

Electricity Markets and Trading

This two-day course explores the key aspects of electricity market development with a focus on the Asian region.

27 – 28 June 2013 | M Hotel, Singapore

Key Learning Outcomes

- Regulatory status of the Asian electricity industry and opportunities for investment
- The fundamentals of electricity markets and transitional arrangements
- Rationale for developing electricity systems into open competitive markets
- Wholesale market pricing
- Trading & risk management instruments
- Current and future challenges for electricity trading

Note: Laptop exercises are included in the program. To maximize learning, participants are required to bring their own laptops with MS Office Excel 2003/2007 or even 2010 version.

Who should attend

This course will provide all existing participants of the electricity industry with an improved understanding of the operation of electricity markets and the transition required to move from centrally planned, owned and operated electricity systems. This includes:

- Power producers and fuel suppliers
- Regulators and market operators
- Traders
- Banks and financial institutions
- Consultants

Course Director



Ben Vanderwaal
Managing Director,
ROAM Consulting



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a course Certificate

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Electricity Markets and Trading

What our delegates liked about our Energy courses

“There were clear presentations of the technical, commercial and governance/political aspects of electricity industry structure.”

~ **PSALM Corporation**

“This course explains the fundamental concepts in a competitive electricity market with illustrations of various electricity markets.”

~ **Department of Energy, Philippines**

“Good understanding of market rules of several countries. There are opportunities to discuss hot issues in regulatory policy.”

~ **K Power Co Ltd**

About the Course Director

Ben Vanderwaal, Managing Director,
ROAM Consulting

Ben was a founding employee of ROAM Consulting when the company was formed in early 2000. He has held the position of Managing Director since February 2010. Prior to this Ben was employed as an undergraduate engineer in the Queensland Government generation planning body, to assess the impacts of the fledgling National Electricity Market on the Queensland energy system. His combined experience equates to more than 13 years in the industry.

Ben's specialisation began with algorithm development, optimisation and data processing techniques for large analytical models. In ROAM's early years Ben was the team leader for design and primary developer of ROAM's integrated software suite. He has since carried out consulting projects covering major electricity systems in Australia, New Zealand and the USA. As an independent consultant to energy market participants Ben has employed computer modelling techniques to advise on commercial transactions of existing power system assets and development of proposed new assets. Extending into planning and development of competitive energy delivery systems Ben has worked with market operators and planners in determining operational parameters in the design of markets to deliver on investment signals and reliability standards. Ben's niche of expertise is in assisting participants, market operators and rule-makers in understanding the bridge between the physical energy delivery system and the financial market framework. With a focus on reliability of supply Ben has developed a deep planning and operational knowledge of multi area composite transmission and generation reliability assessment.

Ben's knowledge covers a wide range of market analysis from AC powerflow modelling to issues surrounding 5 minute dispatch intervals through to the 30 year planning time frame. He has presented at a number of industry forums and provided training courses to government departments in Australia and abroad.

About the Course

This course provides an introduction to electricity markets and the electricity industry, focusing on Asia. It includes a review of the fundamental principles and purpose of electricity markets, and identifies those aspects of the electricity market which are unique from other markets.

The course also emphasizes the objectives of electricity markets and market design options. A review is included to consider the options for transitioning to an energy market. Financial transactions underpin the operation of electricity markets. The course includes discussion on the strategies for risk management from various market perspectives and the 'pool' mechanism for spot market balancing.

Day one of the course covers an overview of the regulatory status of the Asian electricity industry, outlines the fundamentals of electricity system cost components and provides the rationale for developing electricity systems into open competitive markets. Day two, on the other hand, will delve into electricity pricing, participant trading and risk management instruments in a market environment. Hands on exercises will provide delegates with modelling examples to apply the theory and an active workshop simulating a real market environment will test the learnings in wholesale electricity market trading.

Detailed case studies are used, reviewing the challenges, successes and failures of transitioning from a centrally planned government owned industry to a wholesale competitive market. Participants are further engaged through a workshop to simulate the roles of market traders and through analyzing the performance of trades.



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COURSE OUTLINE

Course Registration: 8:30am
Course Commencement: 9:00am
Course Conclusion: 5:00pm

Explanation of Timings: These times act as a guide and may be modified slightly depending on the depth of class discussion and whether assessments are being conducted.

Course Programme: This program is a guide and may be altered to better address participant requirements on a consensus basis.

DAY ONE

Status of Asian Electricity Industry

- A review of the current state of the Asian Electricity Industry and emerging markets
- Planned and proposed reform in the electricity industry to promote private investment and trading
- What more needs to be done?

