energy security, climate, and clean-air goals. Several developed and developing economies are still following pro-coal energy policies. The extra CO2 generated from new coal-fired power plants could more than eliminate any reductions in emissions made by other nations. Finance is the engine of development of infrastructural projects, including energy projects. By providing several thematic and country chapters, this handbook explains that if we plan to achieve sustainable development goals, we
need to create opportunities for new green projects and scale up the financing of investments that furnish environmental benefits. New financial instruments and policies such as green bonds, green banks, carbon market instruments, fiscal policy, green central banking, fintech, and community-based green funds are among the chief components that make up green finance. Naoyuki Yoshino is Dean, Asian Development Bank Institute and Professor Emeritus, Keio University. Jeffery Sacha is Director, Center for Sustainable Development at Columbia University. Wing Thye Woo is Professor of Economics, U.C. Davis. Farhad Taghizadeh-Hesary is Assistant Professor, Waseda University.

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 unpack 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.

This report draws lessons to date from recent international experience in applying public financing instruments to unlock commercial financing to scale-up clean energy in East Asia. It addresses the following issues: when to use public financing instruments; which instrument to select; and how to design and implement them most effectively.

Liquefied Natural Gas: Developing and Financing International Energy Projects
Resources and Strategies for Success
Unlocking Commercial Financing for Clean Energy in East Asia
Regulatory and Financial Incentives for Scaling Up
Project Finance
Financing of LNG Projects in Developing Countries and the Role of the World Bank

This book examines clean energy investment needs and financing gaps in Asia and the Pacific and discusses how they are being addressed. It reviews existing financing options and approaches for clean energy, and includes country examples of how these have been applied. Innovative solutions for mobilizing private finance and managing risks associated with clean energy investments are also discussed. The book is the first of two volumes that look at various approaches and instruments that have been tried, tested, and utilized to scale up clean energy development in the region.

This practical application reference provides a resource for those seeking to utilize the innovative methods now available to finance energy projects. The full scope of current project financing practices are fully examined and assessed, including coverage of energy service performance contracting, rate of return analysis, measurement and verification of energy savings, and more. Readers will receive the facts they need to assess a project's payback in advance, anticipate and avoid potential risks and/or hidden costs, and assure that your energy project is an overall economic success. Other topics covered include financing international projects and ESCO's (Energy Service Company's) financing.

This new UNEP Report focuses on the global trends in sustainable energy development, covering both the renewable energy and energy efficiency sectors. This report shows that in spite of the global economic downturn, investment in sustainable energy is still strong. Resilience To The financial downturn taht was hitting all sectors of the global economy and frustration that, while the UN Climate Convention in Copenhagen was not the big breakdown that might have occured, neither was it the big breakthrough so many had hoped for. Yet, also determination on the part of many industry actors and governments (especially in rapid developing economies) to transform the financial and economic crisis into an opportunity for greener growth.

Financing the Energy Requirements of Developing Countries
A Guide for Development Workers
Renewable Energy Finance
Unlocking the Potential of Private Capital
The Role of OPEC Aid

Financing Energy Efficiency in Developing Countries--Lessons Learned and Remaining Challenges

This book is the first of two volumes that review various approaches and instruments that have been tried, tested, and utilized to scale up clean energy development in Asia and the Pacific. This volume examines clean energy investment needs and financing gaps
in the region and reviews existing financing options and approaches, including examples of how these have been applied. Innovative solutions for mobilizing private finance and managing risks associated with clean energy investments are also discussed. This important new guide provides an in-depth examination of the knowledge, insights and techniques which are essential to success in the financing of renewable energy projects. Bringing to this book over 35 years of experience with special expertise in capital asset financing for energy projects, the author provides the reader with a comprehensive overview of all the disciplines which must come into play to finance renewable energy projects in America today. Each component of "the deal" is explored, including the relevant tax, accounting, legal, regulatory, documentation, and asset management, along with the legislative drivers which impact this dynamic growth sector. Case studies-complete with project documentation samples-provide lessons which you'll not find available in traditional finance textbooks. These studies illustrate in detail what it takes to compete successfully in the green energy marketplace.

This open access book analyses barriers and challenges associated with the financing of clean energy access in sub-Saharan Africa. By considering various economic, financial, political, environmental and social factors, it explores the consequences of energy poverty across the region and maps the real and perceived investment risks for potential capital providers, both domestic and international. Furthermore, it analyses risk mitigation strategies and innovative financing structures available to the public and private sectors, which are aimed at leveraging capital in the clean energy sector at scale and fostering the creation of an enabling business and investment environment. More specifically, the present book analyses how to (i) enhance capital allocation in projects and organisations that foster clean energy access in the region, (ii) mobilize private capital at scale and (iii) decrease the cost of financing through risk mitigation strategies. Going beyond traditional approaches, the book also considers socioeconomic and cultural aspects associated with investment barriers across the subcontinent. Moreover, it urges the public and private spheres to become more actively involved in tackling this pressing development issue, and provides policy recommendations for the public sector, including proposals for business model evolution at multilateral agencies and development institutions. It will appeal to a wide readership of both academics and professionals working in the energy industry, the financial sector and the political sphere, as well as to general readers interested in the ongoing debate about energy, sustainable development and finance.

