



Carbon Dioxide Capture and Storage

**in the Context of Further
International R&D Programmes**

17 November 2004, Vienna

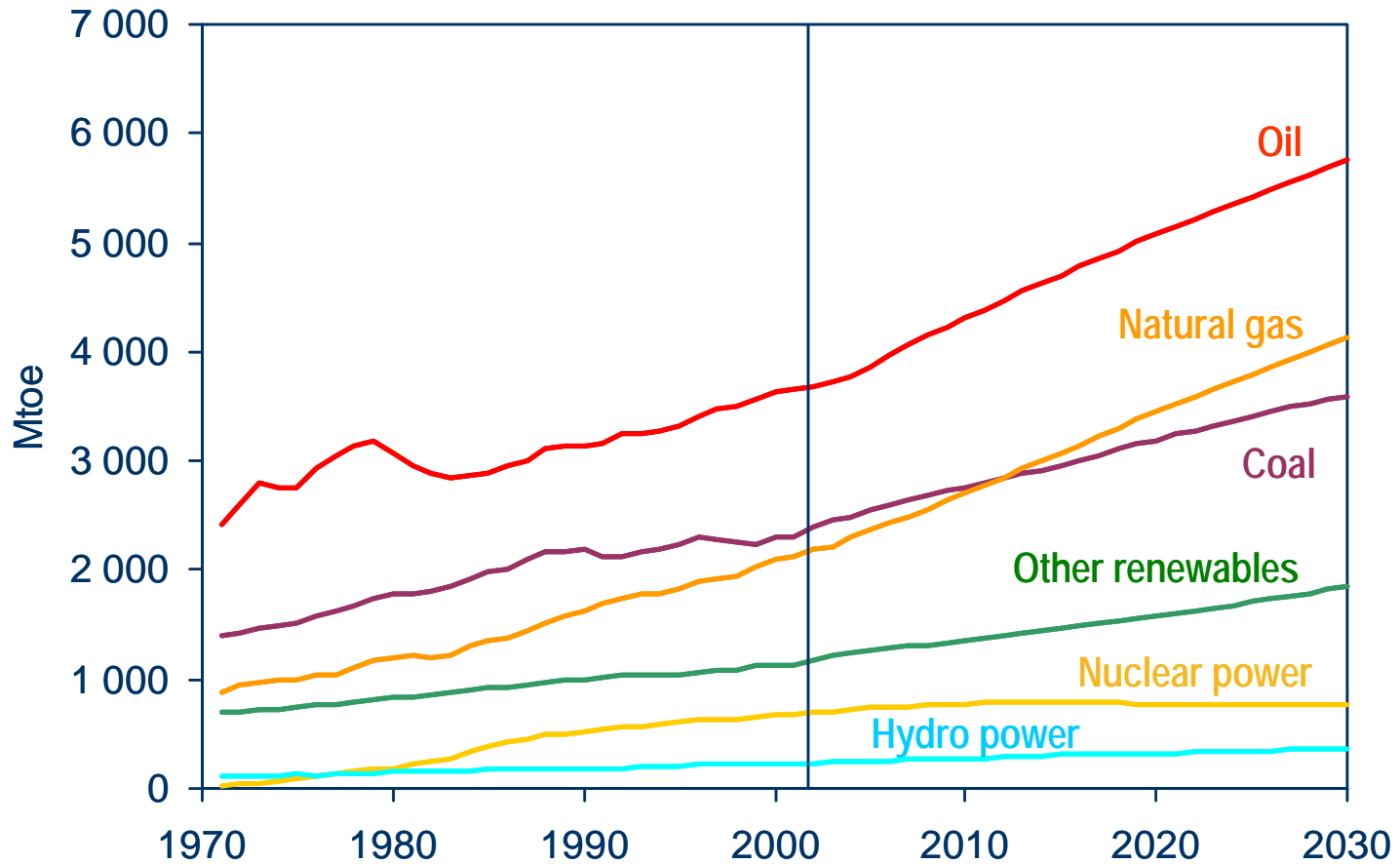
*Jacek Podkanski
International Energy Agency
jacek.podkanski@iea.org*



