

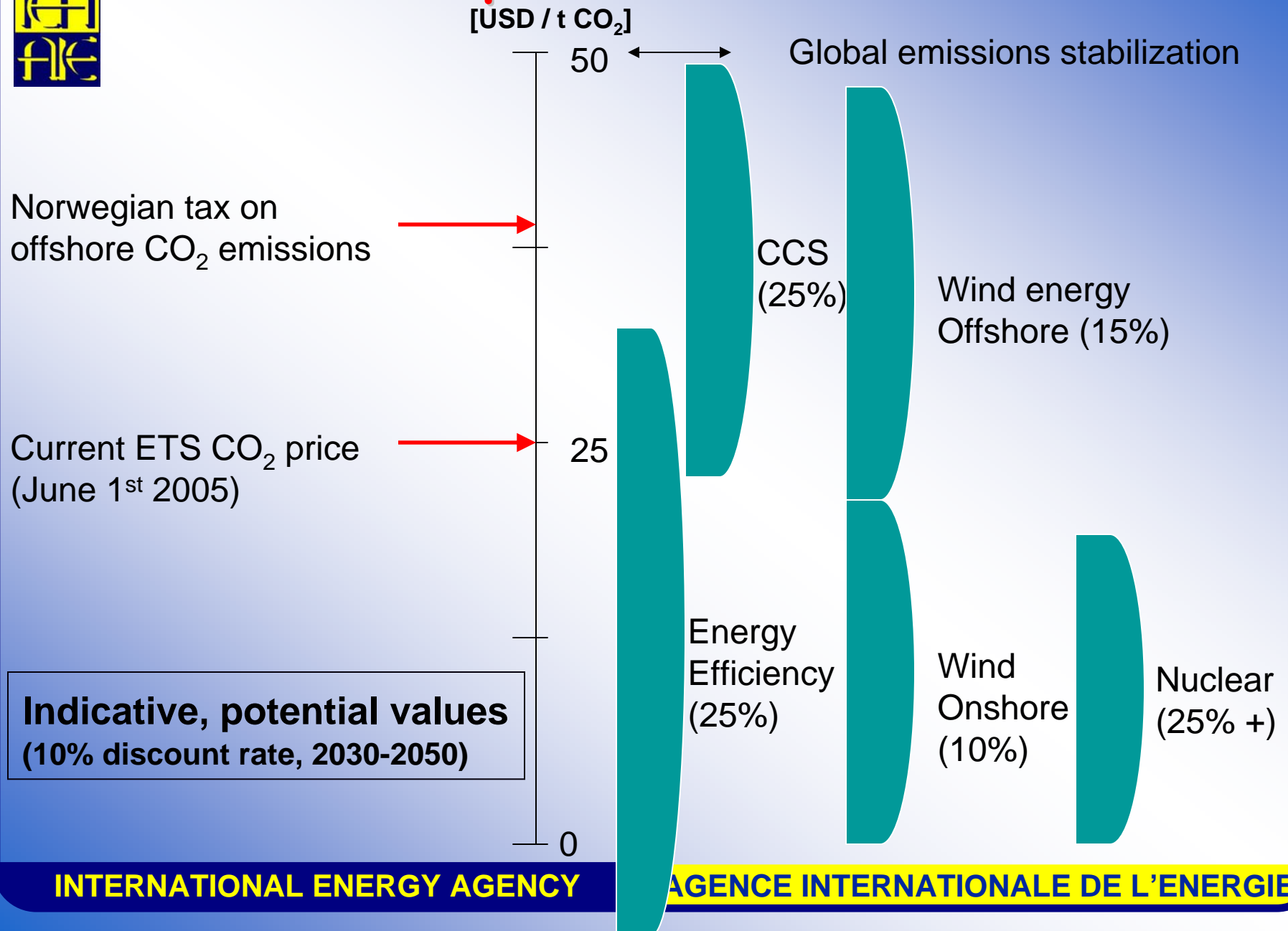


Carbon Sequestration Leadership Forum
Joint Meeting of Policy and Technical Groups
28 September 2005

**CO₂ Activities of the
International Energy Agency (IEA)**

Neil Hirst
Director, Office of Energy Technology and R&D, IEA

At what CO₂ price are alternatives viable?





