

## ***OUR ENERGY CHALLENGE***

### **ENERGY REVIEW STAKEHOLDER SEMINAR NO. 8**

Middlesbrough Football Club, Middlesbrough

24 March 2006

Topic: Carbon Capture and Storage

#### **Introduction**

Malcolm Wicks hosted a seminar in Middlesbrough on Carbon Capture and Storage on 24 March 2006. Approximately 30 representatives with a strong interest in the energy industry attended.

Attendees were asked to discuss the questions listed below in groups, and report back their findings.

*This summary presents a range of the main points raised by the seminar attendees. The views expressed here do not represent the views of the DTI.*

#### **Group discussion questions**

- 1) What role might carbon capture and storage (CCS) play in enabling the UK to meet the Energy White Paper goals? Under what economic and policy conditions would it play that role?
- 2) What are the key barriers to the deployment of CCS in the UK? How can these barriers best be addressed and by whom?
- 3) What more could the Government do to promote the development of CCS? What is the case for supporting the development of CCS over other options?
- 4) What might a realistic trajectory for significant deployment of CCS in the UK over the next 20 to 25 years look like?

#### **Summary of Issues Raised by Attendees**

Some delegates focussed on CCS's potential role in enabling the UK to meet its Energy White Paper goals, and highlighted the conditions that they felt were needed in the UK for CCS to come forward. It was observed that CCS would help with carbon emissions and that the UK potentially has several centuries worth of storage capacity for CO<sub>2</sub>.

It was noted that there were time constraints in the goals so we would need to ensure that the UK has the capacity to meet the Energy White Paper targets through CCS, with strong manufacturing capacity, sufficient skills, good business partnerships and collaboration. In addition, a key issue for CCS was raised around cost and the efficiency penalty associated with CCS; more efficient plant is needed, which would directly impact the cost of CCS.

***“We have the technology to do it but we don’t just need incentives nationally we need to make sure that we’re going to be developing incentives internationally.”***

***“We need to put our footprint down in the international market.”***

Some delegates thought that CCS was particularly important in the UK because there is potentially a huge international market that the UK could capitalise on. To do this, delegates thought that we need clear long term goals in policy and for the technology, and that we need international agreements established.

It was argued that CCS could help to maintain reliable energy supplies because we could capitalise on the flexibility associated with generation using fossil fuels, and the diversity that fossil fuels offer in the generation mix.

It was highlighted that fossil fuel generation can accommodate the peaks of demand, compensate for the variability of renewable generation and complement the fact that if nuclear power stations continue into the future then they have to run at base load all of the time.

Delegates agreed that the importance of energy efficiency and education about energy was key in contributing to the four energy white paper goals, particularly ensuring that homes are adequately and affordable heated.

***“Where you have to look at the payback.... a major barrier that’s holding people back is the perception that policy might change.”***

When discussing barriers to the deployment of CCS in the UK, the importance of policy was strongly highlighted by a number of delegates; particularly because of the large investment that would be needed for new plant or developing technologies further. Prospective investors would be concerned about potential policy changes in the future, for example over the 20 year or longer lifetime of a power plant.

Delegates felt that the opportunities for using CO<sub>2</sub> commercially could be further developed; enhanced oil recovery in particular was felt to be a way of adding commercial value. Whilst there are a number of valuable applications and studies in progress for alternative uses, this is still an area that needs to be investigated further especially for large quantities of CO<sub>2</sub>.

***“If we do put some kind of an incentive or tax in place it should drive down the costs of CCS technology. It shouldn’t make it comfortable to stay at the point where we are on the learning curve today.”***

Delegates discussed the economic barriers to deploying CCS in the UK and potential ways of tackling these barriers. The long term perspective was highlighted again together with the uncertainty around the assumptions that investors and organisations developing the technology have to make. Incentives and taxation were considered as potential remedies that could also be used proactively to fund further development work.

It was highlighted that the technologies that we want to integrate to make CCS work are already here, and that the challenge is around technology integration.

There was strong confidence from a number of delegates that there are technological breakthroughs coming through the pipeline that will help take CCS down the cost curve.

***(For long term integrity of CO<sub>2</sub> storage) “There is a lot of evidence and quite a compelling experience base already there and it’s not well understood or well publicised and a lot of people think they’re asking these questions for the first time and actually we’re not communicating well enough what we already know.”***

Regulation and safety were also discussed as potential barriers for CCS deployment in the UK. The long term integrity of CO<sub>2</sub> storage was raised as a potential barrier to CCS deployment. Some delegates felt that more communication was needed to raise awareness of investigations undertaken and experiences to date in this area. Others felt that the public would have far greater concerns for onshore storage than for offshore storage.

The importance of long term liabilities was raised, with some delegates highlighting that timescales would be very long term, a hundred thousand years or perhaps longer, and that it would be important to ensure that long term commitments were in place to monitor and record stored CO<sub>2</sub>.

***“Thirty percent of the CO<sub>2</sub> that we’re concerned about comes from coal fired power stations worldwide so it’s the biggest problem and therefore needs solution.”***

***“The government should support demonstration of carbon capture and storage technologies complementary to CCS projects in other countries..... there is definitely space for the UK to do things that are relevant to the UK and perhaps more relevant to the global need.”***

Some delegates thought that CCS was the most important of the options for meeting the Energy White Paper targets; they argued that coal fired power gives a solution for security of supplies, price and competitiveness, and that because coal and gas produce a significant contribution to global CO<sub>2</sub> emissions, CCS would enable coal to play an effective part in the overall solution.

These delegates acknowledged that there are a lot of economic uncertainties and a wide range of costs quoted for carbon dioxide capture and storage. Therefore their suggestion was for government to support projects that develop or promote the development of CCS.

When considering a realistic trajectory for significantly deploying CCS, earlier comments were echoed that there is technology around at the moment and it could be fitted to existing plant but it was felt that this would lead to inefficiency and would be difficult and expensive.

It was acknowledged that opinions on the timescales for effectively employing CCS technologies would differ. Consequently, some delegates thought that it might be better to wait, particularly until some of the older coal fired power stations come offline in the next 10-15 years. This would mean that technology could be developed further and then applied to new build opportunities. Other delegates suggested that existing plant could be fitted with CCS technology by approximately 2012 –2015, with a realistic capacity of approximately one gigawatt of new plant per year from these dates.

***“In the UK we’re going to need to get committed so let’s do this, let’s be a world leader in it and then take it out to the world and sell the technology, sell the processes and let’s really go for it.”***

Delegates agreed that the barriers identified by other discussion groups would affect the trajectory for significant deployment of CCS, including: long term stability, what type and level of incentives would be available (if any), but also highlighted that this was an opportunity for the UK to capitalise on a key emerging technology.

***“Saving the planet is not a bad ambition for a younger person to be involved in.”***

A question was raised on skills. Some attendees felt that this was potentially an additional barrier to the deployment of CCS in the UK. Whilst others felt that the people resource issue was in the process of fixing itself because more people were applying for and undertaking relevant courses—and that the emphasis should be on ensuring that the right things are being taught and that these were promoted as an exciting range of industries to work in.

It was also highlighted that people resource was part of an overall supply chain issue for taking CCS deployment forward; the components, equipment and people are all in short supply.