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World Primary Energy Demand



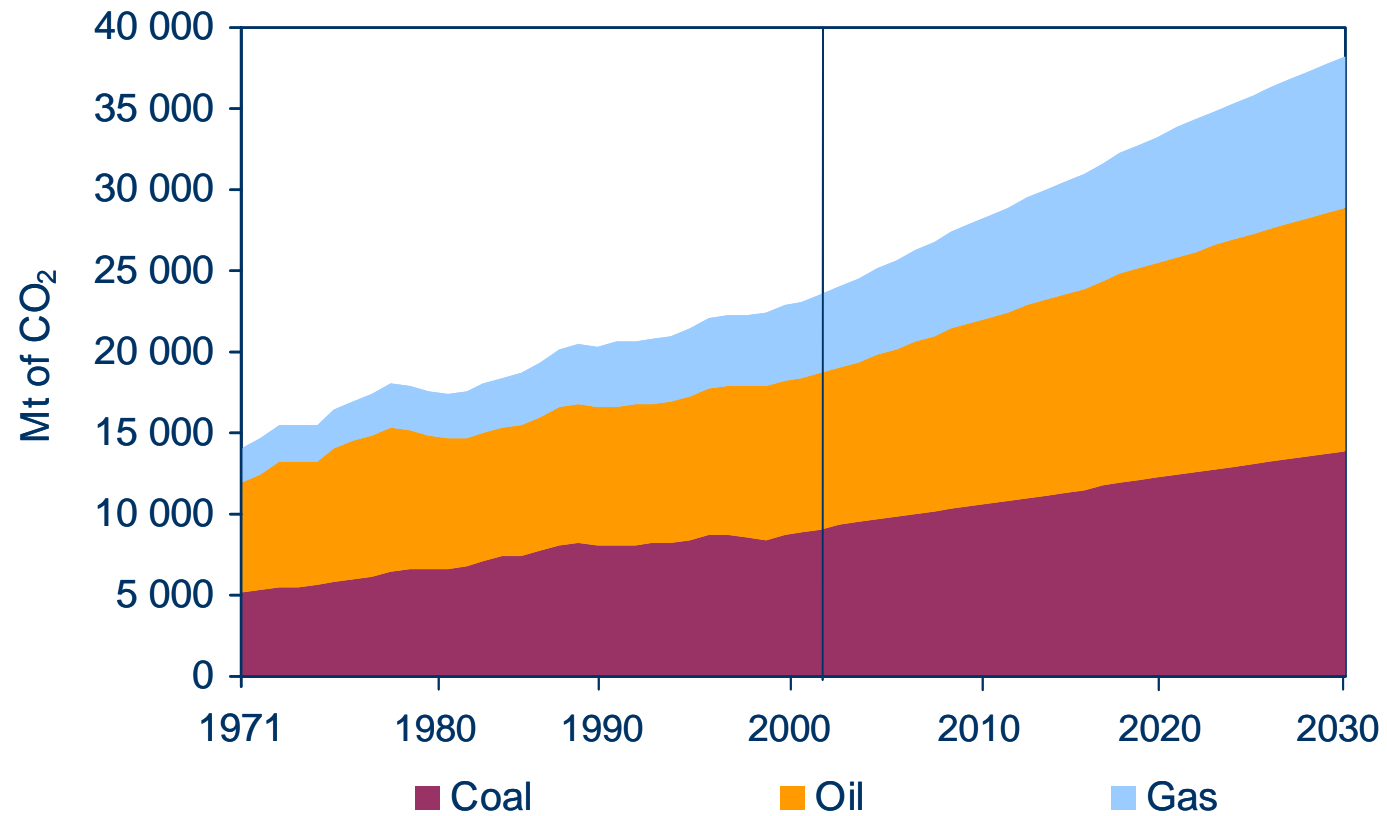
**Fossil fuels will continue to dominate the global energy mix,
while oil remains the leading fuel**



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World Energy-Related CO₂ Emissions



