

UK Advanced Power Generation Technology Forum



**UK ADVANCED POWER GENERATION TECHNOLOGY
FORUM**

**WORKSHOP ON CARBON ABATEMENT
TECHNOLOGIES
- DEVELOPMENT AND IMPLEMENTATION OF
FUTURE UK STRATEGY**

REPORT ON PANEL SESSIONS

Tony Oliver, APGTF

**The Conference Centre, 1 Victoria Street, London,
Tuesday 16 March 2010**

INTRODUCTION

The Secretary of State in the UK's Low Carbon Transition Plan (2009) said "The transition (plan) gives us the chance to lead the clean industries of the future. In demonstrating the technology to capture carbon dioxide and lock it away, for example, we can lay the pipes and the infrastructure for new, sustainable industrial hubs, and we gain the engineering knowledge to win contracts installing it in other countries". The announcement for the support of up to four full-scale demonstrations of power plants with carbon capture and storage (CCS) is a start. However, other countries are committing to full-scale CCS projects and the UK is in danger of being left behind. The UK now needs to act with increased urgency if it is to lead in the future.

The UK Advanced Power Generation Technology Forum (APGTF) provides the focus for the Power Generation sector in the UK on the research and development activities on fossil fuel, including biomass and waste, and associated technologies including CO₂ capture and storage. This focussing role is becoming increasingly important with the UK RD&D landscape in energy getting more complex and action becoming more urgent. The APGTF sees itself as a preferred stakeholder body for giving advice and information on carbon abatement technologies (CAT) and CCS RD&D strategy, its implementation and priorities.

Following the detailed discussions on RD&D in the 2009 APGTF workshop, this workshop will focus on a high-level perspective, with a particular emphasis on the demands for 2020 and beyond. In particular, the APGTF is organising this workshop with the following aims:

- *To provide an update on the fossil energy CAT/CCS strategy in the UK, the EU and globally*
- *To hear from major stakeholders on their CAT/CCS strategy and to discuss what else the UK should be doing to ensure CCS can be implemented in time to meet the UK and global needs*
- *To discuss what the UK needs to do to lead on CCS technology in the future*

The workshop consisted of invited presentations, which can be found on the APGTF website (www.apgtf-uk.com), covering the UK, EU and global strategies and initiatives. This was followed by a session in which all delegates were invited to participate to consider what needs to be done to ensure that the UK can be a leader on CCS technology in the future. The output from the workshop will be fed into the Government and other national and international funding agencies to help ensure success with CCS for the UK.

This document is a report of the panel sessions and the accompanying discussion sessions.

ATTENDANCE FIGURES

There were approximately 160 delegates comprising representatives of industry, commerce, academia, Government, funding agencies plus other stake holders and interested persons.

THE PANEL SESSION

The panel was chaired by Philip Sharman of ALSTOM, who is chairman of the APGTF and the panel was made up from representatives of organisations in the APGTF:

Jeff Chapman	CCSA
Kathryn Newell	DECC
John Oakey	Cranfield University
Gerry Riley	RWE npower
Chris Topham	Jacobs Engineering
Rosie Whitbread	HSE

The broad objectives of the panel session were:

- *To hear from major stakeholders on their CAT/CCS strategy and to discuss what else the UK should be doing to ensure CCS can be implemented in time to meet the UK and global needs*
- *To discuss what the UK needs to do to lead on CCS technology in the future*

The chairman started the session by posing the following question to the panel and then the delegates were then invited to provide answers or comments as appropriate.

With the future energy mix beyond 2020 likely to include considerably more generation from intermittent renewable energy sources and a new generation of nuclear power stations - both of which will have constraints in terms of flexibility and despatch merit - fossil fuel power generation systems are likely to be required to be more flexible in their operation. How does the deployment of CCS on both coal- and ultimately gas-fired power plant fit with this increasing requirement?

A variety of answers and comments were put forward from the panel and from the floor; the main points are listed below.

