



Session 1: Latest developments in technology, regulatory and financial aspects of CCS

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IEAGHG



CCS Policy – Status and Challenges



Establishing regulatory frameworks

- Regulations in Australia, EC, UK and USA underway

Financing early demonstration

- Need Governmental support for demonstration projects
- How will we finance CCS in the future?

Gaining public support

- “No to Clean Coal” lobby



Financing CCS Demos.

Government finance needed to support demonstration projects



- Australia, Clean Energy Initiatives Programme
 - CCS Flagship Program
 - A\$2.0 billion to fund 2 – 4 industrial-scale CCS projects
- Canada, C\$1 billion clean energy fund
 - Alberta has earmarked C\$2 billion for CCS projects
- USA
 - \$1bn for CCS projects, \$1bn for FutureGen and \$1bn for industrial CCS projects
- European Energy Recovery Programme
 - €1 billion to six CCS projects

Future Challenges



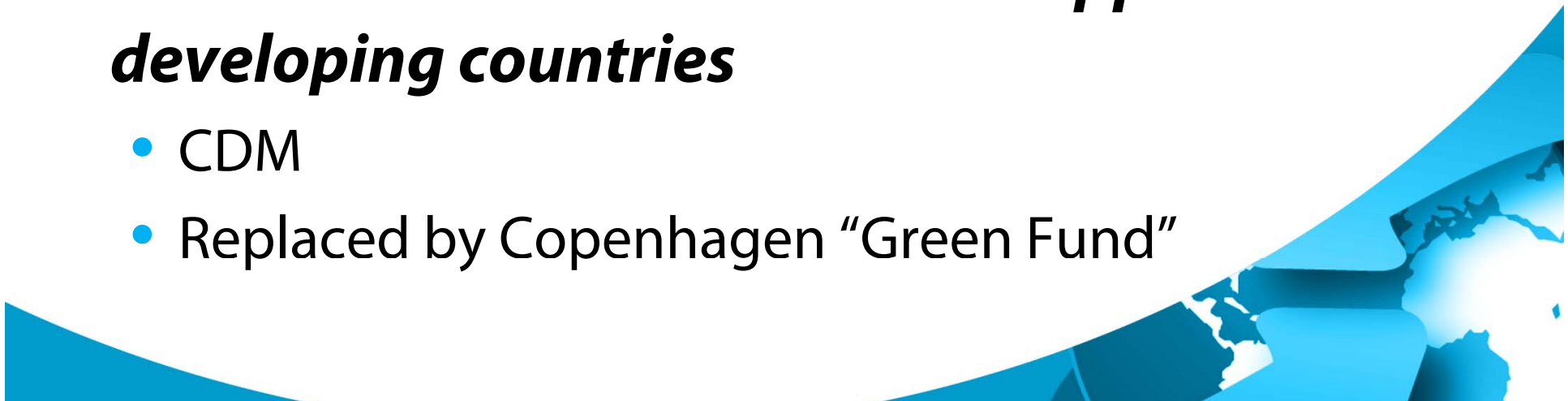
Need to find routes to unblock delays with demonstration projects

