

**The 2006 Energy Review**  
**Middlesbrough Stakeholder Seminar**  
**Carbon Capture and Storage**

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# Outline

- 2003 Energy White Paper Goals and the Key Consultation Questions
- CCS background
- Discussion Questions

# Energy White Paper Goals

UK energy policy is focused on the maintenance of a market framework, reinforced by regulation and long term policy measures, to give investors, business and consumers the right incentives to deliver the Government's four Energy White Paper goals:

1. Reducing carbon emissions
2. Maintaining reliable energy supplies
3. Promoting competitive markets
4. Ensuring that every home is adequately and affordably heated

# Questions in the Consultation Document (summarised)

1. What is the Government's role in ensuring that the UK's long term goal of reducing carbon emissions is met ?
2. How do we develop our market framework for delivering reliable energy supplies ?
3. Are there particular considerations that should apply to nuclear ?
4. Are there particular considerations that should apply to carbon abatement and other low carbon technologies ?
5. Steps to take towards ensuring that every home is adequately and affordably heated ?

# CCS – background

- CCS allows combustion of fossil fuels with much lower carbon emissions
- Fossil fuels will continue to play an important role in electricity generation and industrial uses globally
- Demonstrating the technology works and reducing its costs could therefore play a major role in global emissions reduction
- In the UK, CCS may also have security of supply benefits, for example combined with coal-fired generation

# CCS – context

- 2003 Energy White Paper commitment to put the UK on a path to cut CO<sub>2</sub> emissions by 60% by about 2050
- Closure of much existing coal plant by 2015 in response to LCPD and most existing nuclear power stations over next 20 years
- Major investments in fossil fuel-based generation capacity in developing world
- DTI 2005 Carbon Abatement Technologies (CAT) strategy

# CCS – state of play

- CCS combined with electricity generation has not yet been demonstrated, though a number of projects have been proposed or planned internationally
  - Futuregen – US
  - BP / EMG – California
  - Shell / Statoil – Norway
  - CASTOR (EU) – Denmark
- Hence both absolute and relative costs of CCS with electricity generation are highly uncertain

# CCS – key barriers

- **Economics** – size of CCS capital and operating costs and their uncertainty
- **Technology** – demonstration of systems integration (capture, transport, storage)
- **Policy** – predictability of the long run policy framework, in particular for carbon
- **Regulation** – need for a robust regulatory framework, including consideration of potential safety issues
- **Liabilities** – long term liabilities associated with stored carbon
- **Public acceptability**

# Discussion questions

- 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?
- What are the key barriers to the deployment of CCS in the UK? How can these barriers best be addressed and by whom?
- 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?
- What might a realistic trajectory for significant deployment of CCS in the UK over the next 20 to 25 years look like?

**Begin Group Discussions**