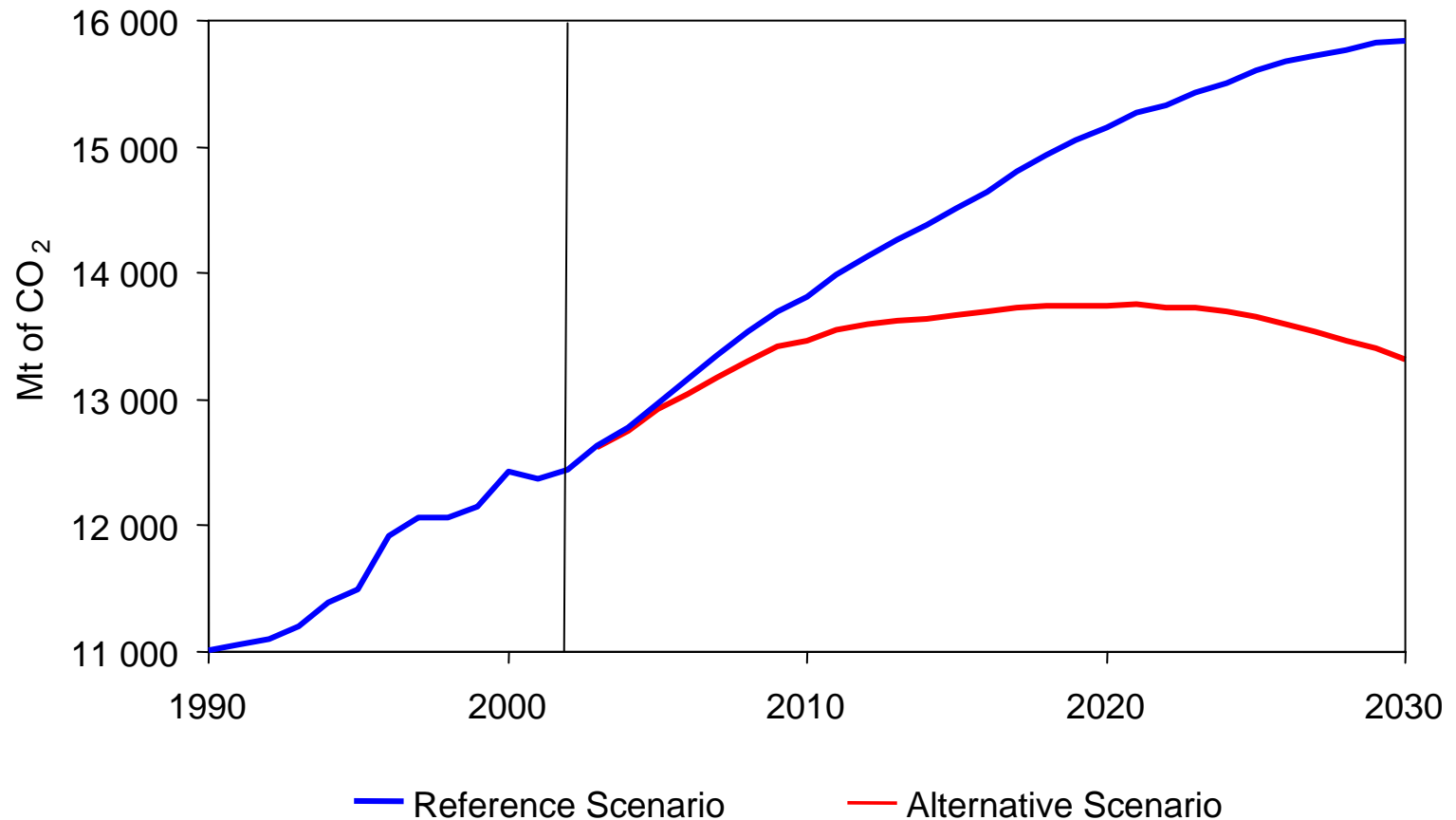
Global emissions grow 62% between 2002 & 2030, but fuel shares hardly change



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OECD CO₂ Emissions in the Reference & Alternative Scenarios



