



# The 10th European Gasification Conference

4–6 October 2010 – Amsterdam, The Netherlands

**IChemE**  
heart of the process

# The 10th European Gasification Conference

## Gasification the key to a low carbon future

4–6 October, 2010

### Introduction

The organisers of the **10th European gasification conference** have recognised the rapidly expanding international interest in the subject and have decided both to broaden the range of the conference subject material and to extend the quality of the facilities offered at the conference venue.

The conference will include financial, commercial and legal aspects of the implementation of gasification to produce electric power, chemical feedstocks, refinery utilities including hydrogen, and clean transport fuels.

### Objectives of the conference

The 21st century presents mankind with a triple global energy challenge:

1. Accelerating energy demand from power generation, transport fuels and chemical feed stocks.
2. Continued unease from global policy makers over unregulated emissions, particularly CO<sub>2</sub>.
3. Existing energy infrastructure that is overwhelmingly dominated by fossil fuel processing.

How can a world that is heavily dependent on fossil fuels move forward and achieve a balance between clean energy supply and market demand whilst avoiding the serious risk of energy shortages and blackouts or a grim future for millions of people whose living conditions are rendered intolerable through climate change?

A key part of the solution lies with new energy conversion technologies including gasification.

The tenth European conference will focus on how gasification is:

- Expanding the range of available energy feed stocks
- Improving electricity generating efficiency, and
- Capturing undesirable atmospheric emissions

### Who should attend?

Delegates are welcome from both the traditional gasification technology development areas of Europe, the USA, South Africa and Japan; and also from Australia, Canada, China, India and any country where energy conversion via gasification is of interest.