Energy Security and Sustainable Development
Including Public-Private Investments and Non-Mature Markets
Summary Document
Financing Energy Projects in Developing Countries
Public Finance Mechanisms to Catalyze Sustainable Energy Sector Growth

A appropriate risk management tools can help remove some of the barriers to financing Renewable Energy Technology (RET) projects, particularly in developing countries where risk and risk perceptions are highest. That is why UNEP is working on a comprehensive overview of currently available and potential financial risk management instruments for Renewable Energy Technology (RET) projects. This study will pave the way for an upcoming GEF project that will promote the use of financial risk management instruments that favor the development of RETs. This report assesses the role of public interventions in mobilizing commercial financing for grid-connected solar projects in seven developing countries - Chile, India, Maldives, Morocco, the Philippines, Senegal, and South Africa. Desktop research is complemented by interviews with development professionals, academics, and public officials, and the results of an online survey developed to gain insights and perspective from private developers and other commercial capital providers. The focus is on the ability to attract commercial investors and lenders, without analysis of the financing terms. The scope is limited to utility-scale, grid-connected projects because of the risk concentration inherent to large projects and the importance of large-scale investments in clean energy for the transition toward low carbon development pathways. The analysis puts into perspective the linkages between global and country-specific factors, the complexity and multifaceted nature of the choices that decision makers face, and their rationale for pursuing a specific course of action. The report is intended for policy makers and development partners, including development banks and other donors providing technical assistance in developing countries. It should also be of interest to investment and commercial banks, developers, investors, and other players active in the solar market. For governments and policy makers, the findings are expected to inform decisions on allocating public financing for leveraging commercial investments and inform their decision-making process. For development partners, the report provides a useful perspective on their efforts to attract non-public sources of financing in support of the development agenda.

Foreword by Lord Browne of MadingleyReviews of the First Edition:'The entire text is quite readable and can be moved through with relative ease. This reviewer heartily recommends that, regardless of your background, you read this book to really get a grasp of the cutting-edge of climate finance.'LSE Review of BooksRenewable Energy Finance (Second Edition) describes in rich detail current best
practices and evolving trends in clean energy investing. With contributions by some of the world's leading experts in energy finance, the book documents how investors are spending over $300 billion each year on financing renewable energy and positioning themselves in a growing global investment market. This second edition documents, with practical examples, the ways in which investors have funded over $2.6 trillion in solar, wind, and other renewable energy projects over the past decade. The book will be a go-to reference manual for understanding the factors that shape risk and return in renewable energy, the world's fastest growing industrial sector. The book is suitable for executives new to the field, as well as advanced business students. Edited by Dr Charles Donovan, Principal Teaching Fellow at Imperial College Business School and formerly Head of Structuring and Valuation for Global Power at BP, the book will give readers a unique insiders' perspective on how renewable energy deals actually get done.

Theoretical Perspectives

Developing Sustainable Energy Projects in Emerging Markets

Supporting the Implementation of the Energy Efficiency Initiative in Developing Member Countries

New Investment Techniques

Financing Options and Policy Alternatives

Renewable Energy Law and Policy

The book provides readers with essential insights into key issues in connection with planning, developing and financing sustainable energy projects in China that are relevant for practitioners, investors and developers involved in the emerging sustainable energy sector. It offers readers a deeper understanding of these contemporary issues by drawing on the lessons learned in real-world sustainable energy and green finance development activities in China, which are driven by central planning and policy implementation and complemented by investments and finances from public-private partnerships. Renewable Energy Law and Policy covers the aspects of most renewable energy deals, including issues pertaining to structuring, real estate, finance, land use, contracts, environmental, corporate, tax, and securities law. As this nascent industry matures, and technology makes it increasingly more efficient to create electricity from the sun, wind, and geothermal resources, lawyers have begun seeing an increase in questions from landowners, project developers and non-renewable energy producers that are looking to grow in, or break into, the renewable energy sector. Legislators have also taken notice of the unprecedented potential and real growth over the last decade. This book helps practitioners, students, and laypeople navigate the complex and ever changing landscape of this new area of law. It was written to help the reader deal with this evolving reality by explaining the dynamics of the industry and the existing and developing regulatory and competitive environment. Among the important areas addressed are the following: • Legal and policy issues that impact the development, implementation and commercialization of renewable energy projects. • Structuring, land use, siting, and finance issues encountered by developers of renewable energy projects. • Investing in renewable energy projects. • Renewable energy development in other countries. • Building a renewable energy project. • Selling renewable energy. • Tips for drafting and negotiating key renewable energy documents.