Overview of the Energy Supply Chain

- Real energy supply cost components
- Generation technologies
- Transmission and distribution
- Retailers and customers

The Fundamentals of Electricity Markets

- Market design objectives
- Alternative market designs, pros and cons
- Transitional arrangements
- Generation supply options
- Profiling of customer demand
- Transmission cost allocation

Case Study: Western Australia South-West Interconnected System

The interconnected electricity system in Western Australia has successfully transitioned since 2006 from a centrally planned government owned and operated utility to a successful wholesale energy market attracting IPPs and diversifying the energy supply pool. The market withstood a significant event to withstand gas shortages due to the Varanus Island gas facility explosion.

Commercial Transactions and Risk Management

- Monopolies and the reasons for Vertical Integration
- The pool as a clearing house
- Bilateral trading, hedges, caps, collars, swaps
- Spot markets and forward markets
- Liquidity vs volatility in wholesale markets

Exercise: Economics of a Diverse Power Supply

- Application of a planning model (Excel based)
- Generator economics
- Accounting for plant outages
- Load duration curves
- Convolution pricing methodology

DAY TWO

Re-cap of Day 1 Fundamentals

Unique Aspects of Energy Systems

- Composition of the supply side
- Exposure of fuel supplies to international markets
- Storage, lack of storage and hydro-electricity
- Intermittent (non-schedulable) supplies
- Demand is (mostly) inelastic, yet customers have diverse supply options
- Macro policy drivers (e.g. emissions reductions)

Wholesale Market Pricing

- Drivers of electricity price
- Baseload, intermediate, peak and super peak
- Wholesale Electricity Spot Market pricing
- Volatility & the challenge of modelling spot electricity prices
- Establishing a market price cap

Risk Management and Electricity Markets

- Risk management for generators
- Risk management for retailers
- Risk management for industrial customers

Exercise: Simulate an active market

Breaking into groups, delegates will be assigned to the role of market traders, being either generators or energy retailers. Contracts will be traded based on supply and demand portfolios and the market will be simulated to assess the performance of the trades. In depth analysis will be provided to assess volatility.

Current and Future Challenges for Electricity Trading

- Demand for electricity
- Emissions and the CO2 market
- Carbon capture and storage
- Wind and solar power and the challenge of intermittency
- The game-changing role of shale gas in energy market dynamics

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Electricity Markets and Trading

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Yes! I/We Will Attend **Electricity Markets and Trading**
27 – 28 June 2013 | M Hotel, Singapore

I cannot attend this event but please include me in your mailing list.

FEE PER DELEGATE	EARLY BIRD RATE Register and Pay on or before 19 Apr 2013	SPECIAL RATE Register and Pay on or before 24 May 2013	NORMAL RATE Register and Pay after 24 May 2013
Individuals	SGD 2,995 (SAVE SGD 400)	SGD 3,195 (SAVE SGD 200)	SGD 3,395
Multiple Bookings Discount	Book a group of 3 or more delegates and pay per delegate SGD 2,895 – SAVE SGD 500 PER DELEGATE!		

- Multiple Bookings Discount pricing is applicable to groups of 3 or more delegates from the same organisation registering for the same event, at the same time. Fee stated is the discounted price PER DELEGATE. Only one discount applies; either the early bird rate OR special rate OR group rate.
- All fees stated include luncheons, refreshments and complete set of documentation. It does not include the cost of accommodation and travel.
- A 7% Goods & Services Tax (GST) is applicable to all Singapore based companies for Singapore venue.

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Job Title: _____
Department: _____
Tel: _____
Mobile No.: _____
Email: _____

Delegate 2 Details

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Job Title: _____
Department: _____
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Mobile No.: _____
Email: _____

Delegate 3 Details

Name: Dr/Mr/Ms _____
Job Title: _____
Department: _____
Tel: _____
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Delegate 4 Details

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HOTEL INFORMATION

M Hotel

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PAYMENT TERMS

Payment must be received 10 business days prior to the event. To take advantage of discounts with an expiry date, registration and payment must be received by the cut-off date.

- Payment by bankers draft or cheque in S\$ or US\$ should be made in favour of "IBC Asia (S) Pte Ltd" and mailed to: IBC Asia (S) Pte Ltd c/o Informa Regional Business Services 111 Somerset Road, TripleOne Somerset #10-06 Singapore 238164
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Should you be unable to attend, a substitute delegate is welcome at no extra charge. Cancellations must be received in writing at least 10 business days before the start of the event, to receive a refund less 10% processing fee per registration. The company regrets that no refund will be made available for cancellation notifications received less than 10 business days before the event.

IMPORTANT NOTE

Please quote the name of the delegate, event title and invoice number on the advice when remitting payment. Bank charges are to be deducted from participating organisations own accounts. Please fax your payment details (copy of remittance advice, cheque or draft to +65 6508 2407).

Attendance will only be permitted upon receipt of full payment. Participants wishing to register at the door are responsible to ensure all details are as published. IBC assumes no further liability or obligation, beyond the refund of the paid registration fee, in the event of postponement or cancellation by IBC.

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