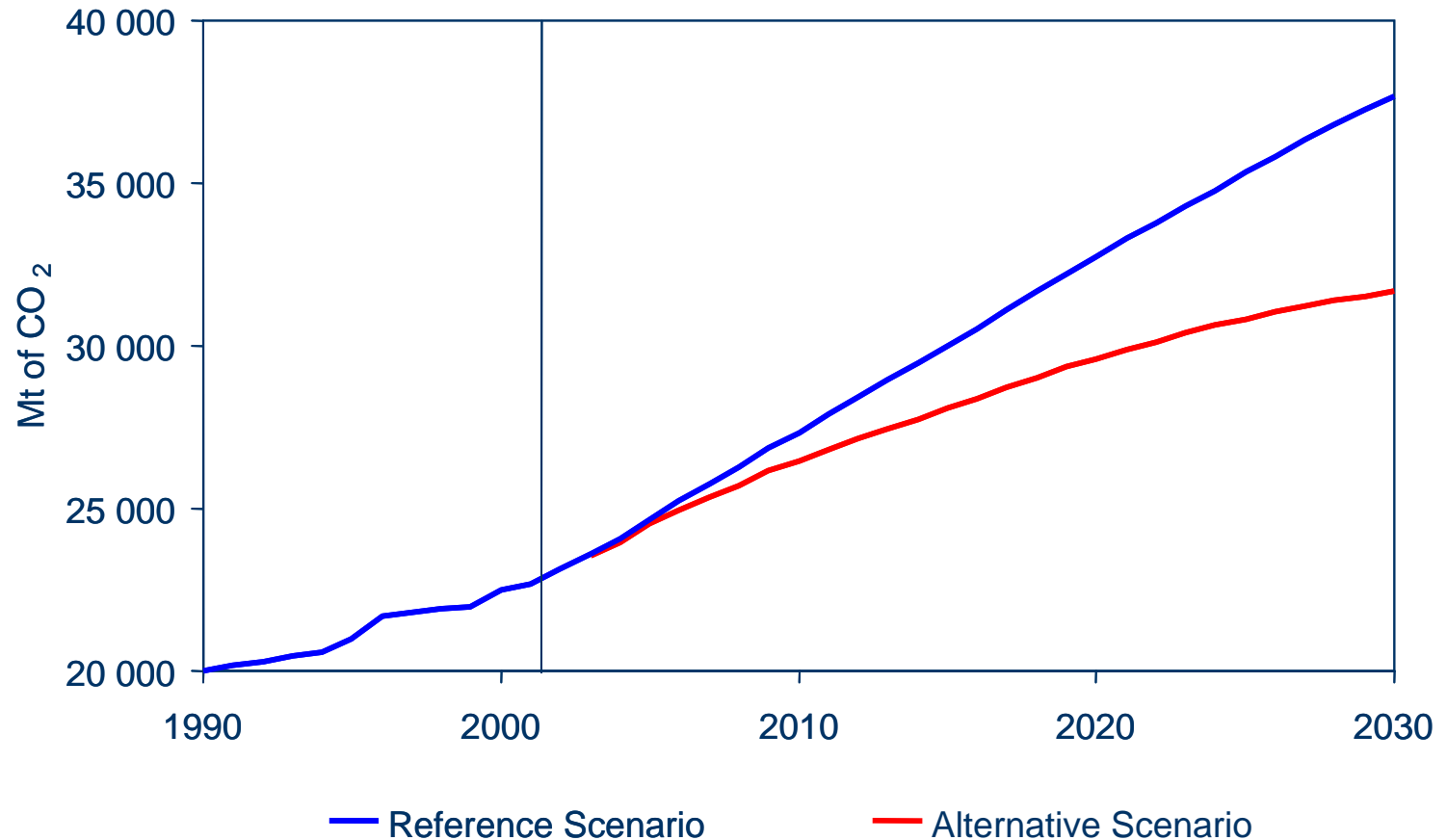
OECD CO₂ emissions peak around 2020, 25% higher than in 1990



