8TH ANNUAL CARBON CAPTURE AND STORAGE SEMINAR

Institution of MECHANICAL ENGINEERS

11 November 2014
One Birdcage Walk, London
www.imeche.org/events/C6126

Process Industries Division
Seminar



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*image courtesy of SaskPower

8TH ANNUAL CARBON CAPTURE AND STORAGE SEMINAR

11 November 2014, One Birdcage Walk, London

UNLOCK CCS BUSINESS DEVELOPMENT OPPORTUNITIES FOR YOUR ORGANISATION.

Carbon Capture Storage (CCS) technology is essential if the UK government is to meet its CO2 emission reduction commitments without incurring unnecessary and damaging reductions in the security of electricity supply or expensive purchases of fuel on the world market.

Attend the **8th annual CCS seminar** to discover what the government is doing to help progress CCS technology within the UK and review current projects in China and North America.

This event will provide you with an overview of the latest developments in the technological, legal, policy and regulatory aspects currently affecting the development of CCS projects.

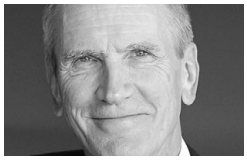
BENEFITS OF ATTENDANCE:

- **Receive** the latest updates on the UK government sponsored FEED projects
- **Understand** the potential implications on your business opportunities
- **Hear** the influential views of parliamentary policy makers
- **Discover** the latest developments on international activity in CCS
- **Network** to ensure you are making the right business contacts

SUPPORTING ORGANISATION:

CCSA Carbon Capture & Storage Association

OUR EXPERT SPEAKING PANEL INCLUDES:



MICHAEL GIBBONS, CHAIRMAN
CARBON CAPTURE AND STORAGE ASSOCIATION



MIKE CAIRNS-TERRY
PROJECT ENGINEER
PROGRESSIVE ENERGY



SARAH TENNISON
LOW CARBON ECONOMY MANAGER
TEES VALLEY UNLIMITED

See page 5 for full speaker list

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PROGRAMME

TUESDAY 11 NOVEMBER 2014

09:00 **REGISTRATION AND REFRESHMENTS**

09:30 **CHAIR'S OPENING REMARKS**
Michael Gibbons, Chairman, Carbon Capture and Storage Association

CURRENT CCS UK PROJECTS

09:40 **KEYNOTE ADDRESS:**
Tom Greatrex MP, Shadow Energy Minister (Invited)

10:00 **WHITE ROSE CAPTURE: PROJECT OVERVIEW**
Jennifer Guy, Knowledge Manager, Capture Power Ltd
- Project summary
- Technology overview
- Progress

10:25 **THE WHITE ROSE CCS PROJECT**
Calum Hughes, Project Director CCS (FEED), National Grid Carbon
- Project Framework
- Oxy-Power Plant
- Transportation and Storage Network

10:50 **NETWORKING REFRESHMENT BREAK**

11:10 **THE PETERHEAD CCS PROJECT**
Kevin Banks, Rotating Engineer, Shell
- An overview of what the Peterhead project entails
- CO_2 volumes to be captured, the duration of the project, the technology to be used and the potential for it to be replicated
- A short update on how FEED work is progressing and the anticipated project timeline

11:35 **SAFETY CONCERNS OF STORED CO_2**
Tom Mallows, Development Director CCS & Gas Storage, The Crown Estate
- What is CO_2 Stored
- The development programme
- The use of CO_2 Stored

12:00 **QUESTION AND ANSWER SESSION**
Delegates will have the opportunity to put forward questions to the morning presenters, before the seminar breaks for lunch.

12:25 **NETWORKING LUNCH**

OVERSEAS AND NON-ENERGY PROJECTS

13:25 **POLICY SCOPING DOCUMENT**
Theo Mitchell, Policy Manager, Carbon Capture and Storage Association
- Prospects for CCS under the EU 2030 framework
- Review of CCS directive

13:50 **TEESSIDE – LEADING THE CHANGE ON INDUSTRIAL CCS**
Sarah Tennison, Low Carbon Economy Manager, Tees Valley Unlimited
- Progress on the Teesside Industrial CCS Network
- Technical and commercial issues associated with industrial CCS in the UK
- The next steps required for industrial CCS to be a reality in the UK

14:15 **CHINA'S CCUS DEVELOPMENT AND DEMONSTRATION PROGRAMME**
Andrew Minchener, General Manager, IEA Coal Research
- Technology options in the Chinese context
- Industrial pilot scale projects
- Early large scale demonstration opportunities