IEA Ministers, May 2005

Ministers asked IEA to focus notably on:

- improved engagement with key non-member countries
- the pursuit of energy efficiency, particularly in the transport and building sectors
- research and development of cleaner combustion technologies and carbon dioxide capture and storage



Carbon Capture & Storage at the International Energy Agency

- IEA Working Party on Fossil Fuels
- IEA Greenhouse Gas R&D Programme
- IEA Clean Coal Centre
- IEA Coal Industry Advisory Board
- Secretariat



IEA Working Party on Fossil Fuels (WPFF)

Implementation of WPFF Initiative to promote Zero Emissions Technologies (ZETs)

- ZETs progress to date:
 - ◆ Communication
 - ◆ Collaboration and deployment
 - ◆ Co-operation
- Current focus:
 - ◆ Improving public and political awareness
 - ◆ Contributing to sustainable energy supply



IEA Greenhouse Gas R&D Programme (IEA GHG)





IEA GHG - Phase 5 Activities

- Flexible & Responsive: Members debate and decide details at each ExCo
- Strategic themes
 - ◆ Generating technology and market **information** on CCS and related options
 - ◆ **Confidence-building** in mitigation technology
 - ◆ **Dissemination** of information about CCS and related options



IEA GHG - Links with CSLF

- CSLF Technical Group:
 - ◆ Former Vice-Chair is now IEA GHG Executive Committee Chair
 - ◆ Current CSLF Vice-Chair is IEA GHG Canadian representative
- CSLF has special access to IEA GHG projects database
- CSLF homepage linked to IEA GHG database, which records CSLF endorsed projects
- CSLF Technology Roadmap produced during United States secondment to IEA GHG.

