COAL BLENDING

Understand coal’s physical and chemical characteristics and gain an understanding of the impacts of the blend on the power plant equipment items, from coal handling through the boiler to the dust collection plant.

25 to 26 APRIL 2017, SINGAPORE

TOPICS COVERED

BLENDING METHODS
COAL INTERACTIONS WITH PLANT PERFORMANCE
BLENDING EXPERIENCE
CHEMISTRY AND FORMATION OF COAL
SAMPLING AND ANALYSIS METHODS
REASONS FOR USING A BLEND VERSUS A SINGLE COAL BLEND BEHAVIOUR

Expert Course Faculty Leader
Barry Isherwood
COAL BLENDING
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About This Training Course
Basically and from a fundamental view, all coal produced and utilised is in the form of a blend – whether it be at the macro or micro-level. We will review what is meant by coal blending and its various concepts and definitions, which is often not well understood and different between coal sellers and buyers. On completion of the course, participants will have an understanding of coal origin and types as well as physical and chemical properties. They will understand the good and the bad bits. We will introduce Sampling and Analysis Standards and techniques and inherent accuracy and precision of such tests and what constitutes a typical coal sale/purchase contract regarding the coal quality parameters. They will also be aware of which properties are additive and non-additive when coals are blended and have a basic appreciation of evaluation criteria of candidate coals and proposed blends to be used in a power station. They will be introduced to the concept of exactly what constitutes a blend, where and how blending can be carried out and limitations. Participants will also gain an understanding of the interaction of coal within a power station and with its various components of equipment, and different blending philosophies, limitations and review some practical case studies.

Learning Outcome
On completion of the course, participants will have an understanding of coal physical and chemical characteristics, be aware of which properties exhibit linear and non-linear behaviour when combined and have a basic appreciation of the activities involved in the evaluation of candidate coals and proposed blends. From a practical point of view, participants will gain an understanding of the impacts of the blend on the power plant equipment items, from coal handling through the boiler to the dust collection plant. Participants will gain an awareness of some of the theoretical characterisation techniques which are used to evaluate coal blends and have an overview of practical issues associated with the implementation of coal blending at a utility scale.

Who should attend
This training course will be valuable to participants who need a fundamental understanding of the rationale for and mechanics of coal blending. The course is targeted at technical persons involved either with coal supply or coal utilisation, needing to gain an understanding of both theoretical and practical aspects of coal blending. Attendees may include: utility coal procurement personnel, plant operations staff, plant engineers and operators, thermal coal marketing or customer support personnel, coal traders as well as infrastructure and logistics officials.

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

This training course has a limited attendance for up to 20 participants only.

Sessions commence at 9am on all days, with short intervals at 10.30am and 3.30pm respectively. Refreshments will be provided in the short intervals. Lunch will be provided at 12:30pm for 1 hour. Sessions will end at 5pm on all days.
2 Day Course Outline

Chemistry and formation of coal
- Coal deposition
- Types and ranks of coal and classification systems
- The good and the bad bits

Sampling and analysis methods
- International and domestic Standards
- Overview of sampling methods
- The most common analysis parameters
- Investigative tools
- Measurement, tolerances and reporting bases
- Accuracy and precision of tests
- Typical qualities versus coal types
- Typical coal sale/purchase contracts

Reasons for using a blend versus a single coal
- What constitutes a blend
- Cost considerations – supplier and user views
- Environmental
- Plant design
- Security of supply

Blend behavior
- Additive and non-additive coal properties
- Power station design and limitations
- Considerations and trade-offs
- Assessment tools and predictors
- Test burn

Blending methods
- Definition and types of blends from both utility and supplier viewpoints
- Blending at the minesite
- Blending at the loading port
- Blending at the power station
- Stockpile design and management
- Evaluation of blending techniques