14:40 **NETWORKING REFRESHMENT BREAK**

15:00 **BENEFICIAL USE OF STEELWORKS GASES COUPLED WITH CCS**
Mike Cairns-Terry, Project Engineer, Progressive Energy
- An introduction to iron and steel-making and the waste gases that are produced
- Conventional uses for such waste gases
- Options to capture CO_2 from the waste gases
- Example study: use of BOS gas to produce CO for use in an Allam

15:25 **CAPTAIN CLEAN ENERGY PROJECT**
Alan James, Managing Director, Pale Blue Dot
- An overview of Captain Clean Energy project
- Solutions to store CO_2
- An update on the project as it negotiates for a CCS CfD

15:50 **ENGINEERING ANALYSIS AND STANDARDISATION**
Andy Brown, Engineering Director, Progressive Energy
- ISO Committee, who are producing a worldwide standard for CCS Transportation
- Modelling work on the operation of CCS systems
- CO_2 quality for storage

16:15 **DECC POLICY DEVELOPMENTS**
Speaker to be advised, OCCS, DECC
- Summary of current policy
- Bringing forward a second phase of CCS projects
- Setting out the commercial offer for CCS developers

16:40 **CHAIR'S CLOSING REMARKS**
Luke Warren, CEO, Carbon Capture and Storage Association

16:50 **END OF SEMINAR**

Find out more about our speakers at www.imeche.org/events/C6126
- This programme is subject to change.
- The Institution is not responsible for the views or opinions expressed by individual speakers.

Organising committee:
Process Industries

Advisory Board:
- **Andy Brown,** Progressive Energy
- **Michael Gibbons,** Carbon Capture and Storage Association
- **Jon Gibbins,** UKCCSRC
- **Norman Harris,** 20CC Ltd
- **Calum Hughes,** Yellow Wood Energy
- **Luke Warren,** Carbon Capture and Storage Association

SPEAKERS AND CONTRIBUTORS

THE INSTITUTION IS DELIGHTED TO HAVE SECURED AN INSPIRING LINE-UP OF SPEAKERS THAT WILL SHOWCASE SOME OF THE OUTSTANDING RESEARCH AND APPLICATIONS THAT CURRENTLY EXIST WITHIN THE FIELD OF CARBON CAPTURE STORAGE (CCS).

- Norman Harris CEng FIMechE, Process Industries, Institution of Mechanical Engineers

TOM GREATREX MP
KEYNOTE SPEAKER
SHADOW ENERGY MINISTER

Tom Greatrex worked as policy advisor to three successive Secretaries of State for Scotland between 2007 and 2010 (Douglas Alexander, Des Browne and Jim Murphy). Tom was selected by Rutherglen & Hamilton West CLP in March 2010 to stand as their Labour candidate in the General Election, which he won with a majority of 21,002. Following his election, Tom was a member of the Energy and Climate Change Select Committee. He stood down from the committee in October 2010. On 7 October 2011, Tom was asked by Ed Miliband to become Shadow Energy Minister, with policy responsibility for oil and gas, electricity market reform, renewables, National Grid and related issues.

MICHAEL GIBBONS
MORNING CHAIR
CARBON CAPTURE AND STORAGE ASSOCIATION

Michael Gibbons started his career at ICI and joined Powergen in 1991, where he had a range of roles at Director level, including MD for Powergen's gas business.

Since leaving Powergen he has worked for better regulation. In 2007 he led the Gibbons Review of Employment Dispute Resolution Regulations for the Secretary of State for Trade and Industry. In 2008 the European Commission appointed him to the High Level Advisory Group on Administrative Burdens. In 2009 the Secretary of State for BIS appointed him Chairman of the Regulatory Policy Committee, an independent scrutiny body which advises government on proposed UK regulations. He was reappointed in 2012. He is Chairman of Elexon Ltd and the BSC Panel.

LUKE WARREN
AFTERNOON CHAIR
CEO, CARBON CAPTURE AND STORAGE ASSOCIATION

Luke Warren is the Deputy Chief Executive at the Carbon Capture and Storage Association, based in London, where he leads the CCSA activities on Electricity Market Reform and has worked hard to ensure that specific CCS challenges within EMR and the current Energy Bill are being addressed.

Luke also plays a key role in continuing discussions with UK government on the removal of regulatory barriers for CCS.

Prior to joining the CCSA, Luke worked at the World Coal Institute, an organisation working on global issues impacting the international coal industry such as CCS and mine safety. Luke started his career in the energy industry at IPIECA as a Project Manager of the Climate Change Working Group.

