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ANCILLARY SERVICES

In Competitive Electricity Industries

19 – 20 NOVEMBER 2014, Singapore

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Valid Till
30 Sep 2014

TOPICS COVERED

Ancillary services – role, definitions and provision

Managing and regulating ancillary service provision

Provision of ancillary services by technical codes and standards, connection requirements & markets

Effects of 'smart grid' concepts, renewable energy & demand response in ancillary service provision

Expert Course Faculty Leader

Dr Hugh Outhred

Hugh has 30+ years' experience in energy markets in research, consulting & teaching

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27 – 28 NOVEMBER 2014, Singapore

About This Training Course

This two-day course explores the vital role of ancillary services in competitive electricity industries. The course will define ancillary services and discuss how the definitions and practical implementation of ancillary services depend on electricity industry characteristics and electricity market design. It will present case studies on ancillary service design and implementation in the UK, North America and Australia and discuss recent developments with respect to the deployment of smart grid concepts and growing levels of renewable energy penetration and demand-side participation.

Learning Outcomes

- Definitions of ancillary services used in competitive electricity industries and how those definitions depend on electricity industry characteristics and electricity market design.
- Practical implementation of ancillary services, with respect to technical characteristics and commercial arrangements for ancillary service provision.
- The role of technical standards and grid connection codes in ensuring the provision of frequency control and network management ancillary services.
- How the deployment of smart grid concepts and growing levels of renewable energy penetration and demand-side participation are affecting ancillary services.
- Approaches taken to the provision of ancillary services in the UK, North America and Australia.

Who Should Attend

The course is designed for professionals from the electricity industry, regulatory bodies, government, consultants and major energy users. Participants should have some technical knowledge of the electricity industry.

Unique Features with powerEDGE Training

- Pre-Course Questionnaire to help us focus on your learning objectives
- Detailed Course & Reference Manual for Continuous Learning and Sharing
- Practical Exercises & Case Examples to better understand the principles
- Limited class size to ensure One-to-One Interactivity
- Assessment at the end of the course to help you develop a Personal Action Plan

2 Day Course Outline

Day 1

Ancillary services – role, definitions and provision
Discusses the role of ancillary services in maintaining safe, secure and reliable electricity industry operation. Defines the various categories of ancillary services (sub-divided into continuous and contingency services and grouped as those related to supply/demand balance (frequency control), those related to network management (voltage, waveform and network flow control) and those related to system restart. Reviews the causes for ancillary services requirements and the generation, network & end-use technologies that can provide them.

Managing and regulating ancillary service provision
Discusses the ways in which ancillary service requirements can be set through policy settings and then acquired and operated through management processes. Discusses economic and technical regulatory tasks for ancillary services, including economically efficient acquisition and causer-pays cost allocation, and the auditing of ancillary service provision and pricing.

Provision of ancillary services by technical codes and standards, connection requirements & markets
Discusses the role of technical codes and standards and grid connection requirements in the provision of ancillary services. Reviews the roles that ancillary service markets can play in delivering economic efficiency and facilitating innovation in the provision of ancillary services.

Effects of 'smart grid' concepts, renewable energy & demand response in ancillary service provision
Discusses the implications of high levels of wind and solar energy penetration and the roles that 'smart grid' and 'smart meter" concepts can play in encouraging greater participation by end-users in the provision of ancillary services.

Discussion

Day 2

Case study: Ancillary services in the UK electricity industry
Reviews the characteristics of the UK electricity industry and discusses the approach taken to defining and providing ancillary services as well as outcomes to date.

Case study: Ancillary services in the North American electricity industry
Reviews the characteristics of the North American electricity industry and discusses the approach taken to defining and providing ancillary services as well as outcomes to date.

Case study: Ancillary services in the Australian National Electricity Market
Reviews the characteristics of the Australian National Electricity Market and discusses the approach taken to defining and providing ancillary services as well as outcomes to date.

Lessons from the international experience on the provision of ancillary services
Discusses lessons that might be learned from the above international experience with the provision of ancillary services in competitive electricity industries. Reviews current trends and expectations with respect to increasing penetration of non-storable renewable energy forms (e.g. wind & solar) and increasing engagement of end-users through smart metering.

Discussion

Your Expert Faculty

Dr. Hugh Outhred

In a 35-year research career, Hugh Outhred (PhD) has contributed to electric power system analysis and control, the theory of electricity industry restructuring and electricity market design, renewable energy technology, renewable energy integration, energy sector policy and sustainability policy. He has taught nearly 100 short courses on electricity industry restructuring and sustainability in a range of countries since 1988.

In 1993 and 1994 he co-authored a report on electricity industry restructuring for the California Energy Commission that highlighted the complexity of electricity restructuring in that context.

In 1995 and 1996 he led a project for the Australian National Grid Management Council to undertake electricity-trading experiments according to the proposed National Electricity Market trading rules prior to their formal implementation.

From 2004 to 2007, he was the founding Presiding Director of the Centre for Energy and Environmental Markets at the University of New South Wales. From 2009 to 2011, he was a Lead Author for the International Panel on Climate Change (IPCC) Special Report on Renewable Energy Sources and Climate Change Mitigation, published in 2011.

Hugh has been a Fulbright Senior Fellow at the University of California Berkeley, USA and has held visiting positions at Massachusetts Institute of Technology in the USA, the University of Liverpool in Britain and the Universidad Pontificia Comillas in Spain.

He has been a Board member of the Australian Cooperative Research Centre for Renewable Energy and an Associate Director of the Centre for Photovoltaic Devices and Systems at the University of New South Wales. He was a member of the NSW License Compliance Advisory Board and a member of the National Electricity Tribunal throughout their existence from 1997 to 2000 and 1998 to 2006 respectively.

Hugh Outhred (PhD), a Fellow of the Australian Institute of Energy & was, prior to his retirement in 2007, Presiding Director of the Centre for Energy & Environmental Markets at the University of New South Wales, Sydney Australia.

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REGISTRATION FORM

	NORMAL PRICE	Early Bird Ends 30 Sep 2014	GROUP OF 3 or More
2 Day Programme	SGD 3,399 Per Participant	SGD 3,199 Per Participant	SGD 2,879 Per Participant

ATTENDEE DETAILS

Name ..... Job title .....

Tel ..... Department ..... Email .....

Name ..... Job title .....

Tel ..... Department ..... Email .....

Name ..... Job title .....

Tel ..... Department ..... Email .....

Name ..... Job title .....

Tel ..... Department ..... Email .....

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COMPANY DETAILS

Organisation name .....Industry.....

Address .....

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By Telegraphic Transfer: Please quote AE1 with the remittance advise
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