- Permitting issues
- Rights of way

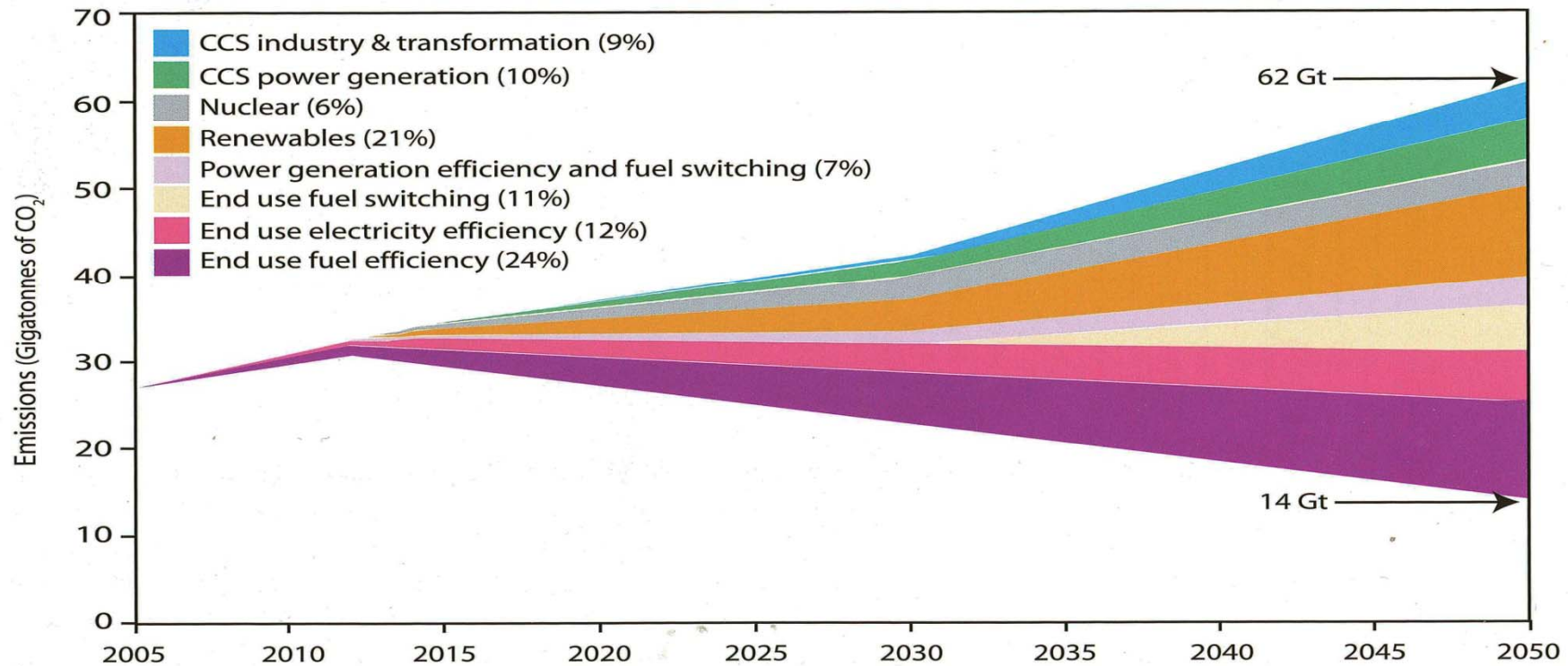
Need to gain public support for CCS

Need financial mechanism for support in developing countries

- CDM
- Replaced by Copenhagen “Green Fund”



We need to deploy CCS in power and industrial sectors



An analysis by the International Energy Agency shows the measures needed to cut emissions in half by 2050. Most of the needed emissions reduction can be achieved by CCS in the power generation and industrial sectors, energy efficiency and renewable energy sources.

Image Source: Based on International Energy Agency, *Energy Technology Perspectives, 2008: Scenarios and Strategies to 2050*, OECD/IEA, Paris, June 2008.

Technical Status



Capture in Power Sector

- Post combustion capture demonstrated at 1Mt scale on natural gas
 - Pilot plants on flue gas need to be scaled up
- Pre combustion capture (IGCCS) not yet demonstrated in integrated mode at scale
- Oxy fuel
 - Pilot plants need to demonstrate technology then scale up needed

Capture in Industrial Sector

- Cement Industry – technically feasible but higher cost
- Steel industry – technically feasible potentially lower cost

Transport of CO₂ by pipeline demonstrated on and offshore

- CO₂ Purity issues to address

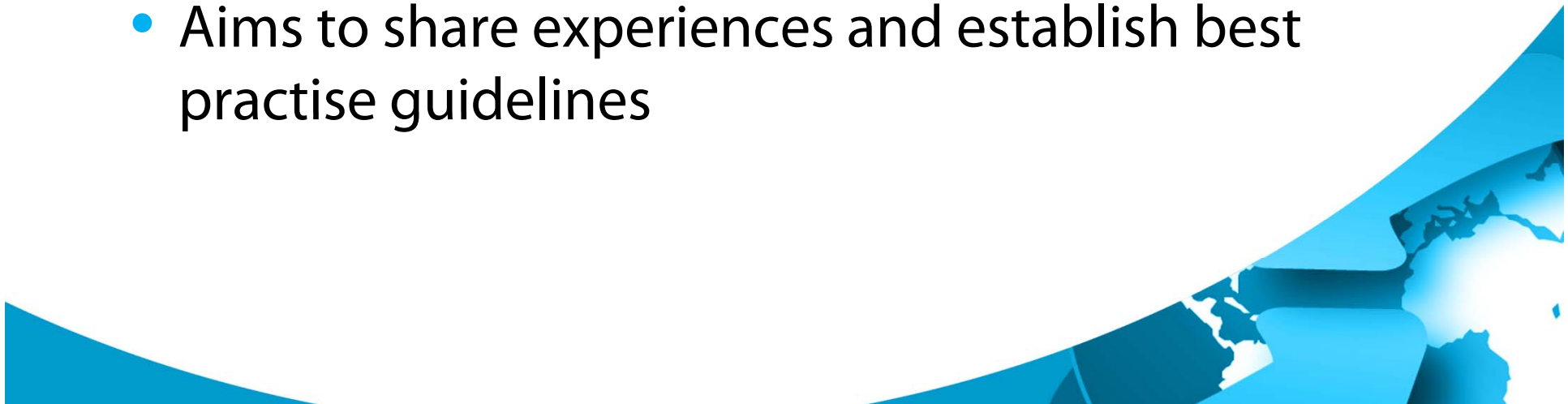
Injection of 1mt/y demonstrated in different formations

- Need to rely on deep saline formations

Public Engagement



- ***Need to learn from both positive and adverse experiences***
 - US study from Regional Partnerships Programme
 - Barendrecht, the Netherlands
- ***Communications research network established by GCCSI and IEAGHG***
 - Aims to share experiences and establish best practise guidelines





Thank You

Contact me at: john.gale@ieaghg.org

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