

CO2 EMISSIONS & THE COAL INDUSTRY

Live Online Training: An in-depth examination of CO2 emissions within the coal industry, factors affecting emissions accounting and mitigation strategies to reduce carbon emissions.

November

Course Parts will commence at **10:00** and end at **13:00** (AEST). There will be short breaks during each course Part.

Part 1: **5th November**

Part 2: **6th November**

Part 3: **12th November**

Part 4: **13th November**

4 Part Series



Our Expert Course Instructor



Scott Thomson

Managing Director, **CoalBed Energy Consultants**
Scott has held leadership roles in industry and has worked as a consultant to the Coal Seam Gas (CSG) and coal mining industry for the past 30 years.

Key Learning Objectives

- ▶ Understand the drivers behind the historical development of coal mining and the emergence of environmental concerns regarding CO2 emissions.
- ▶ Understand the technical background to the climate change debate with particular reference to the influence of coal mining.
- ▶ Develop a comprehensive understanding of the global factors influencing the demand for coal and the historical growth in emissions. Know where we are now, and where we are likely to go to in the future.
- ▶ Understand the key parameters that influence the CO2 profile of any coal mining operation.
- ▶ Scope 1, 2 and 3 emissions. What is the difference, and where should the mitigation effort be targeted?
- ▶ Learn how to go about quantifying CO2 emissions over the life of a project.
- ▶ Understand relevant regulatory constraints applicable to Australian coal mining operations.
- ▶ Discover the maturity of various ways of ameliorating CO2 emissions.
- ▶ Understand the nature and motivations of the relevant stakeholders.
- ▶ Understand how mining methods impact the emission profile, and why one type may have a lower environmental footprint than another.
- ▶ Learn the practical aspects of emission accounting and the impact of various carbon pricing scenarios.
- ▶ Learn how to undertake due diligence on a coal project from an emissions perspective.
- ▶ Explore the likely future of emissions accounting and identify potential business opportunities.
- ▶ Participate in discussions and exercises that enhance practical understanding.

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ABOUT THE COURSE

The coal industry remains an integral part of the international energy mix and is vital to the developing economies of SE Asia. It is likely to remain so for the foreseeable future; however, the business is rapidly changing to meet the respective challenges of domestic and international demand for affordable energy and a less carbon-intensive future.

Characterising emissions from coal mining is now an integral part of current mining projects and a major source of environmental contention in proposed new operations. This course provides insight into the factors that affect emissions accounting and how best to approach the issue. The course also assists with the identification of business opportunities likely to develop in this brave new world of responsible carbon management.

WHO WILL BENEFIT

The course is generally applicable to anyone who would like to understand more about coal and its relationship with CO2 emissions, including contract managers, mining engineers, geologists, administrators, executives, potential investors in coal projects, environmentalists and financial analysts. The course is designed to be particularly accessible to young professionals, and those who may already have a different background and wish to understand the implications of this rapidly evolving aspect of the core business of providing energy to the world.

EXPERT COURSE INSTRUCTOR



Scott Thomson

Managing Director, **CoalBed Energy Consultants**

Scott Thomson is a geologist with over 40 years' experience in the coal mining and energy industries. He has held leadership roles in industry and has worked as a consultant to the Coal Bed Methane (CBM) and coal mining industry for the past 20 years. He has been a managing director of a leading directional drilling service and technology supply company, and a Research Leader in coal seam gas associated with a major Australian CRC.

Scott is Managing Director of CoalBed Energy Consultants (www.coalbed.com.au), which provides project management, technical services, business development, due diligence and consulting services in coal mining, CBM (CSG), Coal Mine Methane (CMM), drilling, fugitive emissions and related areas. CoalBed counts in its client list all of the major mining companies in Australia, and many CBM players. Scott and his son Duncan have developed popular training courses in Coal Mining Fundamentals, CBM Fundamentals, CBM production and completion, and drilling which have been delivered to a range of clients in Australia and overseas.

CoalBed have developed unique skills in the evaluation of fugitive emissions from open cut mining operations and act as Estimators for companies reporting to the National Greenhouse Officer for Carbon Tax compliance. The company also manages surface to in-seam directional drilling programs for geological exploration and degasification, and have developed expertise in the use of directional drilling data for improved geological modelling.

Scott has worked in most of the major coal seam gas basins throughout the world, and assisted with technology transfer of advanced directional drilling technology into emerging markets such as China, India, South Africa, Central-Asia and Eastern Europe. Recent related experience includes developing projects in Indonesia, Mongolia, Kazakhstan, South America and Southern Africa.

Scott is the author of a number of papers that have been published in a range of journals and proceedings, and was also a co-recipient of the prestigious Stefanko Award for best paper at the 2007 SME Conference in Denver, CO, USA for a paper titled "A Petroleum Industry Approach to Coal Mine Drainage".

He holds a BSc in Geology from the University of Newcastle, an MSc in Geology from the University of New England and an MBA from Deakin University. He is a member of the Geological Society of Australia and the Society of Petroleum Engineers.

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Course Outline

Introduction: the historical development of coal mining and increasing environmental awareness of CO2 emissions

- Overview of the global coal industry
- What is coal, and how is it formed?
- The carbon cycle.
- Coal and gas; what is the nature of the association.
- Coal and the global energy mix. How is it transforming over time?
- The rise of environmental awareness and the extraction of fossil fuels.
- CO2 emissions and the coal industry.
- Do all coals produce the same amount of CO2 emissions?
- How is the issue being tackled around the world?

Climate change and coal: the “essential science”

- From ‘global warming’ to ‘climate change’; background to the R & D that shapes international perspectives.
- Context, how CO2 has varied over time.
- The implications of increasing CO2 in the atmosphere and the role of coal.
- Tipping points, what are they, and what are the implications?
- Summary of key technical concepts that underpin climate change science.

Coal mine emissions

- At what stage of the mining process do emissions occur?
- The difference between Scope 1, Scope 2 and Scope 3 emissions and how they can be determined.
- Technical considerations in developing a life-of-mine emissions profile.
- Open cut versus underground, similarities and differences in approach to characterising emissions.
- The relationship between the depth of coal mine extraction and fugitive emissions.
- Thermal coal and metallurgical coal; variance in emissions profile. Why?
- Legacy effects, coal mine waste gas and goaf leakage.
- Drilling and fugitive emissions. What can be done about abandoned historical boreholes?
- Goaf gas capture and VAM techniques.
- Long term emission reduction options.
- State of the game in Australia and overseas.

The regulatory framework underpinning emissions reporting

- The National Greenhouse Energy Reporting system and associated Technical guidelines.
- Historical background of the above, and likely future developments.
- Strengths and weaknesses of the current system from a coal mining emission reporting perspective.
- Relationship of domestic reporting regime to international agreements.
- The ‘Paris Agreement’ and coal mine emissions.
- The Independent Planning Commission and coal mine emissions in proposed developments.

Stakeholder issues

- Who are the stakeholders?
- Development of strategies to satisfy key stakeholders; examples.
- The social licence to operate, coal mining and emissions.

Mitigation strategies

- The development of a carbon management plan.
- Options for minimising and mitigating emissions.
- International efforts to reduce CO2 emissions from coal mining operations.
- Impact of carbon pricing; practical implications for coal mining.

Wrap up and discussion

- Review of the major factors that determine the success or otherwise in the management of CO2 emissions in coal mining.
- Where to from here? What is the likely future for coal mining in an increasingly low carbon world?

Exercises: A number of short exercises and workshops designed to reinforce key topics.

Video: The course material will be supplemented by videos illustrating key subject matter.

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