

# Carbon dioxide capture and storage

The upcoming Special Report of the  
Intergovernmental Panel on Climate Change

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INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC)



# The UN Intergovernmental Panel on Climate Change

Established by WMO and UNEP in 1988 to:

- Assess scientific, technical and socio-economic information on climate change, impacts and options for adaptation and mitigation
- Members: all governments that are member of WMO or UNEP
- Publication of reports, written by best experts from around the world
- No research, no monitoring, no policy recommendations
- Policy relevant but not policy prescriptive
- Extensive review processes of its reports
- Support to UNFCCC



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# IPCC Third Assessment Report (2001): What can be done to limit/ reduce GHG emissions?

- Energy efficiency
- Decarbonisation
  - energy sources
  - CO<sub>2</sub> capture and storage
- Biological carbon sequestration
- Reducing other greenhouse gases from industry, agriculture, waste management

## What does the IPCC Third Assessment Report (2001) say about capture and storage of CO<sub>2</sub>?

- “Serious mitigation option”
- Capacity not restraining (~ 5700 GtCO<sub>2</sub>)
- Costs are estimated at ca. 40 – 60 US\$/tCO<sub>2</sub> competitive with other mitigation options
- Safety and verification noted as problems
- Potential for significant cost reductions for achieving stabilisation scenarios



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## Conclusions IPCC Workshop on carbon dioxide capture and storage (November 2002)

- Literature basis growing rapidly
- Progress expected in the near future
- CCS important enough to deserve good assessment
- Environmental impacts of geological storage likely small, but not well characterised
- More attention needed for barriers and uncertainties



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## Conclusions IPCC Workshop on carbon dioxide capture and storage (November 2002) contn'd

- Energy and economic modelling studies broadly agree:
  - Relatively small niche market for CCS technologies in the absence of a CO<sub>2</sub> reduction mandate
  - CCS technologies' deployment accelerates as carbon permit prices rise
  - Ultimate deployment of this class of technologies could be large, depending on the stabilization scenario assumptions



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# Why is it important that IPCC produces assessment of CCS?

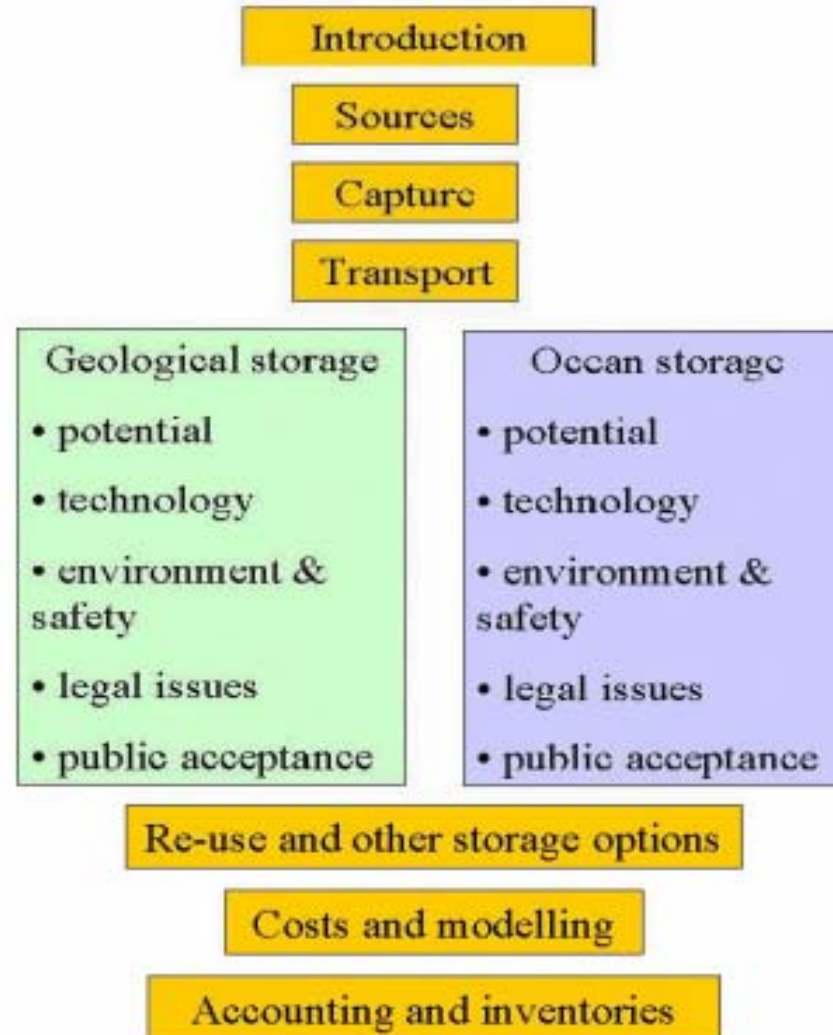
- Controversial issue
- IPCC seen as authoritative voice on status of climate change knowledge
- Author teams scientifically and geographically balanced
- IPCC reports are not policy prescriptive
- Reports are approved by governments



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# Contents IPCC SRCSS



# Key issues in SRCCS

- Various storage options: geological, ocean, mineral carbonation, industrial use
- How mature is the technology for CCS?
- What sources of CO<sub>2</sub> are amenable to capture?
- What is the storage capacity?
- What are the health, safety and environment implications of CCS?
- How certain are we that stored CO<sub>2</sub> will stay out of atmosphere?
- What are the costs of CCS?
- Are there legal barriers?
- What do we know about public acceptance of CCS?

# The SRCCS process

- Start: early 2003
- Expert review: June-July 2004
- Government and Expert review: February- March 2005
- July 2005: Final Draft (chapters and technical summary) finished
- August 2005: Government Review of the Summary for Policymakers
- End of September: IPCC WG III Plenary Approval of Summary for Policymakers
- Presentation to UNFCCC at COP-11 (November 2005)