Energy Trading and Investing: Trading, Risk Management and Structuring Deals in the Energy Markets - A Book Review

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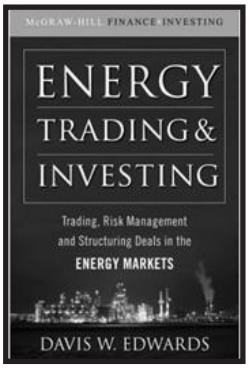

Book:	**Energy Trading and Investing: Trading, Risk Management and Structuring Deals in the Energy Markets**
Author:	**Davis W. Edwards**
Publisher:	**McGraw - Hill (Finance & Investing) Publication**
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Abstract

Energy trading, in particular, is not a pure science, but a complex mix of economics, finance, markets, trading, risk management, scientific tools, and rational as well as irrational behavior of energy market participants affected hugely because of business environment, macro-economic factors, market microstructure, demand-supply forces, and political factors. In the present book review, we review the book titled *Energy Trading and Investing: Trading, Risk Management and Structuring Deals in the Energy Markets* authored by Davis W. Edwards and published by McGraw-Hill (Finance & Investing), which highlights the relevance, criticality, and importance of the energy trading business and offers crucial insights into organizational, capital, risk management, and quantitative modeling facets for energy trading and investing.

Keywords: **energy, natural gas, trading, oil, electricity, coal, investing**

JEL Classification: M210, Q210, Q410, Q430, Y30

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Energy Trading and Investing: Trading, Risk Management and Structuring Deals in the Energy Markets introduces various aspects of energy trading for succeeding in the energy markets. It encapsulates all facets of the energy market, including electricity, natural gas, oil, liquefied natural gas, emissions, and alternative energy, highlighting the interdependence of different facets of energy markets. Topics dealt in the book gives a novice reader an opportunity to understand and analyze many aspects of the energy business in-depth. The book is an honest attempt to bridge the worlds of practitioners and academic research. Energy trading, in particular, is not a pure science, but it is a complex mix of economics, finance, markets, trading, risk management, scientific tools, and rational as well as irrational behavior of energy market participants, which is hugely affected by business environment, macro-economic factors, market microstructure, demand-supply forces, and political factors. This book successfully incorporates all these aspects and guides the readers to take a closer look at all the potential trading approaches, which can eventually result in profits for the participants in the energy sector.

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Today, we are witnessing an unprecedented amount of capital investment in the energy markets. Factors such as ever shrinking fossil-fuel supplies in the past few years, volatile prices of commodities, deregulation of energy markets, and environmental conservation have transformed the energy markets into a major market for making money. We believe that the author has done an exceptional job in incorporating his professional experience and has successfully covered quantitative analysis, trading, risk management, and the managerial aspects of the energy trading business from an academic perspective at an introductory level.

Utilities (energy related) established decades ago have found it difficult to accept the reality that their quiet and relatively safe business has dramatically changed in a very short period of time due to an ever increasing influx of innovation and knowledge transfer from the fields of chemistry, physics, accounting and most importantly - finance and economics. Written by a leading expert in the field of energy markets, this book provides a highly disciplined and organized approach for readers to learn how to profit from energy investments. This effective combination of lucid, detailed, up-to-date information alongside expert know-how thoroughly prepares every reader to invest and trade with confidence in the energy markets.

Reading this book would instill confidence in novice as well as seasoned traders of energy markets, and is a must read book for anyone who is serious about energy trading and investing. The book has been divided into four parts comprising of twenty five chapters to explain various facets of energy markets with particular emphasis on energy trading, energy risk management, and structuring deals in the energy market.

Part One: Instruments and Markets

The book seeks to answer fundamental questions like why is electricity, natural gas, coal, oil, solar, wind, and nuclear energy traded differently from other trading businesses. It also seeks to find answers about efficiency of energy markets, structure of energy trading, risk management strategies involved in energy trading, and how to mitigate those risks. The book successfully gives a broader picture and addresses the need to understand how the entire market of energy trading fits together.