### Technical committee

**Roger Allen** MAN Diesel and Turbo SE, Germany

**Menno Bax** Shell, The Netherlands

**Peter Blumenhofen** Uhde GmbH, Germany

**Andy Brown** Progressive Energy Ltd., UK

**Peter Christie** DECC, UK

**Jon Gibbins** University of Edinburgh, UK

**Mike Gibbons** Powerfuel Power Limited, UK

**John Griffiths** Jacobs Consultancy, UK

**Jim Harrison** Consultant

**Stuart James** E.ON, UK

**Paul Lawrence** Shaw Group, UK

**Gijs van Lammeren** Consultant, O & GBISS BA, Belgium

**Terry Raddings** GE Energy, UK

**Richard Spencer** BP Chemical Ltd., UK

**Ian Salmon** Aker Solutions, UK

**Stefaan Vanheertum** UOP N.V., The Netherlands

**Vince White** Air Products, UK

# Conference programme

Please note that the programme may be subject to alteration

## Tuesday 5 October 2010

- 09.00 Welcome address by *John Griffiths, chairman of the organising committee, and Dr David Brown, CEO IChemE*
- 09.15 Keynote speech  
Facing the commercial realities of coal gasification  
*Mike Gibbons, Commercial Director, Powerfuel Power Ltd., UK*
- Session 1 **Current Projects Update**  
*Chairman: Stefaan Vanheetum, UOP, Belgium*
- 09.45 Impact of carbon capture on an existing IGCC complex  
*Rosa Domenichini – Foster Wheeler Italiana, Claudio Allevi – Saras*
- 10.15 Design and operational strategies for IGCC CCS  
*George Booras, Chris Higman, Dan Kubek. Jim Sorensen and Doug Todd – EPRI (Electric Power Research Institute), Palo Alto, CA & Charlotte, NC, USA*
- 10.45 **Refreshment break and exhibition/poster viewing opportunity**
- 11.15 Puertollano IGCC R&D plan: Towards zero emissions power plants  
*Pilar Coca, ELCOGAS–R&D group, Spain*
- 11.45 Shell's gasification activities in Europe  
*Nicolas Ximenez– GM Gasification Europe, Middle East and Africa, Shell Global Solutions Upstream, The Netherlands*
- 12.15 The bottomless refinery - Improve refinery economics and reduce emissions through gasification  
*Farooq Sheikh, GE, USA*
- 12.45 **Lunch break and exhibition/poster viewing opportunity**
- Session 2 **Technology Updates (Part 1)**  
*Chair: Stuart James – E.ON, UK*
- 13.45 Water addition for carbon monoxide shift reaction: Optimization of economics  
*S Arienti, L Mancuso, M Carloni – Foster Wheeler Italiana Srl, Italy*
- 14.15 Uhde's PRENFLO technology as contribution to a sustainable development  
*Peter Blumenhofen – UHDE, Germany*
- 14.45 Advanced hydrogen and CO<sub>2</sub> capture technology for sour syngas  
*Jeffrey Hufton, Tim Golden, Robert Quinn, Jeffrey Kloosterman, Charles Schaffer, Reed Hendershot, Kevin Fogash, Air Products and Chemicals, Inc., Allentown, PA, USA, and Andrew Wright, Vince White - Air Products PLC, Walton-on-Thames, UK*
- 15.15 **Refreshment break and exhibition/poster viewing opportunity**
- 15.45 Planning and delivering gasification projects beyond IGCC: The product choices available in fuel or chemicals sectors give further added value to coal and carbonaceous feedstocks  
*Ian Salmon – Aker Solutions, UK*
- 16.15 Hydrogen Power Plant – Serving The Needs of Tomorrow  
*Terry Raddings, Marcus Scholz, Robert M Jones – GE Energy, UK*
- 16.45 The evaluation and choice of technology for the Hatfield 900MW IGCC Project  
*Elias Xanthoulis, Graeme Dunn and Derrick Belcher, Jacobs Engineering, UK*
- 17.15 Delivering performance in Chinese operations today, developing technology and deployment solutions for tomorrow  
*Evert van Holthoon – GM Gasification Technology, Shell Gas & Power International B.V. The Netherlands*
- 19.30 **Pre dinner drinks**
- 20.00 Conference dinner (optional extra)  
*Guest speaker – Gardiner Hill, CCS Technology and Engineering Manager, BP International*

## Wednesday 6 October 2010

- 09.00 Keynote speech  
Gasification and clean energies: Challenges in industry  
*Michiel Mak, Vice President, Gasification and clean coal energy, Shell Gas and Power N.V., The Netherlands*
- Session 3 Technology Updates (Part 2)  
Chair: Richard Spencer – BP International, UK
- 09.30 rectisol - A mature process – still going strong, update on new applications in clean coal  
*Max-Michael Weiss, Alexander Schriebl, Lurgi GmbH - Air Liquide Group, Germany*
- 10.00 BGL Gasification – Project progress and technology developments  
*Andrew Williams – GL Noble Denton, UK*
- 10.30 Designing SELEXOL™ units for gasification application  
*Robin Matton - UOP, Belgium*
- 11.00 Refreshment break and exhibition/poster viewing opportunity
- Session 4 CCS  
Chair: Paul Lawrence, Shaw Group, UK
- 11.30 COTEC and IGSC– an immediate application for 100% carbon free power  
*John Griffiths and Dr Mohan Karmarkar Jacobs Engineering, UK*
- 12.00 The issues of gas turbines and gasification in a CCS facility  
*Jürgen Karg – Siemens, Germany*
- 12.30 Carbon – Free Hydrogen (CFH) for refineries  
*Michael Whysall UOP, Belgium and John Griffiths Jacobs Engineering, UK*
- 13.00 Lunch break and exhibition/poster viewing opportunity
- Session 5 Novel Technologies  
Chair: Roger Allen, MAN Ltd, UK
- 14.00 Uhde's activities in the development of a BTL process chain  
*Peter Blumenhofen – UHDE, Germany*
- 14.30 The proven cryogenic air separation process adapted to the needs of CCS (IGCC and Oxyfuel) resulting in a considerably lower energy consumption and load following capabilities  
*Gerhard Beysel – Linde Engineering Germany*
- 15.00 Process design for In-situ gasification of athabasca bitumen  
*Punitkumar R Kapadia, Michael S Kallos, Ian D Gates - University of Calgary, Canada*
- 15.30 A 'step-change' low-energy consumption pre-combustion CO<sub>2</sub> capture process  
*C Timmins and R C Hodrien, UK*
- 16.00 Conference closes



