



The IEA Greenhouse Gas R&D Programme An Overview

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IEA Greenhouse Gas R&D Programme

**Regional Carbon Sequestration Partnerships Annual review
Meeting**

12th – 13th December 2007

Pittsburgh, PA, USA

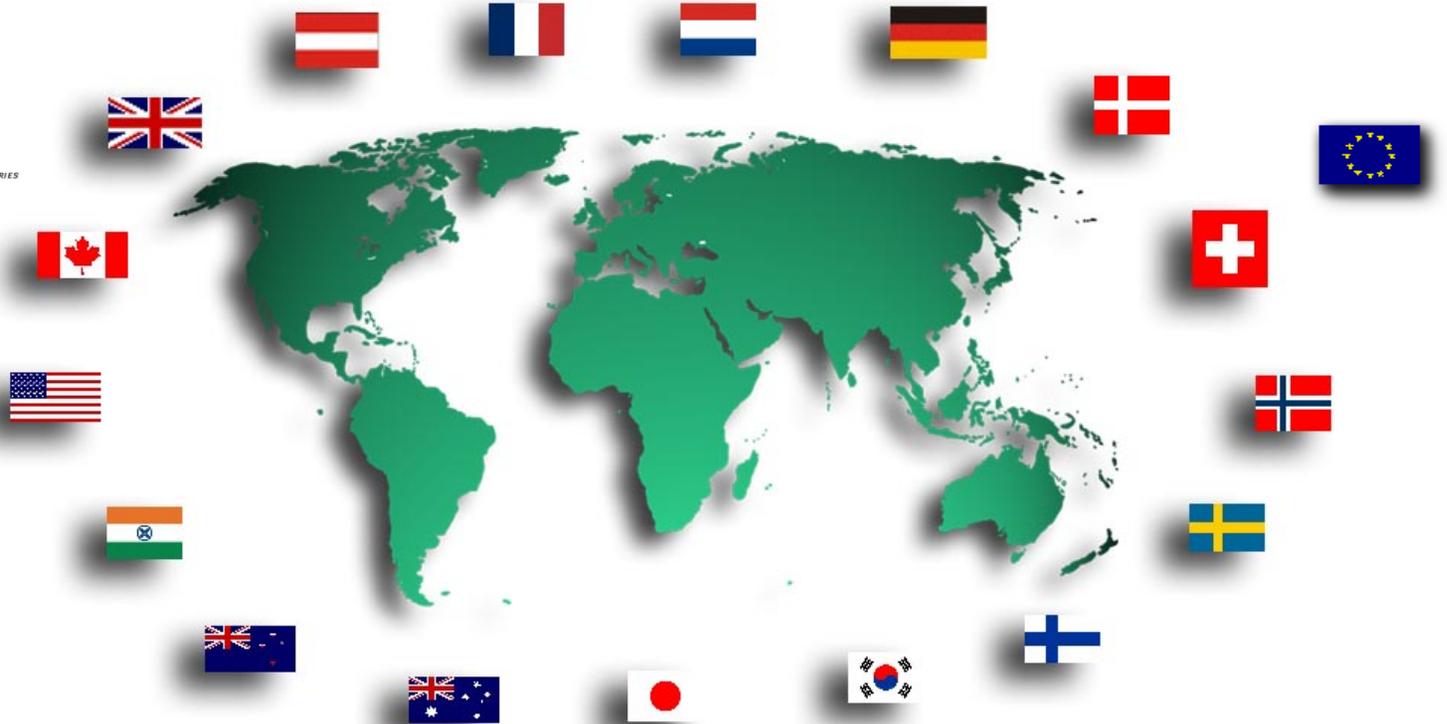


IEA Greenhouse Gas R&D Programme

- A collaborative research programme founded in 1991
- Our main role is to evaluate technologies that can reduce greenhouse gas emissions.
- Aim is to:
 - Provide members with definitive information on the role that technology can play in reducing greenhouse gas emissions.*
- IEA GHG is a IA in which the Participants contribute to a common fund to finance the activities. Funding is approximately 2.5 million US\$/year.