Readers would appreciate the fact that apart from being a major industry which drives the economies of countries, energy has also become a major player in the financial market as a result of its deregulation. The initial sections give a brief but accurate summary of energy trading, explaining that energy markets are a compilation of interconnected businesses, and the aim is to deliver electricity and heating fuel to consumers and also the fact that one type of business model cannot run all the energy markets because of the fragmented nature of the industry. Unlike the stock or bond markets, energy spot and forward markets are not closely linked because electricity cannot be stored economically, and it has to be consumed as soon as it is produced, and this topic has been dealt very well in the book.

Part Two: Coal and Carbon Emissions

While coal is essential in electrical generation, it can be noted from the review by the author that coal is not a heavily traded financial product in the energy markets. Compared to natural gas and coal, the book outlines that crude oil is an important aspect in energy trade because the global impact of oil trading exceeds its value to the energy markets and helps readers gain knowledge of specific price risks associated with oil trading. The author successfully provides crucial insights related to gas, power, concepts of financial options for beginners, mathematics behind spread options, and practically demonstrates estimating correlations, explains Monte-Carlo simulations, game theory approach, and introduces dynamic programming in the context of energy markets. The author has critically highlighted and stressed that pollution plays a key role and cannot be overlooked in energy markets trading, as it could limit the utilization of some methods of energy production.

Part Three : Electricity Models

Electricity trading review is a highlight of the book and needs special mention. The primers on topics related to forecasting of loads, tolling agreements, natural gas storage, and other topics of the book give a very practical introduction to risk management. The author equips readers with conceptual background for understanding physical constraints of power generation, electricity pricing, power trading and its types, causes of electricity demand, electricity transmission, electricity distribution, and the major regional power markets of the United States.

Part Four: Natural Gas Models

Relevance and importance of natural gas, which accounts for 54% of all United States's households main heating fuel need, is well reviewed and the aspects of natural gas price, supply, and demand of natural gas as well as forward and spot markets for natural gas is reviewed in detail. Risk management in energy trading and investing has been the central theme since managing price risk is the center of attention for the majority of energy producers, traders, and consumers around the world. In energy trading, correlation plays a key role in relating how two assets are closely related to each other. Energy traders use statistics to analyze prices, particularly spread options, which are widely used in energy markets for hedging purposes.

The author effectively brings out the importance of volatility and correlation for an energy trader by explaining a variety of trading strategies for risk management and for modeling energy investments. Review of topics on importance of understanding tolling agreements, the challenges for a power trader, importance of putting wheeling power into consideration before trading or investing in energy markets, electricity models examining the supply and demand forces of electricity and their impact on prices, and trade volumes from a consumer demand perspective with a valid argument of generation stack used to forecast the supply of electricity gives a holistic view. Reviews on various financial concepts related to trading and investing like P&L volatility, VAR, exposures and topics like modeling risk are tailor made for energy market participants and tackles important aspects of risk models, pricing models, asset valuation models, and counterparty credit risk effectively. The magnitude and probability of danger inherent in energy trade contractual agreements has been explained with a pinch of salt.

Conclusion and Suggestions

Despite the highly theoretical nature of the topics presented in the book, it succeeds in highlighting relevance, criticality, and importance of energy trading businesses, and offers insights into organizational, capital, risk management, and quantitative modeling facets for energy trading. The importance of risk management is applicable to a very wide range of other professionals engaged in the business such as energy analysts, risk managers, and energy trading managers. The book could have been complete if topics like energy exchanges, power exchanges, renewable-energy sources for sustainability and development were looked into, which we believe are the future directions - related to energy - for stakeholders to look at related to energy. Specifically, solar and wind energy are promising sources of renewable energy, which were not traded earlier in the energy markets, but we find the trend changing slowly (example: renewable energy certificates being traded in Indian Energy Exchange). If these topics were included in the book, the book would have been complete in all respects and would have offered and a sneak-peak into the future of energy trading in the years to come.

Overall, with many factual examples and numerical schemes for practical implementation, the book successfully bridges the worlds of practitioners and academic research. We believe that it is a good book to refer to by anyone interested in energy markets.