# Poster presentations

*Please note that the programme may be subject to alteration*

## Operating conditions of a CFB biomass gasifier to produce low-tar syngas

Chian W Chan, Shiva Mahmoudi, Jonathan P K Seville and Jan Baeyens – University of Warwick, U.K

## The fluidized bed combustion of biomass: problems and remedies

Shiva Mahmoudi, Chian W Chan, Jonathan P K Seville and Jan Baeyens – University of Warwick, U.K

## CCS with more than 170% efficiency financed by the production of bio-SNG

Robin Zwart – Energy Research Centre of the Netherlands, The Netherlands

## Techno-Economic Analyses of integrated gasification technologies for the production of fuels, Chemicals and Combined Heat and Power (CHP) from Bio to Carbonaceous resources

Kok Siew Ng, Jhuma Sadkijhukhan – The University of Manchester, UK

## Performance loss in coal gasifiers due to slagging and fouling

F Botteghi, T Papadopoulos, M Losurdo, H Spliethoff – Technische Universität München, Germany

## Assessment of gas-plasma for clean and efficient energy conversion from solid waste

Shane Morrin, Dr. Paola Lettieri, Dr. Luca Mazzei – University College London, UK and Chris Chapman Advanced Plasma Power, UK

## Gasification activities at the CRIBE biorefinery

Marco Simone – Università di Pisa, Italy

## The effects of cationic and anionic species on cellulosic biomass pyrolysis/gasification

Salim Shaik M, Cheng Yan Koh, Paul Sharratt – Institute of Chemical Engineering Sciences, Singapore

## Pilot-plant gasification of miscanthus: a technical assessment

M Kwapinska, W Kwapinski, J J Leahy – University of Limerick, Limerick, Ireland

## Experimental investigation of entrained flow gasification at very high temperature and pressure

Alexander Tremel, Thomas Haselsteiner, Stephan Gleis, Hartmut Spliethoff - Institute for Energy Systems, TU München, Germany and Frank Hannemann, Siemens Fuel Gasification Technology GmbH & Co. KG, Freiberg, Germany

## Modelling of a high temperature plasma reactor for tar removal

Ulysse Michon – Europlasma, France

## Dense membranes for efficient oxygen and hydrogen separation (DEMOYS)

Silvio Arienti, Luca Mancuso - Foster Wheeler Italiana and Pietro Pinacci – ERSE S.p.A., Italy

# General information

## Workshop

### Applied gasification – an interactive opportunity for all

A one-day workshop will take place on Monday 4 October prior to the main conference.

This is a full-day workshop providing an introduction to gasification technology and an interactive session examining the current status and future possibilities for gasification technology.

## Bursaries

There are a number of student/graduate bursaries available for attending the conference. For further details contact [Rosemary Cragg](#) on tel: +44 (0) 01788 534476, or email: [rcragg@icheme.org](mailto:rcragg@icheme.org)

