



**Carbon Capture and Storage:  
A consultation on barriers to commercial deployment**

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**A Response by Drax Power Limited**

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*Drax Power Limited is the operating subsidiary of Drax Group plc, and the owner and operator of Drax Power Station in North Yorkshire. Drax Power Station is the largest, cleanest and most efficient coal-fired power station in the UK. At current output levels its coal and alternative fuel burn approaches some 10 million tonnes per annum, and its six 660MW units supply some 7% of the country's electricity needs.*

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## **Introduction**

1. Drax Power has identified a range of carbon abatement technologies that can significantly improve the environmental performance of existing coal-fired power stations taking it towards the performance of current gas-fired plants in terms of carbon dioxide (CO<sub>2</sub>) emissions. With carbon capture and storage (CCS), CO<sub>2</sub> performance could improve significantly beyond this point.
2. It should be noted, however, that although CCS has the potential to make coal-fired generation a low carbon option, it should not be viewed as a single solution to carbon emissions but rather it should be viewed as one of a number of options. Importantly for this debate, CCS is not yet viable as a deployable technology, whereas other carbon abatement technologies are.

## **Carbon Capture and Storage**

3. Drax Power, along with other industry players, is sponsoring development studies into carbon capture to learn more about the technology and its application in the UK.
4. In general, the range of technologies for all parts of the process, that is, capture, transport and storage of carbon, are developed, but not all at a sufficient scale ready for commercial deployment at large power plants. Consequently, they do not currently represent the most likely efficient or cost effective designs.
5. The total cost of carbon reduction through CCS is currently difficult to assess and depends on the type of power station, transport distances and other factors, although capture of CO<sub>2</sub> is likely to be the largest cost. Amine scrubbing of flue gas from conventional coal-fired plants would be expensive and would significantly reduce generation efficiency. However, engineering developments and commercialisation should see costs fall substantially and the efficiency penalty reduced.
6. Under present market conditions, CCS is not financially viable with costs ranging from £30 to £90 per tonne of CO<sub>2</sub> reduced, depending on whether enhanced oil recovery (EOR) is involved. At these costs, CCS is potentially comparable with offshore wind or

nuclear power and offers a low carbon way to use fossil fuels and ensure security of supply.

## **Conclusions**

7. There is a growing realisation that the reduction in greenhouse gas emissions will require the capture and storage of CO<sub>2</sub> emissions from all fossil fuel use and there is much research work in progress to examine and further develop the many technologies that are already available to capture CO<sub>2</sub> from coal use. However, it is becoming increasingly apparent that CCS will only happen with significant Government support and sponsorship in several key areas:
  - For generators to invest in CCS, the full range of the technologies in the chain need to be demonstrated, relevant and proven, maybe even at several locations in various forms (for example, with and without EOR). Demonstration in this country is key to developing the necessary level of understanding of the technology.
  - Generators require confidence in the long term commercial environment, particularly with respect to carbon pricing mechanisms within the emissions trading framework, to allow major investment decisions to be taken. It is essential that there is closer alignment between carbon allocations and investment cycles, and that certainty for Phase II and beyond is established.
  - The regulatory and liability issues, particularly for CO<sub>2</sub> storage, are unclear and represent risk. It is necessary to establish appropriate regulatory framework and clear ownership of liabilities.