8th **International Trading Conference 2018**

The Future of Technology-driven Energy Market

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The Future of Technology-driven Energy Market

Keynote Address

Energy Transition Policy and Future of Energy Industry

Session 1 Diversification of the Northeast Asia Energy Market and Its Infrastructure

Session 2 Technology Innovation and Energy Commodity Market

October 23(Tue.) 13:00

Crystal Ballroom, Lotte Hotel, Ulsan

Organizers 울산광역시 ULSAN METROPOLITAN CITY · UNIST ULSAN NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY

Message & Program

Dear Colleagues,

We are pleased to inform you that the 8th International Trading Conference 2018 will take place on Tuesday, the 23rd of October in Ulsan, Korea. This event has now become a leading forum where experts on energy markets from home and abroad get together to discuss trends in the global energy market and establish strategies to further promote the energy market in Northeast Asia.

Ulsan has long been looking into measures to establish infrastructure for finance and ICT, by drawing on its rich expertise in oil storage and the sophisticated infrastructure in logistics as a port city. Ulsan has high hopes to establish an energy cluster for Northeast Asia to become a hub for not only Korean industries, but also for the global energy industry.

Amidst great change anticipated in the energy market with the emergence of innovative technologies, this year's conference will be held under the theme, "The future of a technology-based energy market" to focus on changes in the energy market brought about by blockchain and cutting edge ICT and the strategies to stay in step with such change. We hope the event will serve as a meaningful gathering where we pull our wisdom together to discover new growth engines for the energy market in the 4th industrial revolution.

We really appreciate your attendance in the ITC 2018, which is co-organized by Ulsan Metropolitan City and Ulsan National Institute of Science and Technology.

Mayor, Ulsan Metropolitan City Chulho Song

President, UNIST Mooyoung Jung

Time	Subject	Speaker
13:00	Registration	
13:30	Welcome Speech & Congratulatory Address	
	Keynote Address	
13:50	**Energy Transition Policy and Future of Energy Industry** + MC: Victoria Kim [UNIST, Professor]	
	The Future of the Energy Industry at a Time of a Shift in the Energy Paradigm	Yongsung Cho [Korea Energy Economics Institute, President]
	Session I	
14:10	**Diversification of the Northeast Asia Energy Market and Its Infrastructure** + Chair: Young-Seok Moon [Korea Energy Economics Institute, Senior Research Fellow]	
	Application of Blockchain to Energy Industry and Its Outlook	Seongchul Kwon [KEPCO, Principal Researcher]
	China Challenges Middle East Crude Pricing Mechanisms	Alejandro Barbajosa [Argus Media, Vice President]
	Development of Comprehensive Energy Futures Market at TOCOM	Ryoichi Seki [TOCOM, General Manager]
15:40	Coffee Break & Social Meeting	
	Session II	
16:00	**Technology Innovation and Energy Commodity Market** + Chair: Junyoup Lee [UNIST, Professor]	
	Speculative Trading of Electricity Contracts in Interconnected Locations	Sebastian Jaimungal [Univ. of Toronto, Professor]
	Technology and Energy Trading : Driving Transparency, Efficiency and Optionality	Richard Redoglia [Matrix Global Holdings, CEO]
	New Technologies and Developments in Shipping	Nikos Nomikos [City, University of London, Professor]
17:30	Closing Address	
17:40	Dinner & Social Meeting	

※All session will be translated simultaneously into English or Korean.

Keynote Speaker

Yongsung Cho

President, Korea Energy Economics Institute(KEEI)

Curriculum Vitae

2018 ~ Present President, KEEI
Advisory Committee Member, Ministry of Environment, Korea
Advisory Committee Member, Asia Pacific Energy Research Centre
Vice President, Korea Environmental Economics Association
2017 ~ Present Member, Presidential Committee on Green Growth

Academic Credential

1996 Ph.D., Applied Economics, University of Minnesota
1991 M.S., Economics, Korea University
1987 B.A., Economics, Korea University

The Future of the Energy Industry at a Time of a Shift in the Energy Paradigm

- The global energy market is undergoing a structural shift, due to three major factors – decreased productivity brought about by an aging population, a shift of focus in the industrial landscape from manufacturing to services and a rise in energy consumption efficiency. Due to such change, the growth rate of the global demand for energy over the mid to long term from 2015 to 2035 is likely to fall below 1% per annum. This is likely to have significant ripple effects in the energy industry. Moreover, while the three major fossil fuel sources (i.e. coal, oil and gas) will continue to take up a high share in the energy mix, the share of renewables such as solar power and wind power is anticipated to grow rapidly. As for the electricity generation industry worldwide, technological innovation, government policies and changes in consumer preference are ushering in fundamental changes. While the share of fossil fuels such as coal or gas is falling, renewable energy sources such as solar energy and wind are forecast to grow significantly.