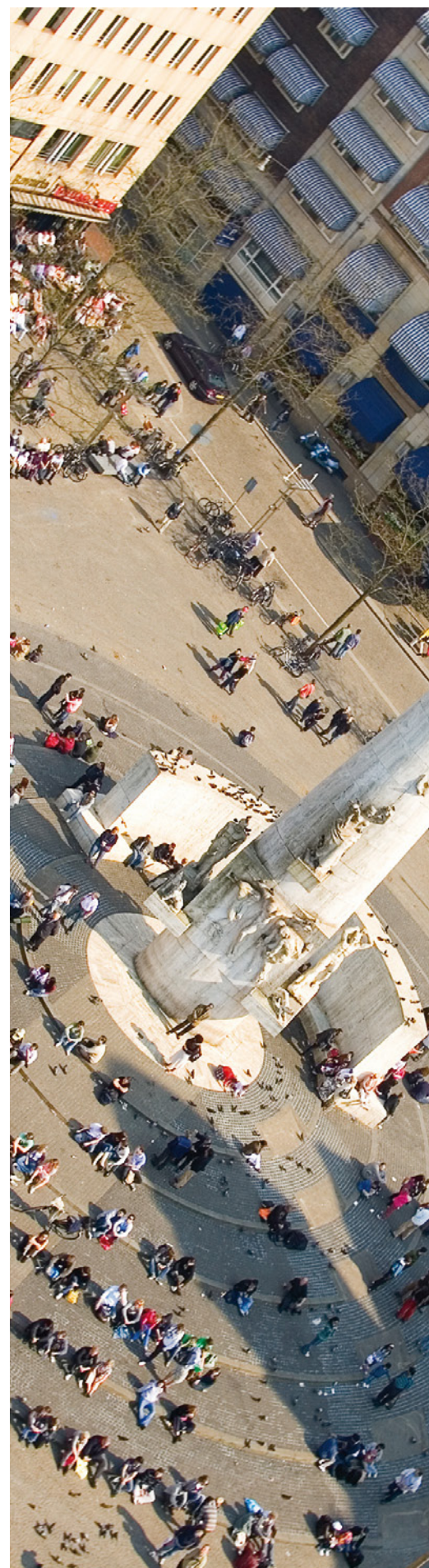
## Documentation

All delegates who are fully registered to attend the conference will be issued with a hard copy of the manuscripts and posters. All presentations given at the conference will be available (subject to author's permission) on the conference website after the conference.

## Sponsorship and exhibition

A large number of prestigious companies have already taken up sponsorship opportunities for the event, but there are still a limited number of opportunities available. Alternatively, you could take exhibition space to take advantage of the unique opportunity to promote your products to the key names in the gasification field in Europe.

If you would like to receive further information on the remaining sponsorship opportunities or exhibition space, contact [Rosemary Cragg](#) on: tel: +44 (0) 1788 534476, fax: +44 (0) 1788 560833, or email: [rcragg@icheme.org](mailto:rcragg@icheme.org)







### IChemE Energy Conversion Technology Subject Group

The subject group was formed to promote the role that chemical engineering has to play in the energy conversion process. The European gasification conferences were instigated by the group in 1995 and Energy Conversion Technology Subject Group members are entitled to the conference registration fee discount for IChemE members whether they are members of IChemE or not.

For further details regarding the subject group and its activities, please contact Sue Deacon:  
tel: +44 (0) 1788 578214, fax: +44 (0) 1788 560833,  
email: [sdeacon@icheme.org](mailto:sdeacon@icheme.org)

### Location

Amsterdam is the capital and largest city of the Netherlands, located in the province of North Holland.

### Venue

The venue for the 10th European Gasification conference is the NH Grand Hotel Krasnapolsky, a 5 star hotel situated at Dam Square opposite the Royal Palace, in the heart of the city centre of Amsterdam. The square is lined with cafes, bars and restaurants and is overlooked by the Royal Palace.



*NH Grand Hotel Krasnapolsky, a 5 star hotel situated at Dam Square (pictured left) opposite the Royal Palace (above)*

# General information

## Accommodation

A block reservation of rooms has been held at the NH Grand Hotel Krasnapolsky and delegates can book online via our website:

[www.icheme.org/gasification2010](http://www.icheme.org/gasification2010)

## Arriving

**By air:** Schipol airport is situated 18km from central Amsterdam. It is the main international airport with over 100 airlines that have direct flights and connections to all continents.

