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## Preface

The US is the epicenter of an energy renaissance in oil and natural gas production that is taking place all over the world. This is a far-reaching game changer for the energy industry that will shift and strengthen the economies of the most important energy producing countries in the world. This contrasts dramatically to the opposite situation that occurred just 40 years ago, in the 1970s, when the world underwent the largest energy price shocks of modern times due to the OPEC oil embargo and Iran/Iraq war. At that time, major oil consuming countries worldwide were gripped with fear about the risk of uncertain energy supply and warnings of peak oil. The importance of energy to economic development became a primary concern. These shocks combined with the resulting impacts to global economies stimulated research in energy economics, causing it to emerge as a new branch of financial economic research.

The current energy renaissance is due to technological innovation combined with higher energy prices, which has made it possible to economically produce oil and gas in unconventional formations such as shale and oil sands. This is a major advancement and will help provide the world with energy for economic growth for the foreseeable future. The latest projections of world energy needs by the EIA (Energy Information Administration) for the year 2040 indicate a growth of 54.6 % in energy consumption as compared to 2010. Fossil fuels (oil, natural gas, and coal) are forecast to continue to dominate the energy mix by providing 78.5 % of world energy needs, as compared to 84.1 % in 2010. Renewable energy is expected to grow from 10.7 % in 2010 to 14.5 % by 2040.

The good news is that the world is not running out of fossil fuels anytime soon; peak oil is nowhere in sight. This increasing supply of fossil fuels helps provide time to do the research and development necessary to make the next energy transition for the world. Most experts agree that sustaining even modest economic growth worldwide is going to require massive new investments in energy. While the largest investments will focus on oil and natural gas, it is crucial that more research funds from private firms and governments are devoted to renewable energy sources too.

Overall, more research and innovations in all areas of energy are critically needed to help the world manage energy risk and continue to increase production by promoting all sources.

Moreover, there are other accumulating risks beyond investment that are present which complicate the ability to expand energy production globally from the traditional sources such as oil and natural gas. These risks to energy growth include political instability, the resurgence of resource nationalism, civil unrest, piracy, transit vulnerability, energy subsidies, emissions concerns, extreme weather, and restricted access to resources. These risks present significant challenges to meeting projected worldwide energy demand and must be managed, where possible.

Energy education is crucial to society. Surveys have shown that the public is woefully misinformed about energy. For any society to make informed decisions and recommendations to governments requires an educated voting public. Politicians, regardless of their party affiliation, often take advantage of the public's lack of knowledge and slant information in ways that reinforce misperceptions.

The publication of this book on energy risk at this time is perfect because the information will help educate the public on various aspects of energy including global, geopolitical and market risks. Energy risk is multifaceted and complex. The academic scholars and practitioners who have authored chapters in this book are all experts in their respective areas. The content helps the reader better comprehend this complex topic. For example, the chapters in Part I, Global Risks, cover energy availability and changing dynamics, technology and R&D investment, and energy risk measures. Part II on Geopolitical Risks furthers the understanding of topics such as Central Asia's role in the natural gas revolution, Turkey's role in crude oil and natural gas, and Asian electricity markets. Market Risk is covered in Part III and focuses on a wide variety of topics including financial markets, historical lessons, emissions trading, and renewable energy.

Overall, this book makes valuable contributions to the literature on energy risk. Energy ignorance and illiteracy is completely unacceptable for any society. The world cannot remain passive about this central topic. This book is ideal for energy courses at universities, employee education, and executive education programs in the field of energy. It is a pleasure to read. I encourage universities and practitioners alike to read it and recommend it to others.

Stillwater, Oklahoma, U.S.

Betty Simkins  
Professor of Finance and Williams Companies  
Professor of Business  
Oklahoma State University

Perspectives on Energy Risk

Dorsman, A.B.; Gök, T.; Karan, M.B. (Eds.)

2014, VIII, 220 p. 42 illus., 6 illus. in color.,

ISBN: 978-3-642-41596-8