ANDY BROWN
ENGINEERING DIRECTOR, PROGRESSIVE ENERGY

Andy Brown has extensive operational, maintenance and engineering power station experience within CEGB and its successor companies, becoming Progressive Energy's Engineering Director in 1998. He has been responsible for engineering of a 450MW IGCC at Teesside as well as further projects on other sites.

JENNIFER GUY
KNOWLEDGE MANAGER, CAPTURE POWER LTD

Jennifer Guy is the Knowledge Manager for Capture Power Limited, the consortium delivering the White Rose CCS project. She has been with BOC-Linde for 12 years, starting work as a process engineer within global business development and most recently working as the Environmental Manager for the Linde Group. She is a Chartered Mechanical Engineer with the IMechE and is in the process of completing her MBA at Warwick University.

CALUM HUGHES
PROJECT DIRECTOR CCS (FEED), NATIONAL GRID CARBON

Calum Hughes is a dual-qualified engineer and lawyer with more than 25 years experience in industry. The first 15 years of his career were spent in engineering and project management, the majority being in the upstream oil and gas industry. He worked for the first few years in hydrocarbon reservoir appraisal before moving on to engineer and manage oil and gas production and export plant development projects, on and offshore, mainly in Europe and Africa. Around ten years ago Calum took some time out to study law and went on to qualify as a solicitor. Whilst in practice he developed a keen interest in energy law and the legal and policy frameworks around CCS specifically. He currently works as a consultant specialising in CCS and has been with National Grid's CCS team for a little over three years.

SPEAKERS AND CONTRIBUTORS

THIS EVENT WILL BRING POLICY MAKERS AND MANUFACTURERS TOGETHER WITH THE SPECIALISTS RESPONSIBLE FOR ADVANCING CCS PROJECTS.
- Luke Warren, CEO, CCSA

KEVIN BANKS
ROTATING ENGINEER, SHELL

Kevin Banks has a 1st Class Honours degree in Mechanical Engineering from Dundee University and an EngD in Mechanical Engineering from Cranfield University. He currently works in Shell Projects & Technology, Aberdeen, as a Rotating Equipment engineer and brings approximately 10 years experience in this field having previously worked for a major rotating equipment vendor.

TOM MALLOWS
DEVELOPMENT MANAGER, THE CROWN ESTATE

Tom Mallows is a CCS and Natural Gas Storage Development Manager for The Crown Estate based in Edinburgh. He has over ten years' experience in offshore development, and before taking on his role he was The Crown Estate's Consents & External Relations Manager in Scotland. Tom has a background in ecology and marine environmental management and assessment, project development and business management. Before joining The Crown Estate he managed the start-up of SMRU Ltd, the commercial arm of St Andrews' Sea Mammal Research Unit. He has successfully delivered pre-consent elements of a number of projects including offshore pipeline and E&P EIAs, as well as offshore wind and tidal developments.

THEO MITCHELL
POLICY MANAGER, CARBON CAPTURE AND STORAGE ASSOCIATION

Theo Mitchell has been with CCSA since 2013 and is currently responsible for managing and delivering CCSA's work on a number of diverse policy areas. This includes the management of CCSA Technical and Policy/Regulatory Working Groups, drafting of position papers and reports, liaising with member companies, managing stakeholders, and representing the association externally. Theo graduated from the University of Exeter in 2009 with a First Class Honours in Biological Sciences and then in 2010 graduated with an MSc in Urban and Regional Planning from the University of Birmingham.

SARAH TENNISON
LOW CARBON ECONOMY MANAGER, TEES VALLEY UNLIMITED

Sarah Tennison is the Low Carbon Manager at Tees Valley Unlimited, the Local Enterprise Partnership for Tees Valley. Sarah is responsible for the transition to a Low Carbon Economy in one of the most industrialised and energy intensive locations in the UK. Sarah was responsible for negotiating the Tees Valley City Deal with government which resulted in funding to work up an Industrial CCS network in Teesside. Sarah is now project managing the development of this network.

ANDREW MINCHENER
GENERAL MANAGER, IEA COAL CENTRE

Andrew Minchener OBE is a Fellow of the Energy Institute and a Chartered Engineer. He has over 35 years' experience of fossil fuel and biomass/waste utilisation, systems development, energy and environmental consultancy, and contract R&D, with a focus on clean coal and CCS issues in Europe and the Far East, especially China. With effect from July 2013, he became the General Manager of the IEA Clean Coal Centre, being responsible for all aspects of the centre's activities and with special emphasis on maintaining a strong international profile for all aspects of clean coal utilisation.