An update to his comprehensive 1996 text on project finance in emerging economies, Razavi's authoritative new book provides first-hand information and analysis of how multilateral, bilateral, and commercial financiers decide to support an energy project. It presents the major changes in the attitudes and orientations of these financiers as they have entered a competitive environment seeking opportunities to do more business in the energy sector of developing countries. For every good energy project, there is a financier somewhere. However, creating an attractive project package requires an explicit understanding of the following: availability of soft loans, credits, grants, tied and untied loans; objectives, tendencies, and requirements of various financiers; possibilities of combining various financial instruments; methods of economic, financial, and risk analysis and mitigation. The reader is guided through the process of understanding the fundamentals of project financing, getting to know the financiers, and developing an acceptable project package. Finally, some real-world case studies demonstrate the intricacies of mobilizing funds for projects in various segments of the energy sector.

Global Trends in Sustainable Energy Investment 2010

A Case Study of Nigeria

The GEF Experience

Perspectives from the Greater Bay Area of China

Renewable Energy Projects for Sustainable Development

Infrastructure and its effects on economic growth, social welfare, and sustainability receive a great deal of attention today. There is widespread agreement that infrastructure is a key dimension of global development and that its impact reaches deep into the broader economy with important and multifaceted implications for social progress. At the same time, infrastructure finance is among the most complex and challenging areas in the global financial architecture. Ingo Walter, Professor Emeritus of Finance, Corporate Governance and Ethics at the Stern School of Business, New York University, and his team of experts tackle the issue by focussing on key findings backed by serious theoretical and empirical research. The result is a set of viable guideposts for researchers, policy-makers, students and anybody interested in the varied challenges of the contemporary economy.

Financing Energy Projects in Developing Countries

Pennwell Corporation
The future quantities of capital required by the LNG industry will be very large. However, the continued rapid development of the industry is justified by the economic and environmental benefits of increased natural gas use. It is likely that the World Bank will continue to play a modest absolute role in supplying capital to the industry. The Bank can, however, play a crucial role in assisting governments in formulating appropriate energy policies and project development strategies and thereby creating the right policy and financial climate. The Bank can also provide a relatively modest amount of financial backing to projects, which nonetheless can help to generate larger volumes of finance from other sources. In the long run, LNG projects which are well structured and which operate within an appropriate policy environment should succeed in attracting financing even in today's more competitive environment. [Authors' abstract].

Infrastructure to 2030 (Vol.2) Mapping Policy for Electricity, Water and Transport

The Role of the Public Sector in Mobilizing Commercial Finance for Grid-Connected Solar Projects

Sustainable Energy and Green Finance for a Low-carbon Economy

Energy Project Financing

Financing Projects in Developing Countries

The aim of this book is to act as a guide for development workers for financing small renewable systems and a source of reference for further in-depth investigation. The book examines the issues which affect the success of a renewable energy financing programme on both a financial and a technical level.

Project Finance: Guide to Developing Renewable Energy Projects will ensure that the reader adopts the best strategies for developing, financing, assessing risk and documenting renewable energy projects. The sectors examined include wind, solar, small-scale hydro power, tidal, geothermal and biomass energy, developments; energy policies across the globe such as tariffs; tendering; premiums; green certificates and emissions trading; sources of financing; methods for assessing project viability; generic risk of renewable projects; risks specific to individual technologies and documentation specific to renewables.

Concentrating solar thermal technologies have a clear potential for scaling up renewable energy at the utility level, thereby diversifying the generation portfolio mix, powering development, and mitigating climate change. The report analyzes current experience in designing and implementing regulatory frameworks supporting the technology.

Concentrating Solar Power in Developing Countries

The Guide to Developing Renewable Energy Projects

The Geopolitics of the Global Energy Transition

Handbook of Green Finance

Lessons from Brazil, China, India, and Beyond

Financing Clean Energy in Developing Asia

Energy and Environmental Project Finance Law and Taxation: New Investment Techniques provides practitioners with a useful and comprehensive discussion of energy and environmental project finance as it is developing and where it is going in light of new legal and tax rules. This is the first time that internationally recognized lawyers and economists share their knowledge, expertise, and insights in this important and growing industry. Energy and Environmental Project Finance Law and Taxation examines cutting edge techniques and analyses the recent tax and legal developments coming out of Washington, all of which are revolutionizing the investment in and financing of energy and environmental projects. Written for practitioners and laymen alike, Energy and Environmental Project Finance Law and Taxation arms the reader with crucial knowledge about structuring and financing conventional, renewable, green financing, and alternative energy projects. It addresses carbon financing, green power, and traditional and new technologies, including nuclear power, wind, photovoltaic, solar, geothermal, biomass, and the new generation of nuclear power. This book also addresses the risks involved in structuring and financing these new technologies; ways to hedge these risks; and how to monetize the tax credits available for renewable energy projects.

Analysis of Trends and Issues in the Financing of Renewable Energy and Energy Efficiency

Investment and Finance in the Energy Sectors of Developing Countries

Financing for Low-carbon Energy Transition

Lessons from Seven Developing Countries

Financing Energy Efficiency