From Schiphol Airport you can catch a train, rent a car, or take the hotel shuttle bus service, which takes you directly to the hotel from the airport, this runs from 6.43am until 20.43pm and runs every half an hour. (There is an additional charge for this service, consult the hotel for information and availability)

**By train:** From the main exit of Amsterdam Central Train Station, cross the square and the traffic lights continue towards the Dam Square, and you will see the hotel on the left. This takes approximately 10 minutes. You can also catch the number 4, 9, 16, 20, 24 or 25 trams at the station and alight at the square Dam stop. The hotel is situated on the left.

**By car:** GPS co-ordinates; Latitude: 52.37267, Longitude: 4.89409 The hotel does have its own car parking garage with a capacity of 150 cars.

## Social programme

To welcome you to the conference, on the evening of Monday 4 October, delegates are invited to attend a welcome reception, which will take place in the exhibition/poster area between 18.00 and 20.00. The reception will include a selection of drinks and canapés. There is no charge for this. Please indicate on the registration form if you wish to attend.

## Conference dinner

A conference dinner will take place on the evening of Tuesday 5 October at the hotel. The evening will start with a drinks reception in the poster and exhibition area from 19.00, allowing delegates the opportunity to view the posters and exhibits on display. Dinner will start at 20.00. The cost of the dinner will be €75+ VAT per person – this will include wine and an after-dinner speaker.

Please indicate on the registration form if you wish to attend.

## Site visit

An optional site visit to [Shell Technology Centre Amsterdam \(STCA\) – 7 October 2010](#)

To give an impulse to innovation and sustainability, the Shell Technology Centre Amsterdam was opened in September 2009. The building provides an innovative working environment for Shell's 1300 researchers and laboratory staff who, working for international customers in and outside Shell, dedicate their efforts to the improvement, innovation and making cleaner of fuels and chemicals, including their production processes. Research is conducted on fossil fuel products (natural gas and oil) and also on developing clean and affordable alternatives like biofuels – made from non-food waste –, on CO<sub>2</sub> storage options and catalysts that deliver process enhancements and energy savings. The new Shell Technology Centre Amsterdam is one of Shell's top four global research centres, alongside Houston, Rijswijk and Bangalore.

## Gas to Liquids (GTL)

Based on the Fischer-Tropsch process, Shell researchers in Amsterdam developed a new process to turn gas into cleaner burning liquid fuels and other products (Gas to Liquids (GTL) process). In 1983 Shell built her first test plant in Amsterdam, followed by a commercial GTL plant in Bintulu, Malaysia, ten years later. While Shell is almost ready to start production of the world's largest GTL plant in Qatar, researchers in Amsterdam continue with their work, to further improve the process and quality of the product and reduce cost.

## Visit to STCA

During your visit to STCA you will be updated on the latest developments on GTL. During a tour around the facility you will visit a selection from the 23 labs and the GTL pilot plant

The cost of the site visit will be €30 + VAT per person. Please indicate on the registration form if you wish to attend and which option you would like to take. Places are limited, so early booking is recommended.



# Sponsors

*At time of printing*

## Conference partners



## Conference sponsors



GE Energy



A Honeywell Company

Uhde

A company of ThyssenKrupp Technologies



## Co-sponsors



## Poster sponsor



Progressive energy



*Shell Technology Centre  
Amsterdam was opened  
in September 2009.  
The building provides  
an innovative working  
environment for Shell's 1300  
researchers and laboratory  
staff who, working for  
international customers  
in and outside Shell,  
dedicate their efforts to the  
improvement, innovation  
and making cleaner of fuels  
and chemicals*

# Registration form

## The 10th European gasification conference

Please return this form with your remittance to: Conferences Department,

IChemE, Davis Building, Railway Terrace, Rugby CV21 3HQ, UK

Tel: +44 (0)1788 578214, Fax: +44 (0)1788 560833

I am a member of IChemE: ☐ Yes ☐ No Membership number: .....