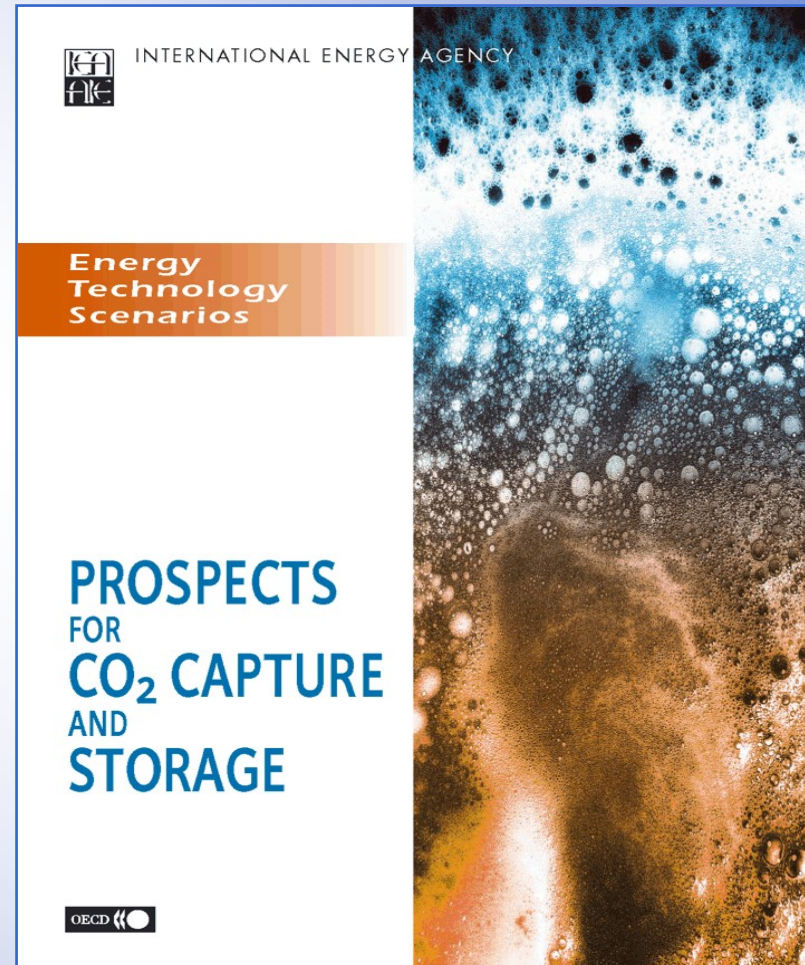




IEA publication

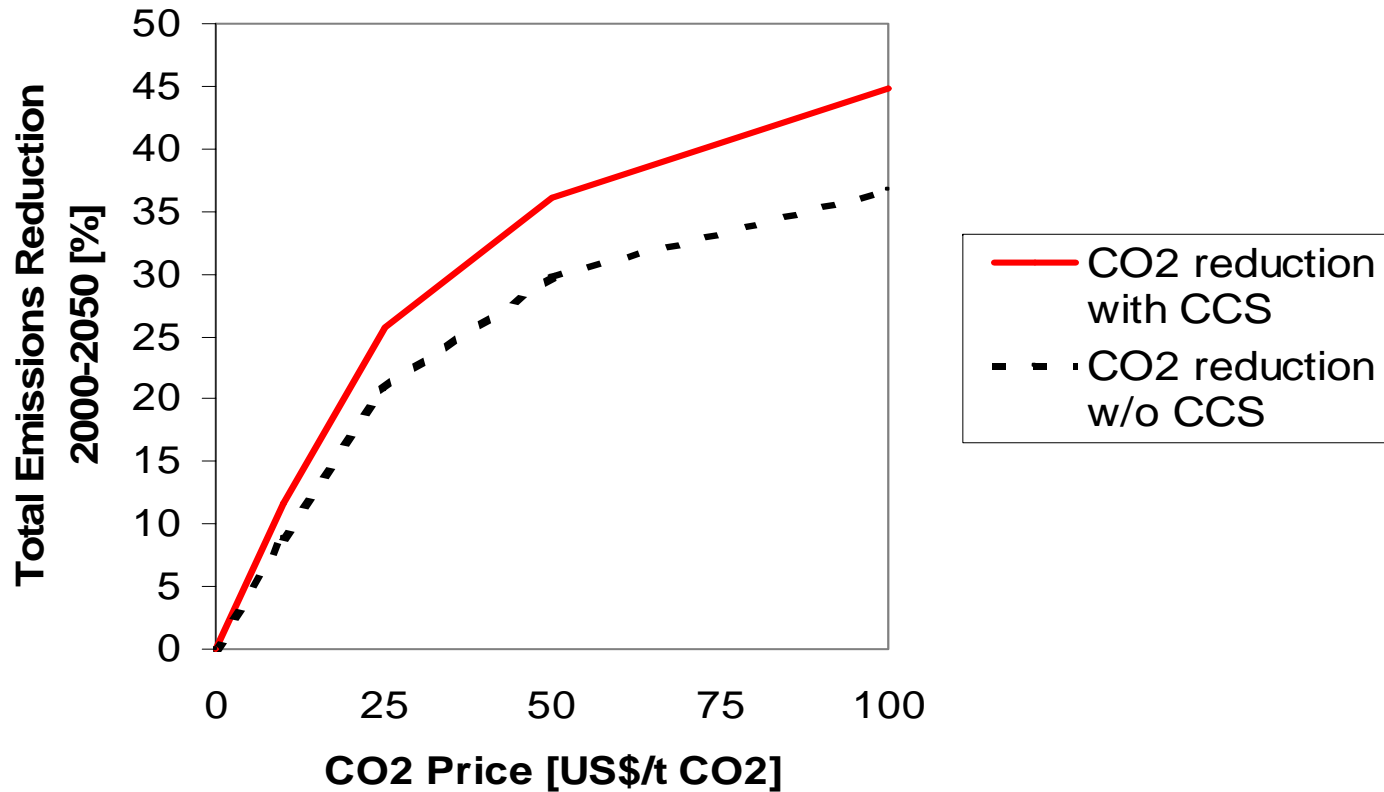
Prospects for CO₂ Capture and Storage

- Overview - basic questions and answers
- Technology status report
- CCS prospects - scenario analysis
- RD&D and policy challenges





