

Newsletter of

ENERGY SECTOR UPDATE

Considerable activity has taken place in the energy field since the last Newsletter and this is reflected in the activities of the major energy companies, in the Budget and in the activities of the Royal Society of Chemistry. Earlier the RSC had produced a report on 'Developments for Biofuels as evidence for a study by the Royal Society' and an earlier RSC report on 'Chemical Science Priorities for a Sustainable Energy Solutions' produced by the Environmental Sustainability and Energy Forum (ESEF).

This was followed up this year by the production of a Roadmap via electronic consultation. This has not been widely seen and I include it here for information. It has attracted some interest and many differing viewpoints. Of particular commercial interest is the need to use CCS for coal fired power stations on a relatively short time scale and which still poses a number of chemical challenges, some of which will be considered in the IUPAC meeting (see page 2) Interestingly geo-engineering is not included in the Roadmap.

RSC Roadmap – Responding to Global Challenges

Summary report from the second online consultation session, October 2008

5 Year Horizon	10 Year Horizon	15 Year Horizon
<p>Biofuels & Biopower: Better ways of hydrolysing diversified bio-mass and lignocellulose.</p> <p>Energy Efficiency: Increased strength to weight structural materials, including use of nano technology.</p> <p>Nuclear: Better understanding of the physico-chemical effects of radiation on material fatigue, stresses and corrosion in nuclear power stations.</p>	<p>Nuclear: New and improved methods and means of storing waste in the intermediate and long term including new materials and radiation tolerance.</p> <p>Hydrogen: More efficient water electrolysis.</p> <p>Fossil Fuels: Development of better coal gasification technology.</p> <p>Solar Energy: •Development of third-generation photovoltaic materials.</p> <p>Wind and Water: Development of lightweight durable composite materials, coatings and lubricants</p>	<p>Energy Efficiency: Superconducting materials at higher temperatures.</p> <p>Energy Conversion and Storage: Improve energy density of storage technologies. Advances in the fundamental science and understanding of surface chemistry. Development of next generation of fuel cells, batteries, electrolyzers and superconductors.</p> <p>Fossil Fuels: Carbon capture and storage Enhanced oil recovery (EOR) Saline aquifers,- Amine scrubbing. Alternatives to amine absorption, including polymers, active carbons or fly ashes. - Understanding corrosion and long term sealing of wells - Understanding the behaviour, interactions/physical properties of CO2 under storage conditions.- Maximising storage potential. Conversion of CO2 to chemicals. - Integrate with combustion and gasification plants</p> <p>Hydrogen: Storage of hydrogen.</p> <p>Solar Energy:</p>

MEETING REPORTS

Mimic photosynthesis

Alan Williams, Chairman, Energy Sector

The Energy Sector was involved in a meeting organized by the SCI-Process Engineering Subject Group with the title "Biofuels: Technology Meets Strategy" in May 2008. This meeting had a very interesting programme but was not well attended by members of the Energy Sector.

A successful meeting on 'Recent Developments in CO₂ Capture Research for the UK Power Market' was held in November 2006 at Didcot Power Station. In view of the considerable interest in this field it has been possible to be involved in a similar meeting covering in the IUPAC Congress in Glasgow in August, 2009 and details of this are given below

42nd IUPAC Congress, 2-7th August, SEC, Glasgow
Chemistry Addressing Climate Change-Wednesday 5th August

Programme:

Convener: Michael Whitehouse, *RWE Npower plc, UK*

Invited Speakers

Title TBA

Professor Reinhold Kneer, *University of Aachen, Germany*

Amine selection to reduce energy use for CO₂ capture by aqueous scrubbing

Gary T. Rochelle, *University of Texas at Austin, USA*

Contributed Papers

Development of the IUPAC database for evaluated kinetic data for atmospheric chemistry

R. Anthony Cox, *University of Cambridge, UK*

Developing solid sorbent materials and processes for post-combustion CO₂ capture

Trevor C. Drage, *University of Nottingham, UK*

Numerical investigation of oxy-coal combustion to evaluate radiation concepts in coal-fired boilers

Penny Edge, *University of Leeds, UK*

Attrition effects during the reactivation of limestone-based sorbentsPaul Fennell, *Imperial College, London, UK***Commercialising carbon capture technology**Matthew Hunt, *Doosan Babcock Energy Ltd***Title TBA**John Oakey, *Cranfield University, UK***The transformation of carbon dioxide to methanol with silanes catalyzed by N-heterocyclic carbenes**Siti Nurhanna Riduan, *National University of Singapore, Singapore***Industrial applications of chemistry in power plant flue gas cleaning including post-combustion CO2 capture**Christopher J. Satterley, *E.ON Engineering Ltd, UK*

Members who wish to attend can register via the RSC web page. Please note that there may be some financial assistance available for chemistry students.

Joint Meeting of the Coal Research Forum, Environment Division and the Royal Society of Chemistry Energy Sector with the Energy Sector AGM

Seminar on 'Co-firing and Fuel Characterisation'

Tuesday 15th September, 2009

University of Nottingham Engineering Faculty, Room A3 Coates Building.

Location given <http://www.nottingham.ac.uk/about/campuses/documents/up-map.pdf>.

10.00 Coffee

10.30 Session I: Co-firing Applications

12.15 Lunch

1.30, Session II. AGM for Energy Sector members-see below

2.30. Session III : Applications and Fuel Characterisation

4.00 Conclusions.

Tea

Further information is available on the Energy Sector Website or from A.Williams@leeds.ac.uk. A registration form is given below or is available from the website or davidja.mccaffrey@tiscali.co.uk.

I wish to attend the meeting on 'Characterising Waste for Energy Applications' which will take place at the University of Nottingham on 15th September, 2009

Name _____ Company _____

Address _____

Phone (incl. STD code): _____ Email: _____

Registration fee: £35 for members, £50 for non-members.

Please send this form (or copy) to : Dr Michael Whitehouse, Electron Building (E10), RWE npower, Windmill Hill Business Park, Whitehill Way, SWINDON, SN5 6PB

Payment by cheque only with the Registration form, please make cheques payable to RSC IAD Energy Sector

THE ENERGY SECTOR ANNUAL GENERAL MEETING

This will take place as part of the above Energy Sector meeting on Tuesday 15th September, 2009, at The University of Nottingham, Room A3, Coates Building.

Chairman : Professor Alan Williams.

A G E N D A

- i) Report of activities and actions since the last Meeting
 - (ii) Reports by Chairman/Secretary/Treasurer
 - v) Election of the Executive Committee*
 - Officers, Chairman (vacancy) and Committee Members (5 vacancies)
 - vi) Any other business
- Nominations are invited for all positions on the Executive Committee, the membership of which is given on the last page of this Newsletter. At the present time the Chairman has indicated that he does not wish to stand again for that post and there can be up to 5 additional Committee members.. Will nominations please be sent by post to the Secretary or electronically to the Chairman (fueaw@leeds.ac.uk). They should be sent by 4 August and be supported by two other members.
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 - Further details of the AGM will be given on the website.

COMMITTEE MEMBERSHIP

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As always, we welcome your comments on Energy Sector activities or any ideas you may have for future meetings. If you would like to get in touch please send an email to rscenergysector@aol.com or view our website at www.rsc.org/Membership/Networking/InterestGroups/Energy/index.asp

