

## **Carbon Capture and Storage**

### **Background**

- The Royal Commission on Environmental Pollution's Twenty-second Report titled *Energy – The Changing Climate* raised the profile of carbon dioxide (CO<sub>2</sub>) capture and sequestration. Specifically, two of their four scenarios assumed a large contribution from nuclear energy *or* an equivalent electrical output from large, fossil fuel burning power stations with carbon dioxide capture and sequestration (the other two scenarios had neither of these two options).
- In essence the Commission gave equal credibility to new nuclear build and carbon sequestration. It assumed the development of this 'technology' option could be delivered because the timeframe considered was long (50 years).
- The DTI has commissioned a number of studies on this issue and recently launched a Consultation Document *A Carbon Abatement Technologies Strategy for Fossil Fuel Power Generation* to solicit views from a wide range of stakeholders. The cost of sequestration of carbon dioxide essentially 'internalises' the environmental costs associated with carbon dioxide.
- Carbon sequestration would allow the development of 'zero' carbon fossil fuel generation. It would allow fossil fuel technologies to be part of a low carbon future, and to compete against other carbon free technologies such as nuclear and renewables.

### **What is it? How does it work?**

- There are two main types of carbon sequestration technologies:
  - Atmospheric removal – absorption of carbon dioxide from the atmosphere and storage in natural sinks, e.g. planting forests or disposal in oceans.
  - Capture and storage – removal of carbon dioxide directly from combustion of fossil fuels ('end of pipe') and prevent it reaching the atmosphere by storing it in aquifers, depleted oil or gas reservoirs, or in the deep-sea.
- The forestation option is limited in the UK by land availability. Conflicting land use limits available land and would prevent significant reductions in carbon dioxide emissions by this route.
- Ocean surface enrichment and deep-sea disposal have not been demonstrated at a large scale and are likely to be limited by environmental concerns.
- Capture of carbon dioxide and disposal in aquifers under the North Sea, or in depleted oil and gas reservoirs is a real possibility. Norwegian demonstration projects are already underway and are pumping around 1Mt carbon dioxide into offshore saline aquifers.
- Costs of capture and disposal are currently high and would add £7.5 – £15/MWh to the price of electricity from combined cycle gas turbine plant; existing and new coal plant would incur much higher costs.

### **British Energy's position**

- British Energy is supportive, in principle, of all measures that combat climate change by reducing emissions of carbon dioxide.
- We believe that the most cost-effective solutions should be sought through a market framework. However, the current costs of carbon capture and storage are high and other technologies, such as new nuclear build would be a cheaper solution.
- Any incentives used to encourage CCS should be available to other carbon free technologies, including nuclear generation.
- The UK must consider the extent of novelty, and consequent risk of failure, when proposing new technologies as part of a strategy to achieve demanding long-term emissions reductions targets. In this respect established, proven, technologies would be preferable over those in the development stage.