Benefits of CCS as a function of CO₂ price levels



Without CCS the same emission reduction level requires a higher CO₂ price

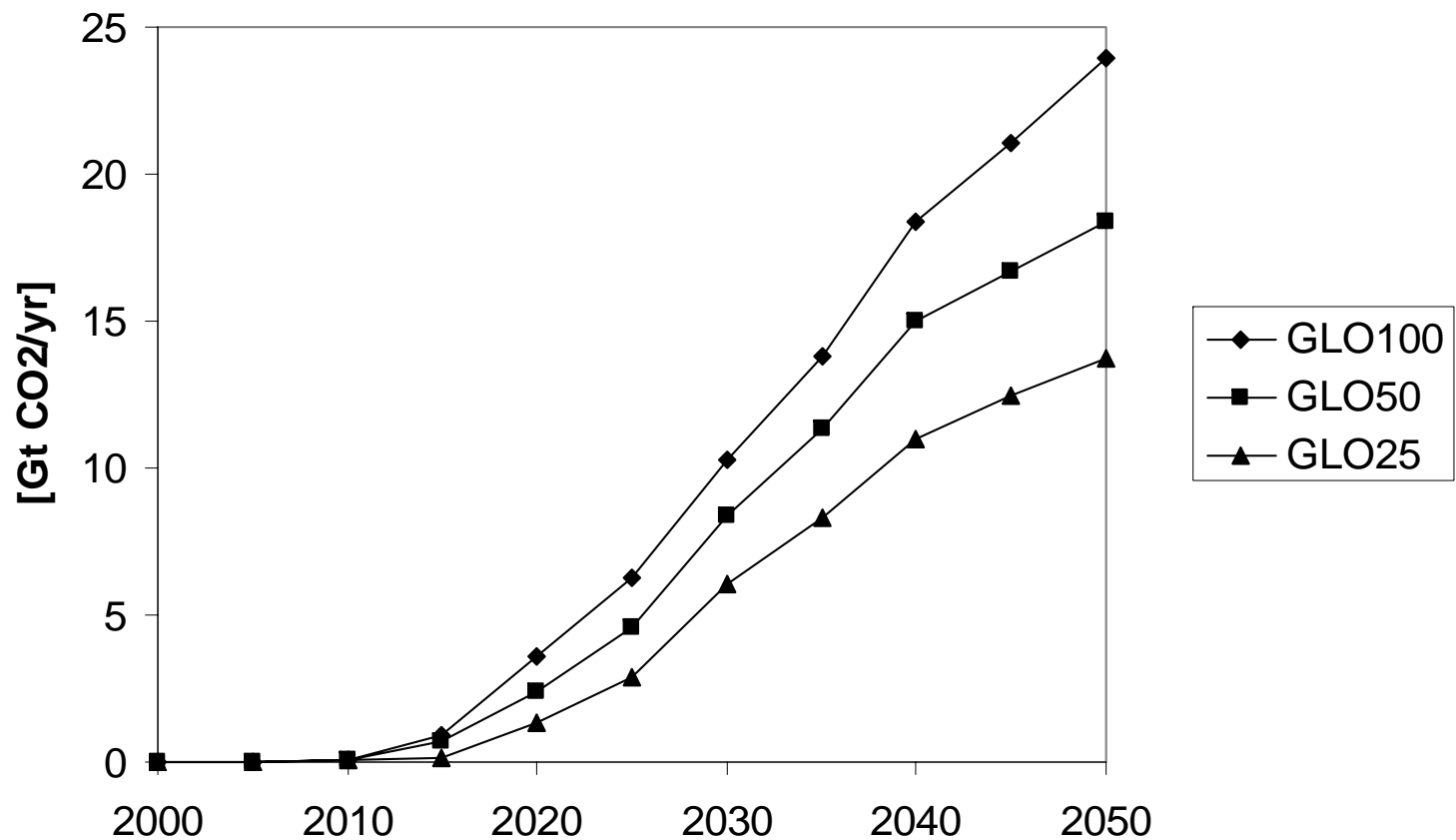


Costs - general comments

- CCS costs competitive with other CO₂ abatement options
- Coal without CCS has no future in a CO₂-constrained world
- Electricity from coal or gas-fired power plants with carbon capture and storage is still cheaper than most renewables (fuel price dependent)
- Efficiency first

