

The current state of CCS: Ongoing research at the University of Cambridge with application to the UK policy framework

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Abstract The Earth's climate is changing and the release of carbon dioxide (CO₂) is recognised as the principal cause. To meet legally binding targets, UK GHG emissions need to be cut by at least 80% of the 1990 levels by 2050. With an increase in future fossil fuel use, Carbon Capture and Storage (CCS) is the only method of meeting these targets. Some key challenges face the deployment of CCS including cost, uncertainty of CCS deployment, the risks of long-term CO₂ storage, public communication and scale. Research at the University of Cambridge is resolving these issues and assisting the deployment of CCS technology. The right regulatory framework also needs to be set so that the technology is commercially deployed. The current UK policy framework for CCS is outlined in this document and the immediate barriers to deployment are highlighted. The ongoing CCS research taking place primarily at the University of Cambridge is described. There are many steps that need to be taken if CCS deployment is to ultimately succeed; this document attempts to highlight these steps and address them.

Keywords Climate change, atmospheric greenhouse gas emissions, Carbon Capture and Storage (CCS), the CCS Roadmap, Electricity Market Reform, carbon capture technologies, carbon sequestration, storage reservoir processes.

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