The IEA Greenhouse Gas R&D Programme
An Overview

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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

- 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 CO$_2$ 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
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

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

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

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International Research Networks

CAPTURE

- International Network for CO₂ Capture
- Oxy-fuel Combustion Network
- International Network on Biofixation of CO₂ and Greenhouse Gas Abatement with Microalgae

STORAGE

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

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# Support Tools
- Monitoring Selection Tool
- Transmission Calculator
- Storage Cost Estimator

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

# Host Site
- Network Meetings
- Technical meeting reports
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