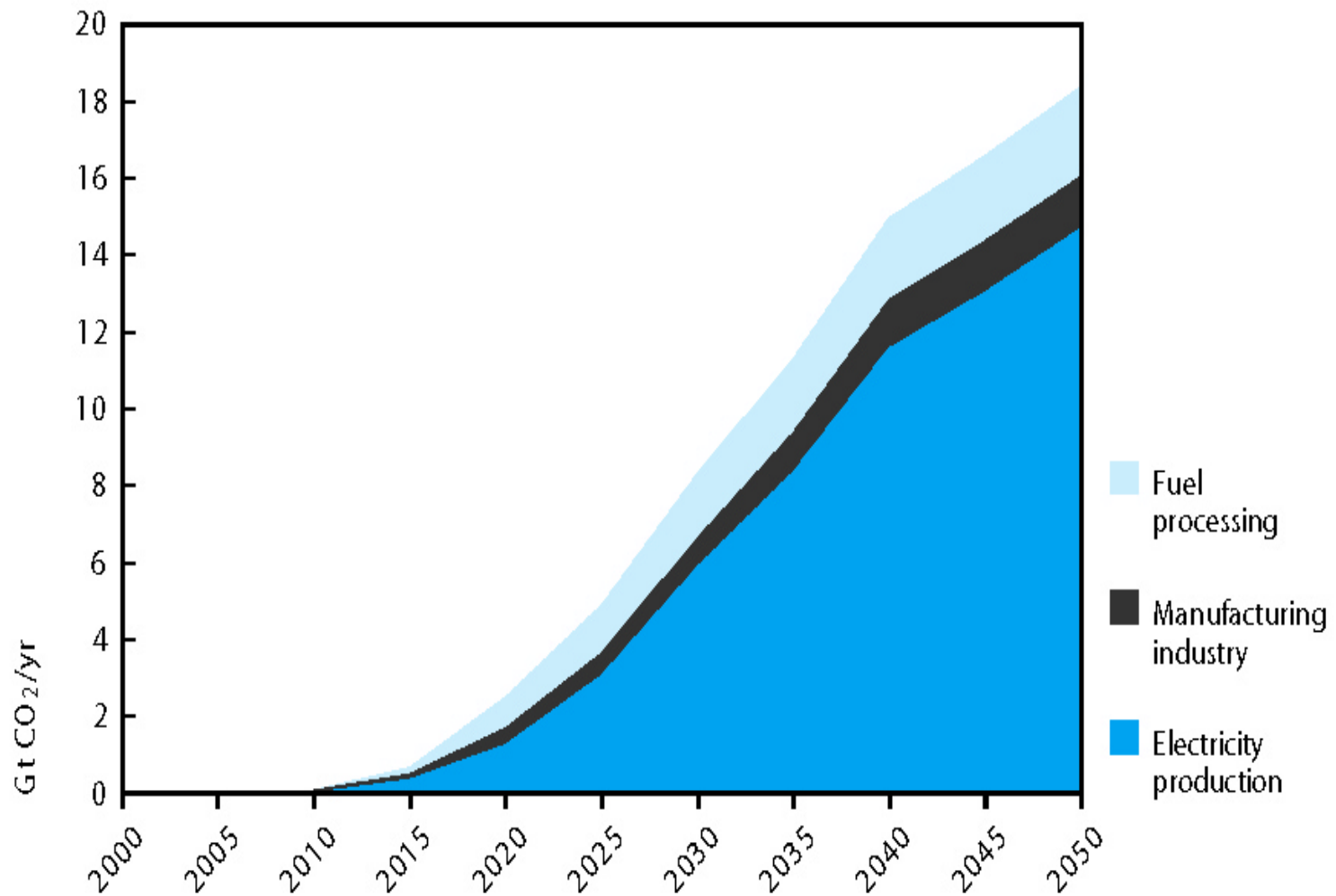


Capture at various CO₂ prices



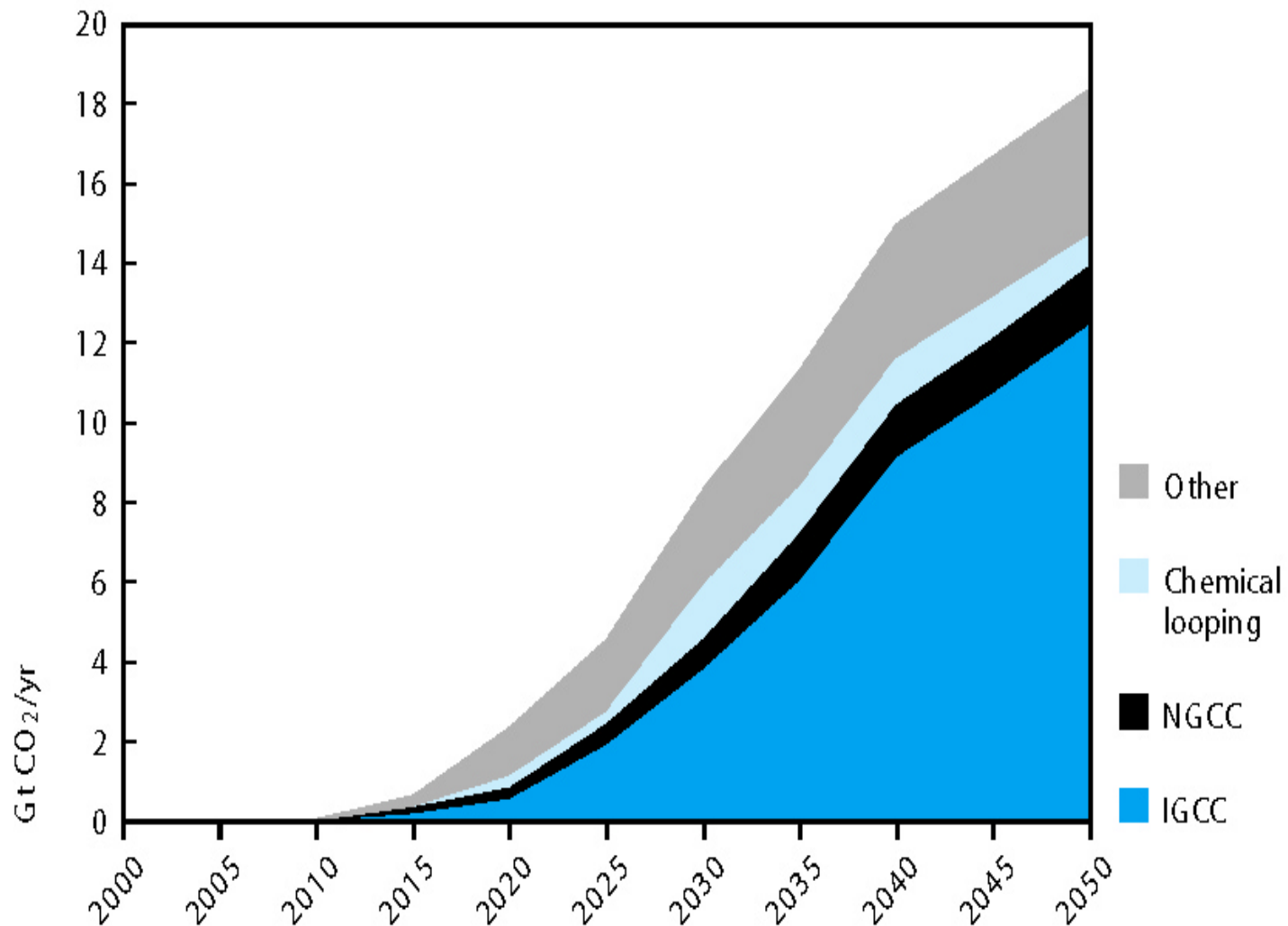


CO₂ capture by process area



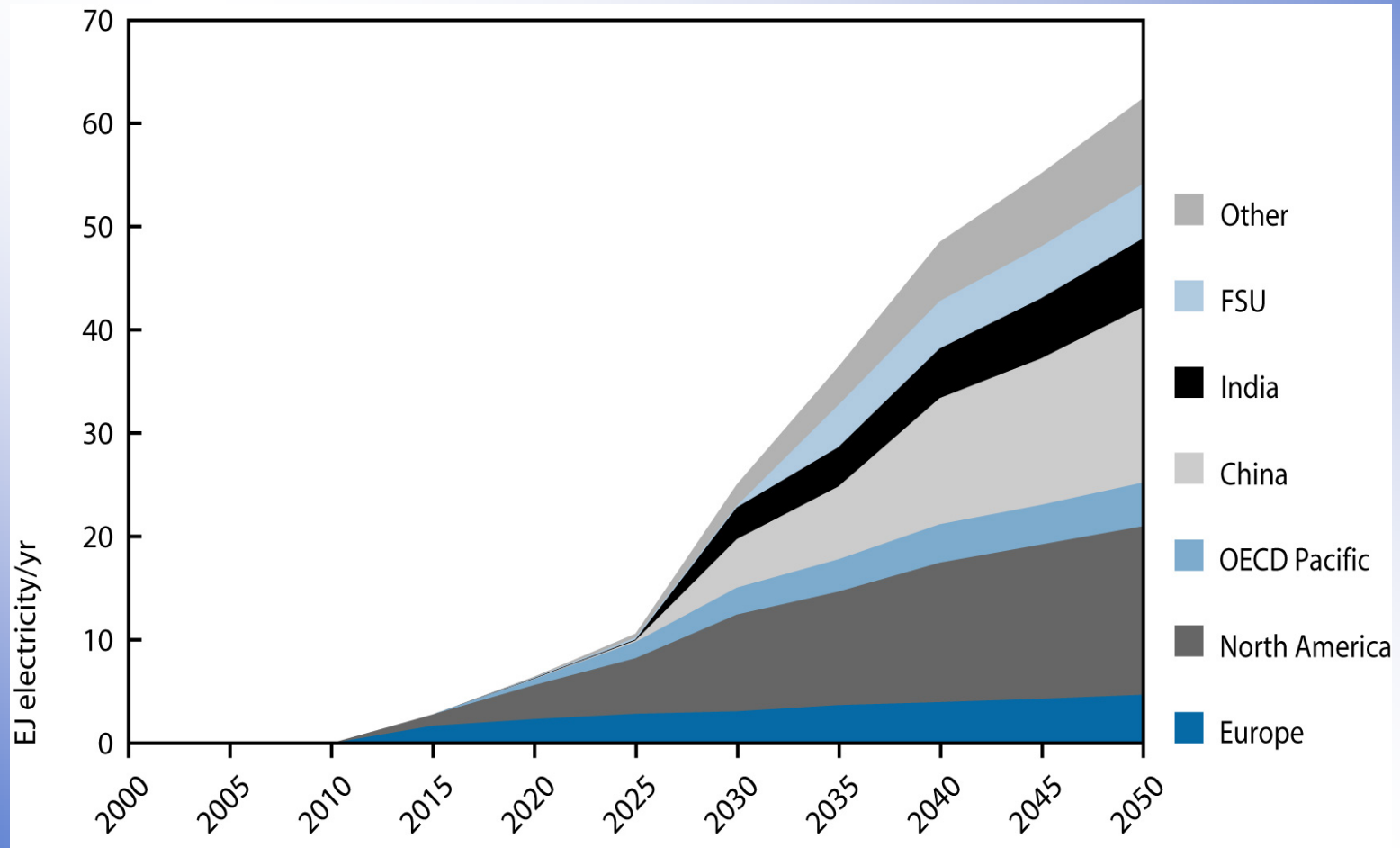


CO₂ capture by technology





Electricity production by power plants fitted with CCS, by region





Prospects for CO₂ Capture and Storage **The Book's Conclusions**