Coal interactions with plant performance
- Coal storage and handling
- Pulveriser performance and wear characteristics
- Combustion behaviour – ignition and burnout
- Boiler thermal performance – heat transfer and efficiency
- Ash deposition propensity
- Dust collection
- Electrostatic precipitator performance
- Ash disposal – asset or liability
- Ash utilisation

Blending experience -
- Blending philosophies
- Costs and practicalities
- Case Studies

Your Expert Course Trainer: Barry Isherwood

Since November 2012, Barry Isherwood has operated his own independent coal consultancy company, Carbon Connections Pty Ltd, providing services to both Australian and international companies in the fields of thermal coal utilisation, coal sampling and analysis, coal blending and clean coal technologies.

He commenced his career as a trainee Chemist in the coal industry in 1970, and following the completion of a number of courses including a Chemistry Certificate and a Bachelor of Science Degree in Chemistry, he has remained active in the industry for over 45 years.

He has worked for a number of companies in a variety of roles. As Chief Chemist, he managed a medium sized coal sampling and analysis laboratory for Peko Wallsend for approximately 15 years. He then moved into the role of Group Manager, Coal Technology/Marketing Technical Support (CT/MTS) for companies through acquisitions including Oakbridge, Xstrata Coal and Glencore, for approximately 25 years.

In his last 10 years with Xstrata Coal, apart from his marketing support role, he was also involved in the areas of clean coal technologies and Carbon Capture and Storage research and projects. He has sat on numerous Boards, such as CCSD (Cooperative Research Centre for Coal in Sustainable Development), CO2CRC (Cooperative Research Centre for Greenhouse Gas Technologies), CO2CRC (Otway) Pilot Projects, Callide OxyFuel Project, IEACCC, USA Futuregen Project, NIER (Newcastle University Institute for Energy and Resources, Macquarie University Science Advisory Board, World Coal Association Working Groups on Mercury as well as Emissions Performance Standards.

In his Group Manager, CT/MTS roles, he was involved in the blending of coals for both domestic and international markets, and has visited numerous power stations throughout SE Asia and around the world, attending test burns and advising on coal utilisation issues. He has also peer reviewed numerous publications from researchers as well as the recent IEACCC “Coal Blending” publication. He also co-chaired the Australian Coal Association Research Project (ACARP) Technical Market Support Committee for over 10 years.
Courses Available