I am not a member of IChemE but am a member of the ECT SG: ☐ Yes ☐ No

I am a member of a co-sponsoring organisation: ☐ Yes ☐ No

Organisation name: .....

Last name: .....

First names: .....

Title (Dr/Mr/Miss/Mrs/Ms/Prof/Eur Ing): ..... Gender: ☐ Male ☐ Female

Company: .....

Preferred address for pre-conference correspondence: Work ☐ Home ☐

Country: ..... Company/house number: .....

Post/zip code: .....

Address: .....

Town/city: ..... County/state: .....

Direct telephone: ..... Direct fax: .....

Email: .....

Special dietary requirements: .....

Please tick relevant box for payment: \*VAT charged at The Netherlands (19%) VAT rate.

If your company is registered for VAT in The Netherlands, please give the VAT number: .....

A VAT invoice will be issued upon receipt of payment.

### Registration fees

☐ €970.00 + \*VAT = €1154.30 Non member

☐ €890.00 + \*VAT = €1059.10 Member of IChemE/All co-sponsoring organisations/Energy Conversion Technology Subject Group

☐ €600.00 + \*VAT = €714.00 Author

☐ €320.00 + \*VAT = €380.80 Student

These fees include attendance at the conference sessions of Tuesday 5 October and Wednesday 6 October, all conference documentation, lunch and interval refreshments for both days and welcome drinks reception on the evening of Monday 4 October.

### Workshop

☐ €150.00 + \*VAT = €178.50. I wish to attend the workshop on Monday 4 October



# Registration form

## Welcome reception

- ☐ Free of charge. I wish to attend the welcome reception of Monday 4 October and require ( ) tickets (maximum of 2 tickets)

## Conference dinner

- ☐ €75.00 + \*VAT = €89.25 I wish to attend the conference dinner on Tuesday 5 October and require ( ) tickets

## Site visit

- ☐ €30.00 + \*VAT = €35.70 I wish to attend the site visit on Thursday 7 October

## Method of payment

(Payment must be received in full before the event date otherwise admission cannot be guaranteed).

Your booking will be confirmed by IChemE on receipt of one of the following:

- Official purchase order
- Cleared funds
- ☐ Please debit my credit/debit card: (payment in Euros only):

Cardholder name (as it appears on the card): .....

Billing address (if difference from overleaf): .....

.....

Post/Zip code: .....

☐ Mastercard ☐ Visa ☐ Visa debit/delta ☐ Maestro ☐ Amex ☐ Debit Mastercard

Card number:

Valid from date:     Expiry date:

Issue Number:  Security code    Card holder's signature .....

Card holder's telephone number: .....

- ☐ Cheque enclosed (made payable to Institution of Chemical Engineers)

Please sent to IChemE, Conferences Department, Davis Building, Railway Terrace, Rugby, CV21 3HQ, UK

- ☐ Please invoice my company quoting purchase order number.....

Please note that registration cannot be processed unless a copy of your purchase order is received with your registration form. If your company does not use purchase order numbers, please attach a formal request to invoice on your company's letterhead.

## Cancellation policy

Cancellations received in writing 28 days prior to the event will be subject to an administration charge of 10% of the fees + VAT. No refunds will be given for non-attendance or cancellations received less than 28 days prior to the event. Substitutions will be welcome at any time. We reserve the right to cancel or alter the programme.

### Data protection

In accordance with the Data Protection Act, IChemE (and companies processing data on its behalf) will hold and use the data contained on this form for administration purposes, to keep you informed of its activities and offer goods and services provided by the Institution.

- ☐ If you would prefer not to receive IChemE product and service literature please mark the box.

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IChemE offices in  
Kuala Lumpur, London,  
Melbourne, Rugby and  
Shanghai

[www.icheme.org](http://www.icheme.org)

Jul10