- Meanwhile, the energy industry in Korea is likely to suffer a double whammy due to an ease in the growth rate of demand for energy and emergence of the new energy industry. In order to find new growth opportunities overseas, it is essential to boost the competitiveness of the Korean energy industry. Among the traditional energy businesses, and in particular the export businesses that are led by the private sector, global competitiveness is highly sensitive to government policies. As such, a more balanced approach to policies regarding traditional energy businesses and emerging energy businesses would be required. In order to generate new energy businesses in the future, synergy through convergence among electric vehicles, ICT, Big Data and existing businesses must be realized. To that end, energy prices must be updated to a more realistic level, a monopoly in the market must be broken and disclosure and application of information related to energy is required.

Chair
Session 1

Young-Seok Moon

Senior Research Fellow,
Korea Energy Economics Institute(KEEI)

Curriculum Vitae

2018 ~ Present Senior Research Fellow, KEEI
2017 ~ 2018 Vice President, KEEI
2015 ~ Director, Energy Policy Division, Department of Energy Industry Studies, and etc. at KEEI

Academic Credential

1990 Ph.D., Economics, State University of New York
1988 M.A., Economics, State University of New York
1984 M.S., Economics, Yonsei University
1982 B.A., Economics, Yonsei University

Speaker
Session 1

Seongchul Kwon

Principal Researcher,
Korea Electric Power Research Institute at KEPCO

Curriculum Vitae

1997 ~ Present Principal Researcher,
Korea Electric Power Research Institute at KEPCO

Academic Credential

2016 Ph.D.(course completion), Electric Engineering, Chungnam National University

1997 M.S., Electronic & Electric Engineering, POSTECH

1995 B.S., Mechanical Engineering, Kyungpook National University

Application of Blockchain to Energy Industry and Its Outlook

Over the past years, the application of blockchain technology across overall industry has been expanded as well as energy industry. The primary fields for blockchain technology application to energy industry are in recharging for electric cars and electricity trading for prosumers. Also, its application covers an overall value chain of electricity industry from generation to sales. For upcoming 10 years, various attempts will be tried to drive innovation in a traditional business model using a key property based on completeness of reliability and security for trade. In this talk, we discuss the progress of blockchain technology application focusing on the case of Korea Electric Power Corporation and also talk about the outlook in the field of "smart city" led by distributed energy resources with blockchain technology.

Alejandro Barbajosa

Vice President, Argus Media

Curriculum Vitae

2011 ~ Present Vice President, Argus Media in Singapore

2007 ~ 2011 Senior Crude Correspondant, Argus Media at London headquaters

Academic Credential

2011 M.S., Politics of the World Economy London School of Economics

China Challenges Middle East Crude Pricing Mechanisms

In a year of momentous changes for the Asian crude market, the first futures contract for delivered crude into China debuted in March. Saudi Arabia then three months later decided to change the pricing mechanism for half of its crude exports east of Suez. Shanghai's International Energy Exchange and the Dubai Mercantile Exchange have taken center stage in the pricing of physical flows to Asia-Pacific, opening up new opportunities for supplies from different regions to trade at differentials to futures contracts. Here are some of the key topics that will be discussed:

- China & India, Asia's largest crude buyers, have grown increasingly frustrated with OSP pricing mechanisms
- Arbitrage is top consideration for Asian refiners seeking to reduce dependence on Middle East crude
- Relevance of delivered crude pricing as grades from multiple regions compete in Asia-Pacific
- Shanghai's INE futures may develop as a benchmark for delivered crude, challenging traditional Middle East FOB pricing