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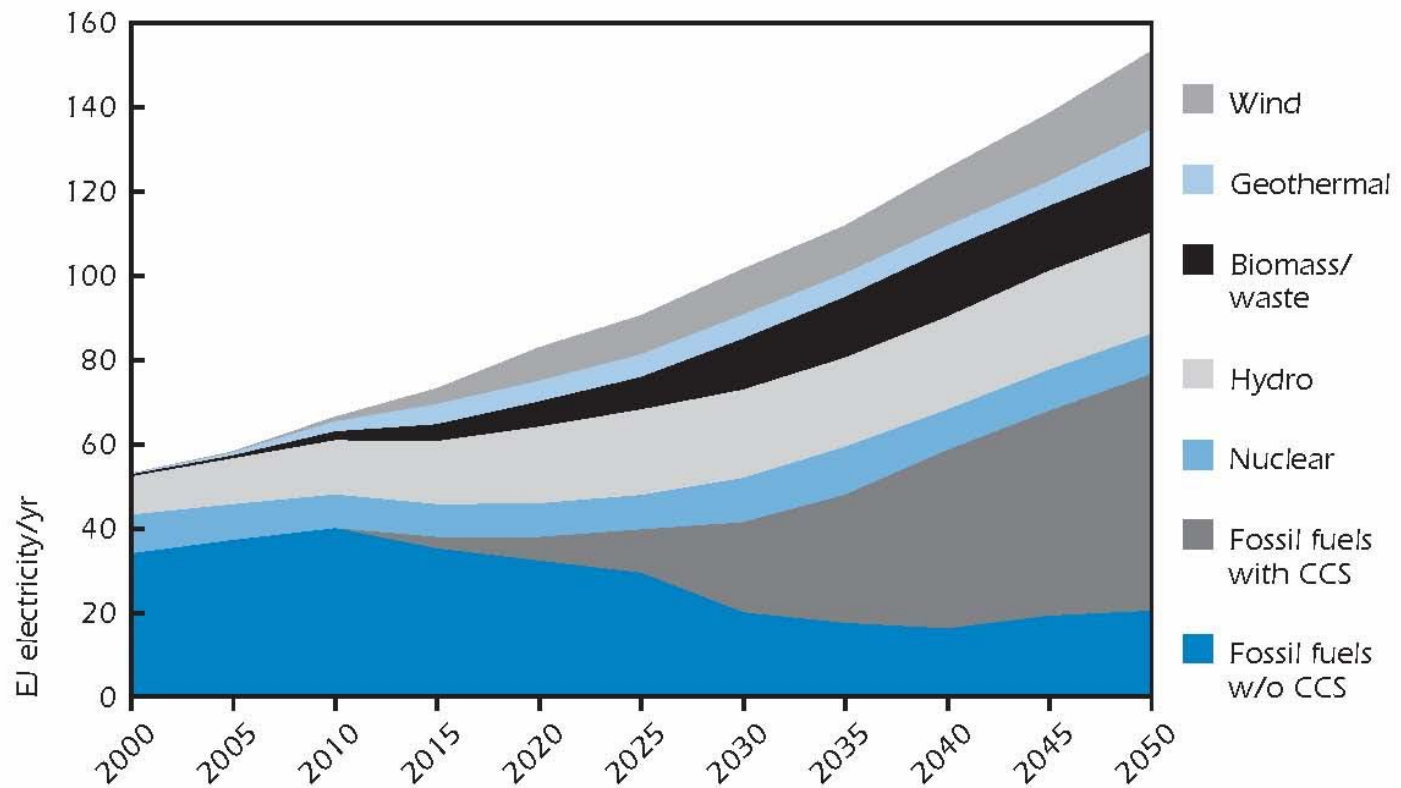
Global CO₂ Emissions in the Reference & Alternative Scenarios