IEA Greenhouse Gas R&D Programme



ALSTOM



BG GROUP



Schlumberger



Statkraft

STATOIL



VATTENFALL





IEA Greenhouse Gas R&D Programme

- IEA GHG aims at producing information that is:
 - Objective in evaluating the relative merits of Greenhouse Gas mitigation options
 - Information generated is policy relevant but NOT policy prescriptive
 - We aim to be a trustworthy source of technical information. All IEA GHG studies are:
 - Reviewed by external Expert Reviewers
 - Subject to review of policy implications by Members



Previous Work by IEA GHG

- This IA has been operating for 15 years. It has:
 - Accumulated >100 studies covering carbon capture and storage (CCS), other mitigation technologies, and alternative energy carriers.
 - Succeeded in establishing CCS as a mitigation option capable of major reductions in the emission of CO₂ to atmosphere.



Phase 4

- Finished at end of 2004. During phase 4:
 - CCS moved, from being a technical possibility, firmly onto policymakers' agendas.
 - Activities expanded to include: research facilitation, research networks, and communications initiatives. Aimed at:
Confirming CCS as a major option for climate change mitigation.



Carbon Capture and Storage

Three Options;

- Post Combustion
- Pre Combustion
- Oxy fuel

Two Options;

- Pipelines
- Ships

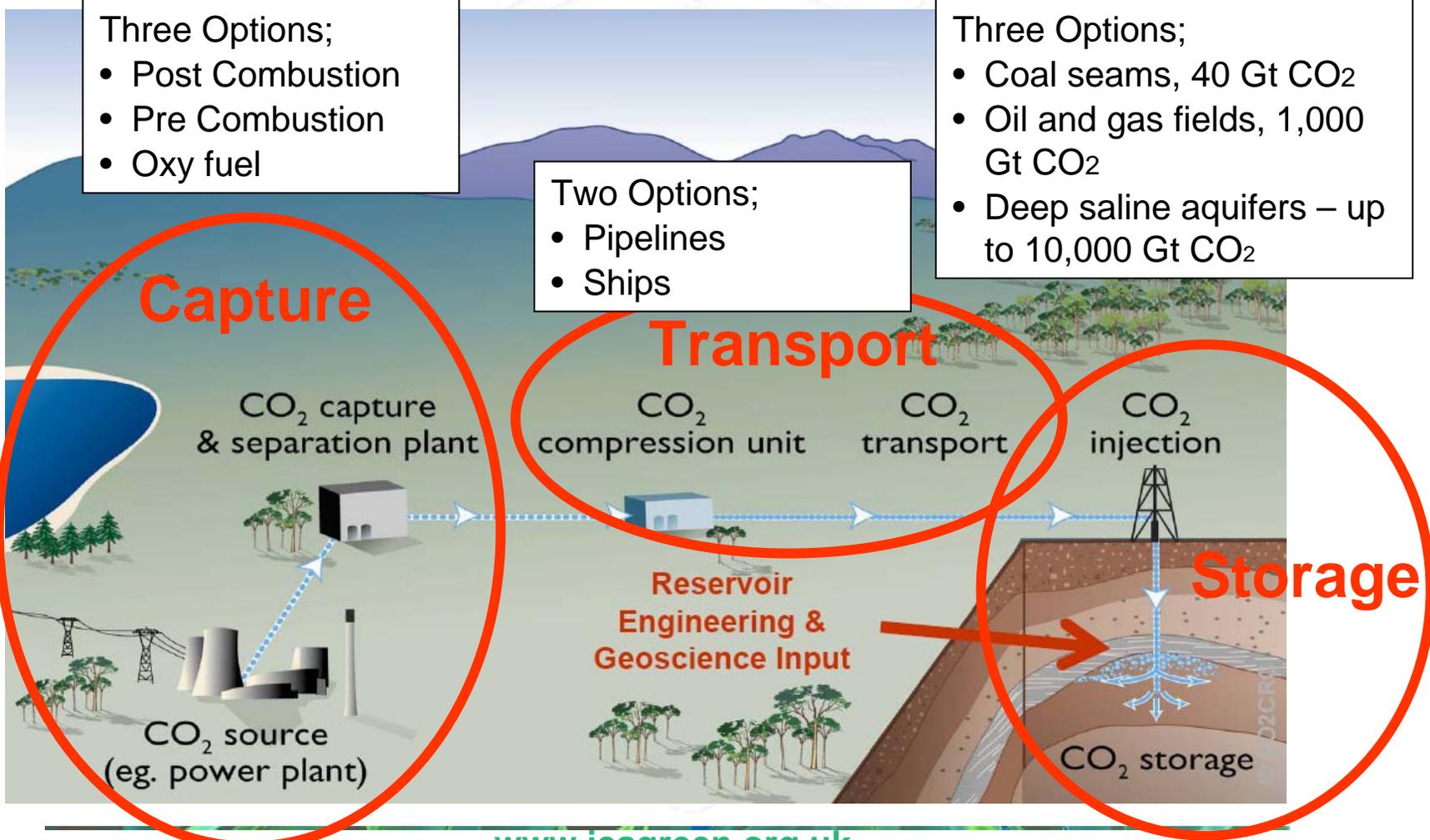
Three Options;