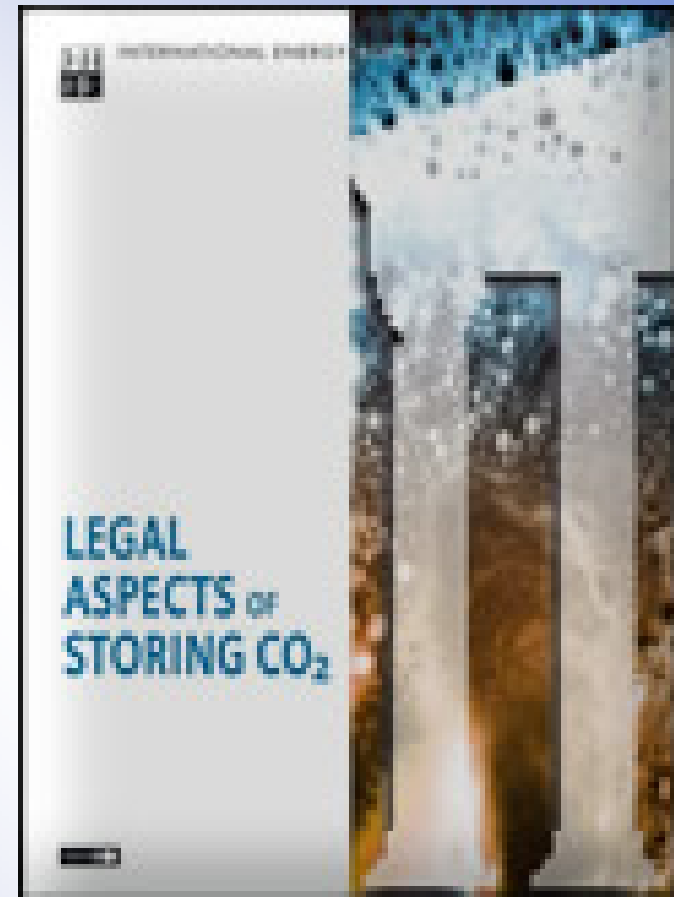
- **CCS can play a key role in addressing global warming:**
 - ◆ Mainly through coal plants in coal-rich regions
 - ◆ But also some natural gas opportunities
- **Carbon incentives are needed, but also:**
 - ◆ Proven technology
 - ◆ Acceptable storage



IEA Work on Legal Aspects

Priority areas:

- Storage demonstration
- National frameworks
- International instruments
- Level playing field for CCS
- Public acceptance





IEA's Mandate from G8 Heads of State

Requested action includes:

- ◆ Joint CSLF/IEA workshop on short-term opportunities for CCS
- ◆ Joint CSLF/IEA study on definitions, costs and scope for "capture ready" plant





IEA's Continued Commitment

Two years ago, IEA Executive Director Claude Mandil told CSLF:

“The Carbon Sequestration Leadership Forum provides an excellent approach to promoting tangible technology development and demonstration..... The IEA stands ready to help and I would be quite pleased to discuss how we could do so.”