**CO₂ emissions are 16% less in the Alternative Scenario in 2030,
a reduction of about 6 Gt of CO₂**

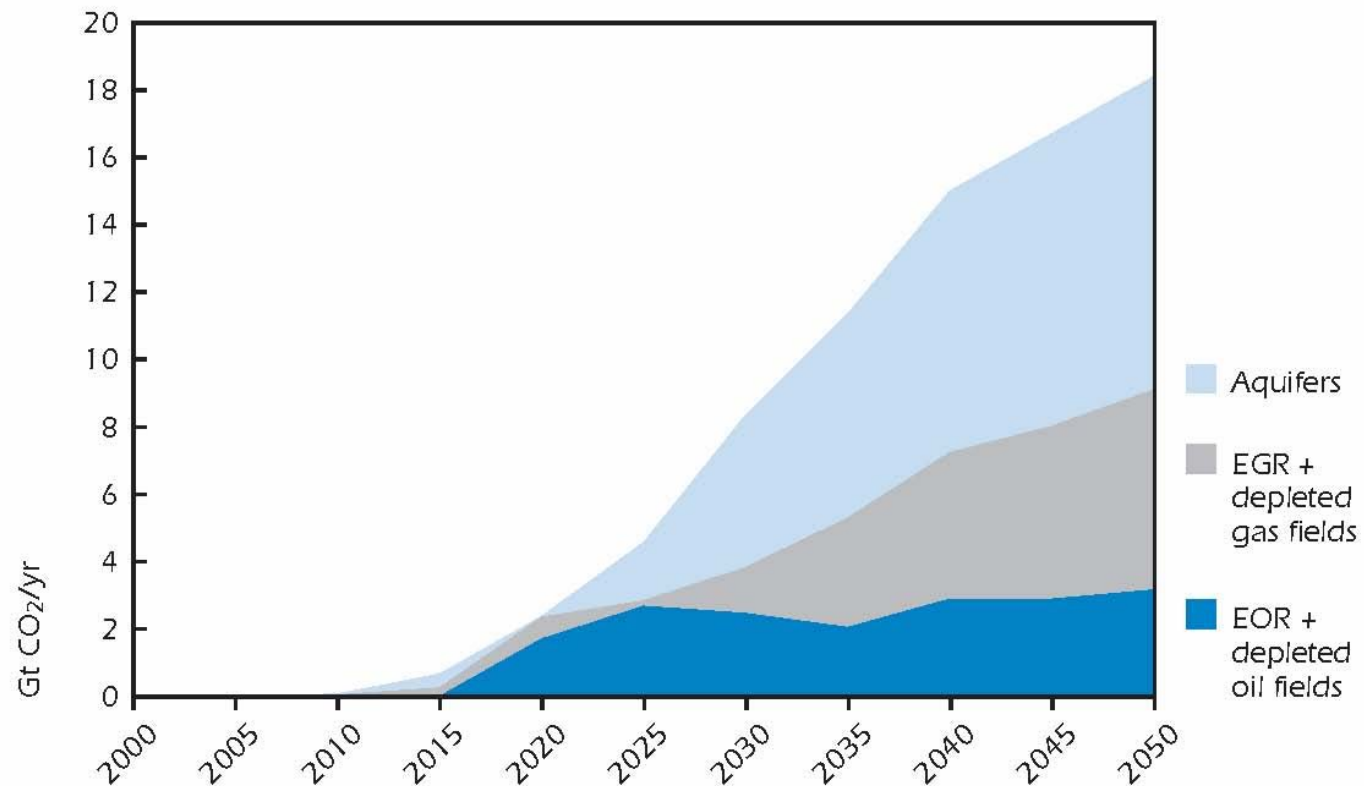
Electricity production mix in the GLO50 scenario

