

## Press Release

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### **New report shows how CO<sub>2</sub> can be used to manufacture fuel, chemicals and consumer products to reduce carbon emissions and waste**

**London, 20<sup>th</sup> July 2011:** The Centre for Low Carbon Futures has today released a report providing the first comprehensive technical and economic assessment of carbon capture and utilisation (CCU) as a viable but poorly understood option for reducing carbon emissions. Rather than treating CO<sub>2</sub> as waste, as is the case with carbon capture and storage (CCS), the CCU process converts it into commercially viable products such as bio-oils, chemicals, fertilisers and fuels. These could replace fossil fuel based products further reducing greenhouse gas emissions and improve waste treatment. CCU includes using waste CO<sub>2</sub> as a chemical feedstock for the synthesis of other chemicals, as a chemical source of carbon for mineral carbonation reactions to produce construction materials, and as a nutrient and CO<sub>2</sub> source to make algae grow and supply fuels and chemicals. However the technology is in the research and development phase, is not yet commercialised on a large scale and requires more investment to make this happen.

CCU is subject to much scientific debate and even controversy. The Centre for Low Carbon Futures commissioned the report not to support the case for or against but to highlight the technical and commercial potential of CCU that is not often heard.

Professor Peter Styring leading the report from the University of Sheffield said: *“The UK Government needs to invest in RD&D for carbon capture and utilisation and investors need to be made aware of the potential benefits of the technology so that barriers can be brought down. Our report shows that all CCU options could be relevant to the UK and given its business -oriented academic community, the UK could benefit from commercialisation of the technologies involved”*

The UK has set itself some challenging greenhouse gas emission reduction targets and in tough economic times cheap and effective solutions are needed to help meet such goals. Until now the favoured technology has been carbon capture and storage (CCS) where CO<sub>2</sub> is captured from an industrial or power-sector source and stored in a geological formation. However significant drawbacks have been shown in recent years. High investment costs, uncertainty over potential storage capacity, possibilities for leakage, increased public resistance and energy costs means that alternative and complementary options must also be considered.

*“The rate at which CCS projects are currently deployed and the emissions reductions they achieve may be insufficient to reach the 80% reduction in global CO<sub>2</sub> emissions required by 2050. With such an urgent climate problem facing us, serious consideration must be given to alternative and complementary technologies such as CCU”* added Professor Styring.

The report shows CCU can be profitable with short payback times on investment. Despite this the UK is lagging behind most developed countries in terms of investment and focus on the technology with the majority of research funding directed towards CCS. For example, the UK government is investing £1 billion in the first CCS demonstration project, but currently has no plans for investment in demonstration scale CCU technologies unlike in Germany, USA and Australia. These countries have spotted the potential for CCU with the US spending US \$ 1bn on research and the German government investing €118M in a project with Bayer to research the use of carbon dioxide as a raw material. The UK will risk missing a significant opportunity to benefit from the commercialisation of this technology if it delays action.

Some concrete policy recommendations are proposed to help accelerate research, development and deployment of CCU in the UK. Through a strategic policy group, investors could be made aware of potential benefits of CCU and barriers could be brought down. Whenever CCS is proposed, the possibility of CCU should also be considered. Internationally an IEA Implementing agreement on CCU could be founded, a Global Technology Roadmap should be initiated and CCU could be included in the IPCC Best Practices for greenhouse gas accounting for national greenhouse gas inventories to the UNFCCC.

The report is a collaboration between **CO2Chem**, a UK research council project aimed at developing a UK community towards a sustainable chemical feedstock supply by 2050, the University of Sheffield in the UK and Energy Research Centre of the Netherlands (ECN).

**Ends**

#### **About the Centre for Low Carbon Futures**

The Centre for Low Carbon Futures is a collaborative membership organisation that focuses on sustainability for competitive advantage. Founded by the Universities of Hull, Leeds, Sheffield and York, the Centre brings together multidisciplinary and evidence-based research to both inform policymaking and to demonstrate low carbon innovations. Our activities are focused on Energy Systems, Smart Infrastructure and the Low Carbon Economy.

[www.lowcarbonfutures.org](http://www.lowcarbonfutures.org)

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