Speaker
Session 1

Ryoichi Seki

General Manager, TOCOM

Curriculum Vitae

2011 ~ Present General Manager, TOCOM

Academic Credential

1993 B.A., Foreign Studies,
Sophia University

Development of Comprehensive Energy Futures Market at TOCOM

The latest finance market buzzword is "Fintech", which is ushering in a wave of new products and service opportunities for IT and finance companies. TOCOM was an early IT adopter where it now taken for granted that exchanges are technology-driven. High speed, high performance, resilient and scalable trading systems compete with each other and high-frequency traders are providing liquidity to markets through algorithmic trading. This presentation explores how technology is contributing to the development of commodity derivatives markets by using the example of TOCOM's energy market. TOCOM Dubai crude oil and petroleum futures contracts are inextricably linked with technology; IT enables Exchanges to provide highly-reliable and convenient markets to its participants.

Chair
Session 2

Junyoup Lee

Professor,
Ulsan National Institute of Science and Technology(UNIST)

Academic Credential

2014 Ph.D., Finance, Texas Tech University
2006 M.S., Financial Engineering, Univ. of Mighigan at Ann Arbor
2004 B.S., Economics, University of Utah
2002 B.A., Business Administration, Yonsei University

Speaker
Session 2

Sebastian Jaimungal
Professor, University of Toronto

Curriculum Vitae
2005 ~ Present Professor, University of Toronto

Academic Credential
1999 Ph.D., Theoretical Physics,
University of British Columbia

Speculative Trading of Electricity Contracts in Interconnected Locations

Markets for intraday electricity futures contracts at locations that are interconnected allow traders to speculate on relative price differences and to execute statistical arbitrage strategies. This trading activity tends to stabilize prices in the interconnected locations and dampen the effects of mismatches between demand and supply that cause price spikes. From basic economic principles, as well as empirical observations, order–flow from trades induce prices in both locations to move in the direction of net order–flow. In addition to this so–called permanent price impact from trades, traders also receive prices that are worse than the best available prices by walking the limit order book. When designing optimal trading strategies, traders must properly account for these effects in addition to the trend or co–integration of prices. In this work, we demonstrate how one can construct such strategies while simultaneously accounting for the trader's uncertainty in the underlying model. Several examples illustrate how the optimal strategies perform, and how model uncertainty (also known as ambiguity aversion) helps the trader mitigate the risk of trading.

[This talk is based on joint work with Alvaro Cartea, University of Oxford and Zhen Qin, University of Toronto.]

Richard Redoglia
CEO, Matrix Global Holdings

Curriculum Vitae
2015 ~ Present CEO, Matrix Global Holdings
2004 ~ 2015 Director, Global Energy Horizons

Academic Credential
1980 B.A., Business Economics, University of California, Santa Barbara

Technology and Energy Trading: Driving Transparency, Efficiency and Optionality

Disruptive innovations in energy markets have traditionally encountered resistance and scepticism. The debut of oil futures in the early 1980s was dismissed as a passing fad; however, within a decade, OPEC producers and market participants conceded that more accessible, liquid spot markets, independent price benchmarks and Wall Street refiners had commoditized the oil space. Technology continues to unlock vast potential and competitive advantages across all phases of energy supply and value chains. This presentation traces the evolution of modern energy markets focusing on how new technologies are redefining the rules of engagement with the promise of greater transparency, efficiency and optionality.

Speaker
Session 2

Nikos Nomikos

Professor, City, University of London

Curriculum Vitae

Professor, City, University of London

Academic Credential

Ph.D., Finance, Cass Business School, City, Univ. of London

M.S., Shipping, Trade & Finance, Cass Business School, City, Univ. of London

B.S., Economics, Athens University

New Technologies and Developments in Shipping

In my presentation I will provide an overview of current trends and developments in shipping markets. I will discuss the importance of shipping in the transportation of energy commodities and its significance in ensuring the reliability and security of supply chain. I will also touch upon the current trends and developments and in particular the potential impact of new regulations for curbing emissions. Finally, I will discuss about technological innovations and their impact on shipping. Shipping is an industry that remains traditional and Fintech has the potential to transform many of its operational practices. A number of applications of blockchain technology to improve operational efficiencies will also be discussed.

UNIST

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