PROSPECTS
FOR
CO₂ CAPTURE
AND
STORAGE



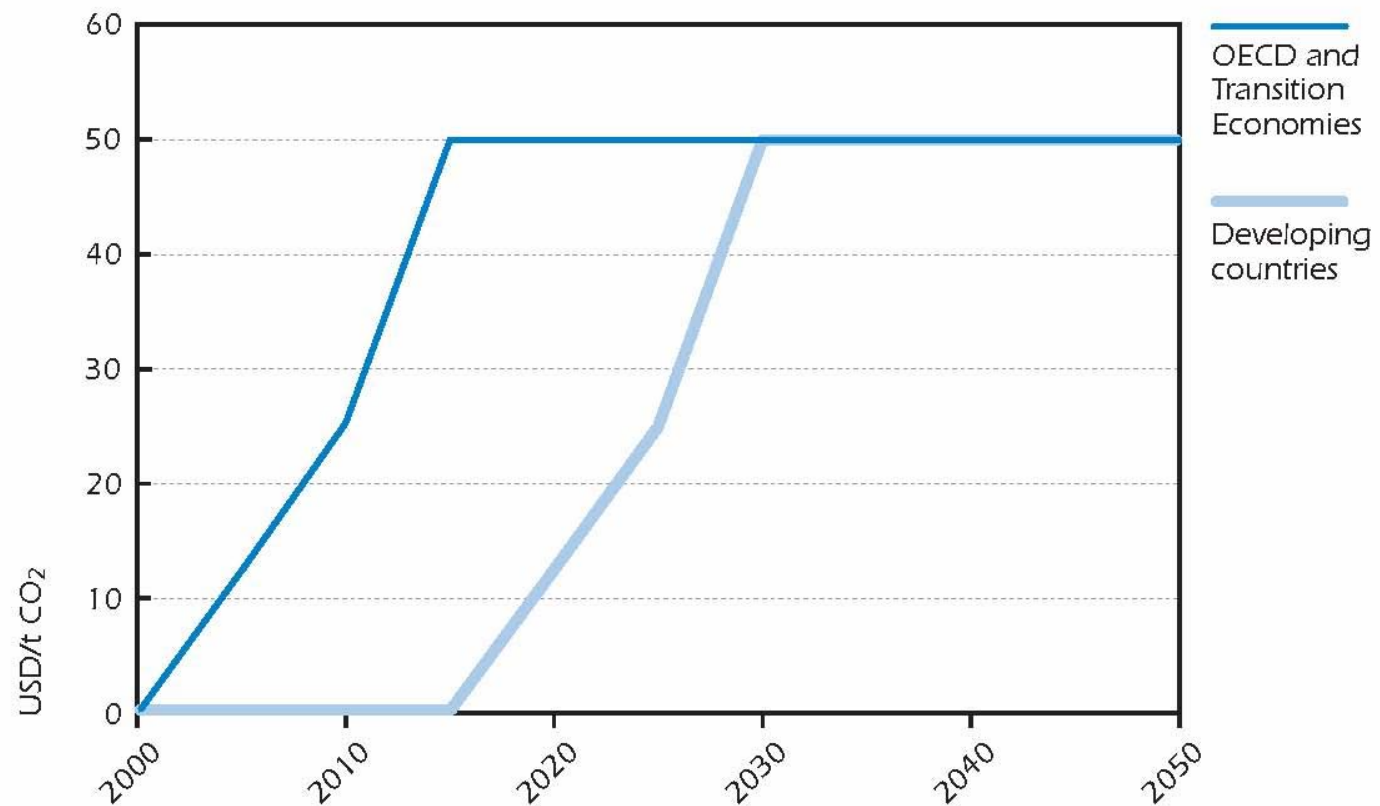
CO₂ storage in the GLO50 scenario

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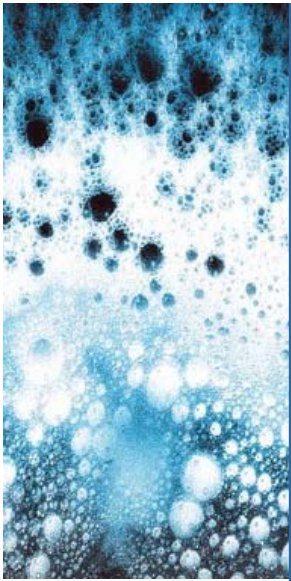