- CCS plant will have to be flexible and theoretically it can be flexible - turbine bypass would be one way but this would lose efficiency
- Of the two main post combustion technologies, oxycoal may prove to be more flexible
- IGCC is predominantly seen as baseload plant but it could provide some flexibility by storing hydrogen for peaking plant
- Some expressed the view that a better option is to have more electricity storage
- There may be a need for low cost, flexible gas plant possibly unabated
- Wind plant can provide some flexibility
- Keeping a 'mothballed' plant, such as an oil plant, available for running a few days a year may be sensible.
- Flexibility requirements could drive other technologies into the market place
- The Government is looking out to 2050 to identify the innovations needed to provide security of supply whilst meeting climate change targets

The discussion was then opened up to cover any relevant topic and the additional points that were made are listed below

- There is a need to move towards putting all power generation technologies on an equal footing for incentives
- Flexibility requirements could drive other technologies into the market place
- Underground coal gasification, direct coal SOFCs and other technologies could make a contribution in the future
- In the longer terms, electric vehicles and smart grids+smart appliances could contribute to managing flexibility and security
- Some industries eg cement and steel will have to move to CCS, possibly after coal-fired power generation with CCS
- If China and other major industrial nations do not require CCS to be fitted to these industries, there could be ‘industry leakage’ to these countries

The session finished with comments on public relations linked to CCS; the main points are listed below

- Getting PR right is crucial, get it wrong and it could be a show-stopper
- The UK needs a reference plant to aid PR
- A variety of detailed points were made for example: don’t keep referring to ‘research’ it is already ‘proven’; ‘demonstration’ is not a good word
- Finally, don’t dumb it down, be honest, take time to explain it, be consistent

CHAIRMAN’S CLOSING REMARKS

The Chairman thanked the speakers, panellists and delegates for making it a successful workshop and he thanked the Department of Energy and Climate Change for hosting the event. The Research Councils’ UK Energy Programme was thanked for organising the reception after the workshop. Finally, the Chairman said that he hoped there would be significant progress on the main issues raised for CCS to report at next year’s workshop.

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0915-0945	<i>Registration and Coffee</i>	
0945	Chairman's introduction	<i>Philip Sharman, Chairman APGTF</i>
1005	UK Energy Excellence	<i>Mike Farley, Board Member, UK Energy Excellence</i>
Part 1	<i>National and international progress with CCS and outstanding issues</i>	
1010	International scene	<i>Brian Ricketts, Energy Analyst - Coal International Energy Agency</i>
1030	European overview	<i>Simon Bennet, CCS Project network Manager, DG Tren</i>
1050	US overview	<i>Robert Romanosky, Technology Manager, Power Systems Advanced Research, US DoE, NETL</i>
1110	UK overview	<i>Bronwen Northmore, Policy Director, Cleaner Fossil Fuels Unit, DECC</i>
1130	Utility view	<i>John Campbell, Director of Energy Wholesale, Scottish Power</i>
1150	Q&A and Discussion	
1215-1315	<i>Lunch + Posters</i>	
Part 2	<i>What should the UK be doing, what is it doing and what is it planning to do?</i>	
1315	Utility view	<i>Paul Golby, CEO E.ON-UK</i>
1335	Oil industry view	<i>Tony Espie, BP Alternative Energy</i>
1355	OEM view	<i>Iain Miller, CEO Doosan Power Systems</i>
1415	NGO view	<i>Kirsty Clough, climate change policy officer, WWF</i>
1435	Academic view	<i>Stuart Haszeldine, Professor, University of Edinburgh</i>
1455	Q&A and Discussion	
1510-1540	<i>Tea and Refreshments</i>	
Part 3	<i>Future UK strategy - Issues and Priorities</i>	
1540	Introduction to Delegates Discussion Session	<i>Philip Sharman APGTF/Alstom</i>
1550	PANEL/DISCUSSION SESSION	
1700	Close	
1700-1800	<i>RECEPTION – sponsored by Research Councils' UK Energy Programme</i>	