- Coal seams, 40 Gt CO₂
- Oil and gas fields, 1,000 Gt CO₂
- Deep saline aquifers – up to 10,000 Gt CO₂

Capture

Transport

Storage





What Does IEA GHG Do Now?

- New 5-year phase started in 2005:
 - 3 Main activities:
 - Generate technology and market information
 - Confidence building
 - Information dissemination
 - Aimed at answering:
 - How do mitigation options compare?
 - Can CCS be done safely and legally?
 - What needs to be done to introduce CCS and be confident it will be successful?



Technology and Market Information

Implementation Support

- Methodology for CCS projects under CDM
- Guidelines for CCS site characterisation
- CCS Project Financing
- Regional capacity for CO₂ storage in India

Regulatory Support

- Risk assessment and regulatory needs
- Environmental impact assessment for CCS
- Capture-ready power plant
- Monitoring Selection Tool

Technical Assessments

- Improved solvent scrubbing processes for CO₂ capture
- Capture of CO₂ from medium scale installations
- Improved Oxygen production processes
- Collection of CO₂ from distributed sources
- CO₂ Capture in the cement industry
- Co-production of hydrogen and electricity
- Remediation of leakage from geological storage
- Fuel Cells for CHP
- CO₂ Pipeline transmission costs



International Research Networks

CAPTURE

- International Network for CO₂ Capture
- Oxy-fuel Combustion Network

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- International Network on Biofixation of CO₂ and Greenhouse Gas Abatement with Microalgae

STORAGE

- Risk Assessment Network
- Monitoring Network
- Well Bore Integrity Network

**IEA GHG
Networks**



Practical R&D

Systems Studies/Capture

- DYNAMIS
- International Test Centre

Technical Reviews

- WEYBURN
- RECOPOL
- OTWAY BASIN PILOT PROJECT

Storage Projects

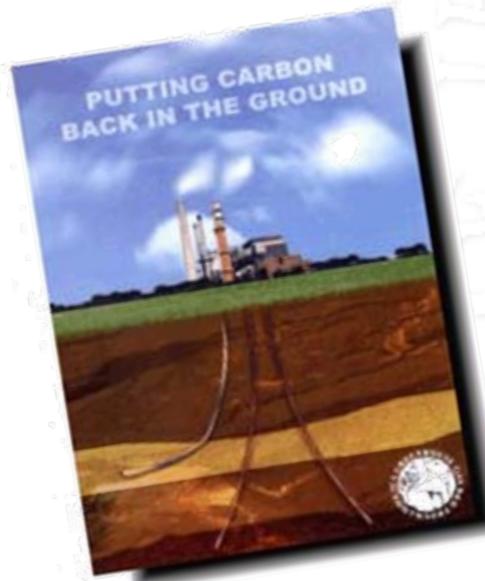
- SACS/CO2STORE
- CO2REMOVE
- CO2SINK
- MOVECBM
- WEYBURN





Information Dissemination

Quarterly newsletter Topical Reports



GHGT-9
16th – 19th
November 2008
Washington D.C.
<http://mit.edu/ghgt9>



www.co2captureandstorage.info

Support Tools

- Monitoring Selection Tool
- Transmission Calculator
- Storage Cost Estimator

Host Site

- Network Meetings
- Technical meeting reports

Databases

- CCS R,D&D Database
- CO₂ Emissions
- Risk Scenarios
- Best Practise
- Site characterisation



New Initiatives in 2007

- International Journal on Greenhouse Gas Control launched
 - First year of quarterly editions successfully completed
- International Interdisciplinary Summer School launched
 - 56 students from 22 countries attended





Thank You

Any Questions?

Reference material on IEA GHG can be found at:

www.ieagreen.org.uk

Reference material on CCS can be found at:

www.co2captureandstorage.info