CO₂ penalties in the Global 50 scenario

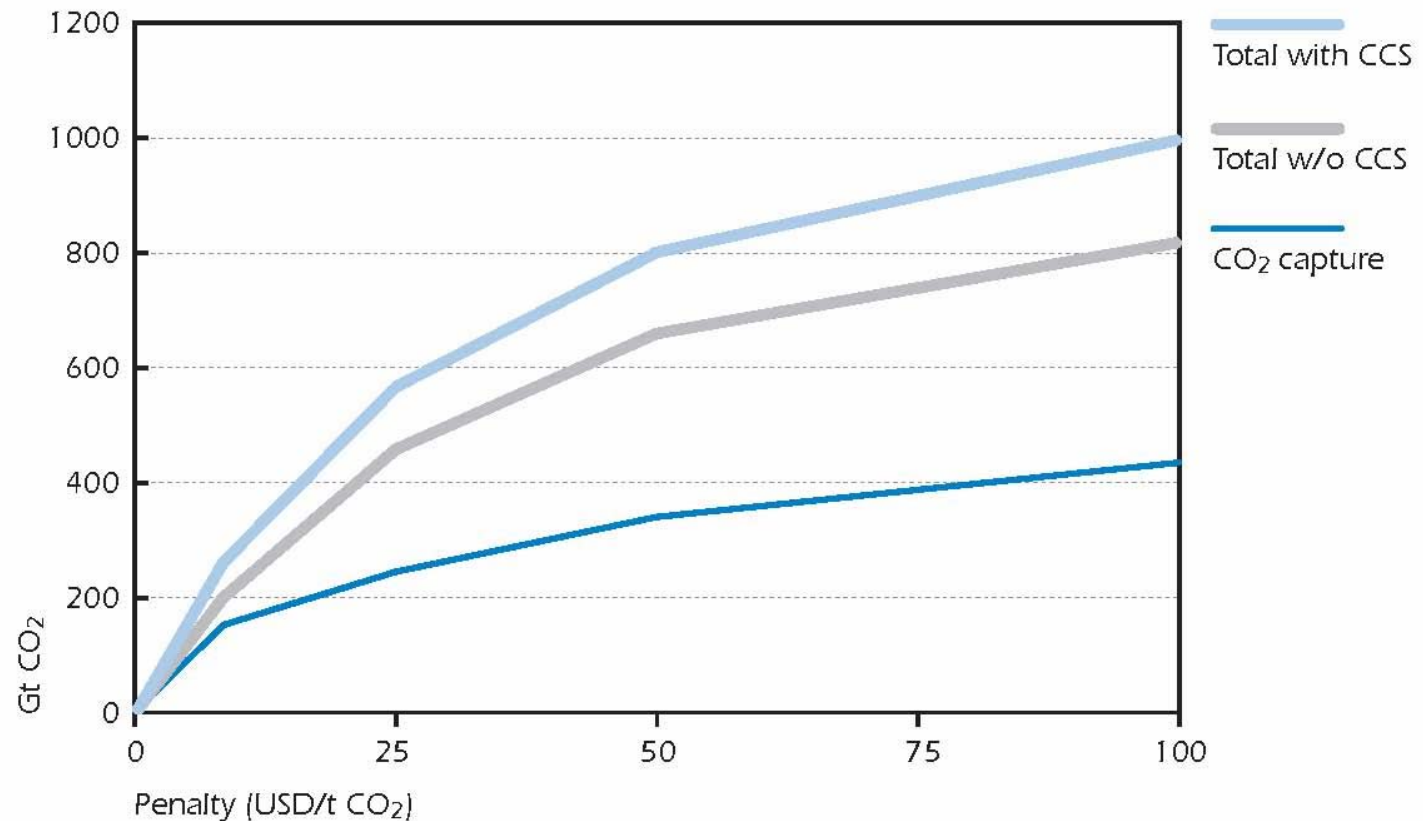
PROSPECTS
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Cumulative emission abatement for 2000-2050 as a function of penalty level



PROSPECTS
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Challenges

- **RD&D gaps**
- **Public awareness and acceptance**
- **Legal and regulatory framework**
- **Long-term policy framework and incentives**



RD&D Public/Private Partnerships

National Programs

- US: FutureGen
- EU: Hypogen
- Canadian Clean Power Coalition
- Australia
- Germany: COORETEC
- UK
- Norway
- France
- Italy
- Japan,...

International Collaboration

- Carbon Sequestration Leadership Forum
- IEA Working Party on Fossil Fuels
- IEA Implementing Agreements
- Intergovernmental Panel on Climate Change (IPCC)
- Bilateral Agreements, ...

Industry

Alstom ExxonMobil
BP EniTecnologie SpA
ChevronTexaco
EPRI Shell International
RWE AG Total
Rio Tinto, Schlumberger,...



Overview of worldwide CCS projects

CO₂ capture demonstration projects	11
CO₂ capture R&D projects	35
Geologic storage projects	26
Geologic storage R&D projects	74
Ocean storage R&D projects	9



Public awareness and acceptance

- The deployment of CCS technologies will require broad understanding and long-term commitment by numerous constituencies
- Environmental NGOs generally support RD&D work on CCS technologies
- Their main concern centres on the fact that CCS is seen and presented as a solution which would allow for the continued use of fossil-fuel resources as long as they are available



The regulatory and legal framework

- Countries should create an enabling legal and regulatory environment for national CO₂ storage projects.
- Contracting parties to international instruments should be proactive in clarifying the legal status of CO₂ storage in the marine environment, taking into consideration their objectives to stabilize CO₂ in the atmosphere.



Long-term policy framework and incentives

In addition to the acceleration of RD&D funding, countries should create a level-playing field for CCS alongside other climate change mitigation technologies. This includes ensuring that various climate change mitigation instruments, including market-oriented trading schemes, are adapted to include CCS.