

# Challenges for Practical Use and Commercialisation of CCS

By John Gale

IEA Greenhouse Gas R&D Programme

## Abstract

The presentation outlines current developments in the international and regional arenas regarding the development of CCS. The IEA in its World Energy Outlook for 2010 highlight that energy demand is continuing to grow, which means that we are on a pathway to a global CO<sub>2</sub> emissions concentration of 650ppm. Way of the proposed pathway to stabilise atmospheric concentrations at 450ppm and limit global temperature rise to 2°C. The role that CCS can play in mitigating climate change is accepted internationally but to date policies globally do not allow for the type of aggressive deployment of CCS that is needed, such as those proposed by the IEA in its CCS Technology Roadmap. There is a need to incentivise CCS to allow deployment at scale, and final support for demonstration has been provided by the EU, USA, Canada, UK and others. However we need to move beyond demonstration and hence a market stimulus price for Carbon needs to be provided. In the EU this should ultimately come via the European Trading Scheme in the USA this will come via CO<sub>2</sub>-EOR. The UK government has proposed a more radical approach to reform the electricity Supply Act to guarantee CCS based electricity revenue in the revised market place. International developments at COP17 in Durban have finally led us to see CCS included in the CDM thus giving a stimulus for CCS uptake in developing countries and A Green G Fund to finance such projects. We even have the tantalising prospect of a Kyoto successor post 2015 with legally binding CO<sub>2</sub> emissions target for all countries.

However despite these developments CCS demonstration projects have been struggling with many closing due issues such as regulatory uncertainty, lack of investor confidence in the market place, and public concern over the storage component of the projects. There is a lot that can be learnt from these projects one core item being that storage site assessment needs to start early way before the capture plant planning starts. This means an upfront investment that can potentially be lost if the storage site proves to be unacceptable. However the benefits of such early activity out way the risks. This is especially true for a country like Japan with its complex geology and the fact that its storage resource is sited in a tectonically active region of the world. Upfront investment on geological resource characterisation has potential to save considerable money down stream. However there is a risk and the Government must be prepared to lose investment. In doing this, Japan can build a dataset to use to interact with stakeholders and build confidence in the integrity of the proposed storage sites. This reduces the main risk and uncertainty before main project commences. It also provides confidence for future investment in a demonstration project