4 Pillars of Transformer Condition
Advanced Project Finance for Power
Advanced Technical Report Writing & Presentation Skills
Advanced Turnaround Shutdown & Outage Management
Ancillary Services in Competitive Electricity
Asset Management for the Power Industry
Best Practice Renewable Energy Capital & Project Management
Biomass Power Generation
CFB Combustion for Boiler Operations
Clean Development Mechanism and Carbon Markets
Coal Contracts
Combined Cycle Power Plants Operation
Combined Heat & Power (CHP) and Co-Generation Plant Operations
Competency Management System for the Power Industry
Design & Operations of Circulating Fluidized Bed Boiler
Developing & Structuring Public-Private Partnership (PPP) for Infrastructure
Effective Tender Process Management for Power & Utilities
Electrical Hazop (eHazop) Studies for the Power Industry
Electricity Demand-Side Management
Electricity Industry Design
Electricity Network Planning
Electricity Retail Contracts
Electricity Theft
Electricity Trading Essentials
Energy Efficiency
EPC Contract Management for Power & Utilities
Essentials of Coal Markets and Trading
Essentials of Power Trading
Excitation Systems
Feed-In Tariffs for PV Systems
Finance for Non-Finance Professionals in Power & Utilities
Financial Modelling for Project Finance in Power & Utilities
Fitness-For-Service AP1 579 & High Energy Piping Life Management
Fundamentals of Geothermal Energy
Fundamentals of Power Generation
Gas & LNG Contract Negotiation
Gas Turbine Generator Selection, Operation & Maintenance
Gas Turbine Hot Gas Paths, Rotors & Failure Analysis
Gas Turbine Major Inspection & Overhaul
GE Gas Turbine Operations Simulation Based
HRSG Design, Operations & Understanding, Controlling of HRSG Damage
HV Substation Design & Construction
IEC for Utilities
Integration of Distributed Generation
Introduction to Carbon Capture & Storage
Introduction to Clean Coal Technology
Introduction to Power Systems
Keeping Electrical Switchgear Safe
Leadership & Team Dynamics for Power & Utilities
LNG Fundamentals
LNG Markets & SPOT Trading
Maintenance Planning & Scheduling
Making IPP & Renewable Energy Projects Contract Frameworks Bankable
Managing Complex Projects for Power and Utilities Professionals
Medium Voltage & High Voltage Switchgear
Metallurgy for Engineers
Mechanical Engineering for Non-Mechanical Engineers
Mini Hydro Project Analysis
MKV Speedtronic Control System
MK VI Speedtronic Control System
Nuclear Energy Project Planning & Economics
Nuclear Power
Offshore Platforms Electrical Systems Design & Illustrations
Operations of Coal Fired Power Plants
Power Generation Commissioning, Operations & Maintenance
Power Generation Operation, Protection & Excitation Control
Power Plant Chemistry for Chemist & Chemical Engineers
Power Purchase Agreements
Process Control Methods
Programmatic CDM
Relay Protection in Power Systems
Reliability Centered Maintenance Masterclass
Reliability Engineering
Renewable Energy Development & Investment
Renewable Energy Integration
Risk Based Inspection
Risk Management in Power Markets
Root Cause Analysis
Rotating Equipment Maintenance & Reliability Excellence
SCADA & Power Systems
Smart Grid
Solar Energy & Photovoltaic Power
Spare Parts Optimisation
Supercritical and Ultra-Supercritical Coal-Fired Power Plant
Technical Report Writing & Presentation Skills for Power & Utilities Professionals
Ultra Low NOx Gas Turbine Combustion
Uninterruptible Power Supply
Vibration Analysis & Condition Monitoring
Waste to Energy Plant Operations
Water Treatment and Corrosion Control for Steam Generation and Power Production
Writing Effective Standard Operating Procedures (SOP) for Power & Utilities Professionals & Engineers
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*GST FOR SINGAPORE REGISTERED COMPANIES

ATTENDEE DETAILS

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COMPANY DETAILS

Organisation name .............................................................. Industry ..............................................................
Address ..............................................................................................................................
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PAYMENT METHODS

By Cheque/ Bank Draft: Make Payable to PowerEdge Pte Ltd.
By Telegraphic Transfer: Please quote AE1 with the remittance advise
Account Name: PowerEdge Pte. Ltd.
Bank Address: 65 Chula Street OCBC Centre, Singapore 049513

All bank charges and payment in Singapore dollars (SGD) to be borne by payer. Please ensure that PowerEdge Pte Ltd receive the full invoiced amount.

Payment Terms

Payment is due in full at the time of registration. Full payment is mandatory for event attendance. I agree to PowerEdge Pte Ltd. payment terms

* GST- Exclusive price is only applicable for overseas corporate customers subject to qualifying conditions.

You may substitute delegates at any time. POWEREDGE PTE LTD does not provide refunds for cancellations. For cancellations received in writing more than seven (7) days prior to the training course you will receive a 100% credit to be used at another POWEREDGE PTE LTD training course for up to one year from the date of issuance. For cancellations received seven (7) days or less prior to an event (including day 7), no credits will be issued. In the event that POWEREDGE PTE LTD cancels an event, delegate payments at the date of cancellation will be credited to a future POWEREDGE PTE LTD event. This credit will be available for up to one year from the date of issuance. In the event that POWEREDGE PTE LTD postpones an event, delegate payments at the postponement date will be credited towards the rescheduled date. If the delegate is unable to attend the rescheduled event, the delegate will receive a 100% credit.

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