MIKE CAIRNS-TERRY
PROJECT ENGINEER, PROGRESSIVE ENERGY

Mike Cairns-Terry has spent the last two years working for Progressive Energy, a clean energy project development and consultancy company. While at Progressive, he has worked on the development of the Teesside Low Carbon Project, and has led a study into the use of industrial waste gases to fuel NET Power's Allam Cycle, a high-efficiency carbon-capturing power generation technology. He is also involved in a range of other low carbon energy projects. Prior to joining Progressive Energy, Mike attained a Master's degree in Physics from the University of Oxford, and is working towards obtaining Chartered Status with the Institution.

ALAN JAMES
MANAGING DIRECT, PALE BLUE DOT

Alan James has over 33 years of expertise in oil, gas and power sectors, in senior management and consulting positions relating to enterprise development, M&A, strategy and business development marketing. Alan's technical background is as an earth scientist with reservoir engineering experience. Alan has been with Pale Blue Dot since 2013 and prior to that was Managing Director CO2 Deepstore Ltd for over 7 years.

BOOKING FORM

EVENT CODE: C6126AB

EARLY BIRD ENDS 26 SEPTEMBER

8TH ANNUAL CARBON CAPTURE AND STORAGE SEMINAR
11 November 2014
One Birdcage Walk, London

REGISTRATION Please complete in capitals.

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Membership No | Institution

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How did you hear about this event? ☐ Direct mail ☐ Website ☐ Colleague ☐ Other

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☐ Events and training opportunities
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☐ Services and offers from our preferred partners

FEES AND CHARGES Please complete the appropriate box.

Registration fees include entry to the sessions, refreshments, lunch and a copy of the event proceedings.

	EARLY BIRD RATE Before 26 September 2014	STANDARD RATE	TOTAL
Member, Institution of Mechanical Engineers	£402.05+VAT	£473.00+VAT	£
Member, supporting organisation	£402.05+VAT	£473.00+VAT	£
Non-member	£518.05+VAT	£609.50+VAT	£
Student/retired	£149.60+VAT	£176.00+VAT	£
Invoice charging (if applicable)	£10.00+VAT	£10.00+VAT	£

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Payment must accompany this registration form. Registration will be confirmed only on receipt of full payment.

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5. Fax: **+44 (0)20 7222 9881**

Please read the information listed below as each booking is subject to the Institution's standard terms and conditions.

CONDITIONS OF BOOKING

Completed application forms should be returned to the address above, along with the correct payment. Attendance at the event will be confirmed on receipt of the full balance. All participants are advised to bring a copy of their confirmation with them on the day, to ensure the fastest possible entry.

SPECIAL REQUIREMENTS

Please inform us of any special requirements, ie. dietary or access, on the relevant section of this form.

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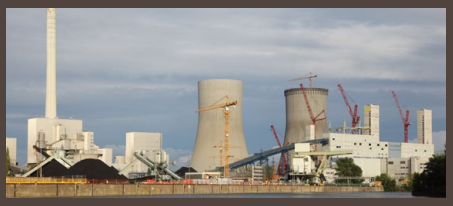


11-12 November 2014
Aberdeen

PRODUCTION EFFICIENCY: REVERSING A DECLINING TREND

With greater investment needed to maintain ageing assets in order to increase their level of production, comes an opportunity for the offshore industry to share best practice and learn from their partners. The solutions to improve production efficiency are not quick but the initiative to action improvements are and need to be shared so that financial investment continues across the UKCS.

www.imeche.org/events/C1419



3 December 2014
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AGEING PLANT: MINIMISING HAZARDS THROUGH BETTER DETECTION TECHNIQUES

To get the best out of structures that are highly susceptible to deterioration, a greater emphasis must be placed on detection. This event will provide case studies showcasing the various different types of detection techniques that ultimately are able to reduce operating costs, reduce hazards and ensure compliance with latest guidance.

www.imeche.org/events/S1826



9 December 2014
Aberdeen

PIPING AND PIPELINE RISK-BASED INSPECTION

The UK oil and gas industry is facing its greatest challenge yet as the demand for energy across the UK continues to grow. A consequence of this is the pressing need for operators to ensure greater asset integrity both on and offshore.

www.imeche.org/events/C1420

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Institution of MECHANICAL ENGINEERS

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