

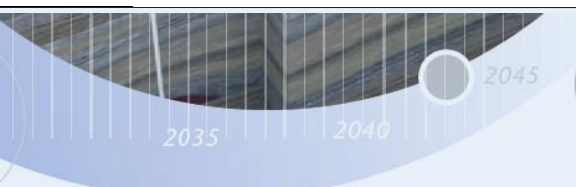
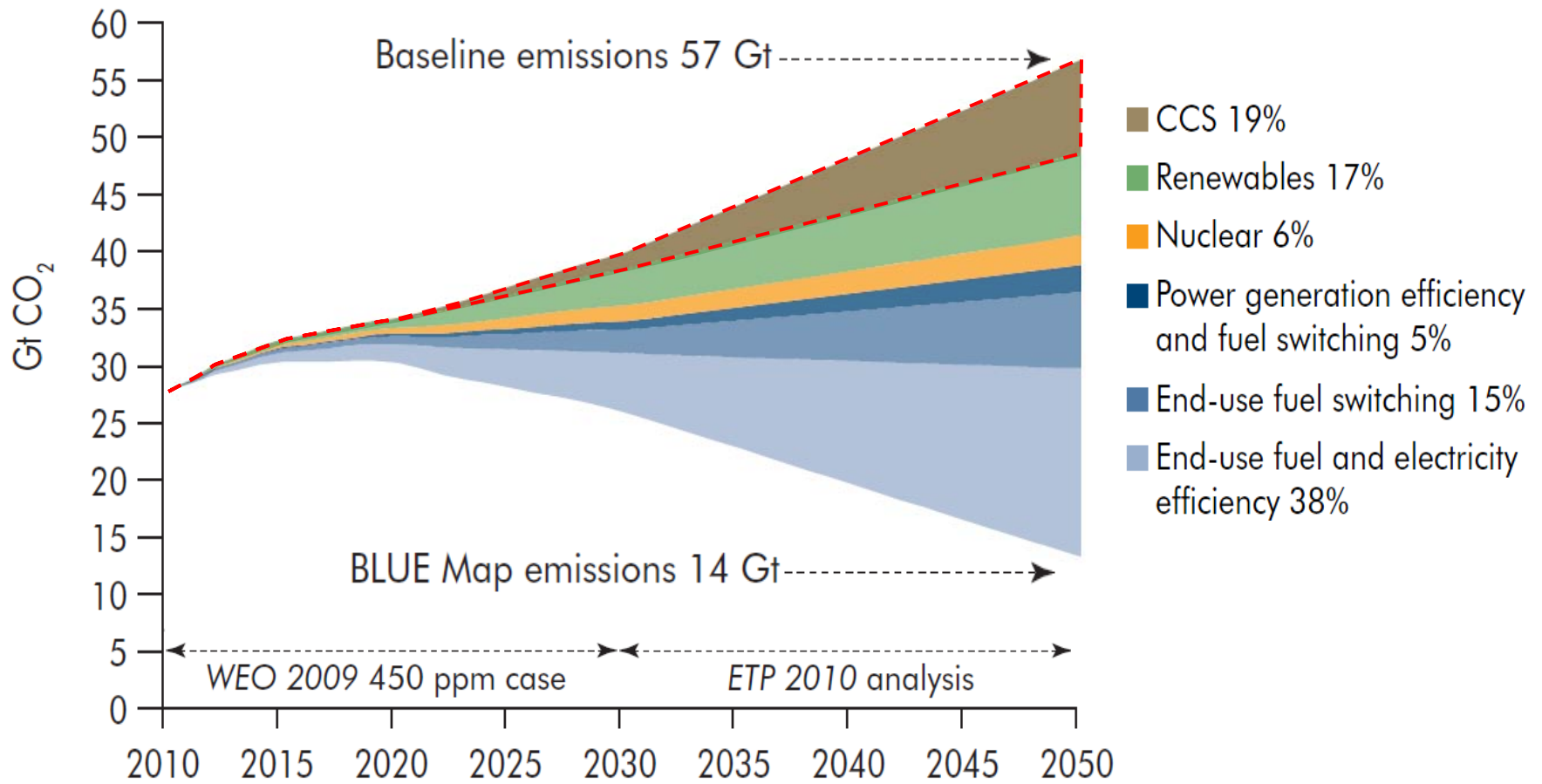
Global CCS Legal and Regulatory Developments

Brendan Beck

IEA GHG Student Mentoring Programme, GHGT-10
19-23th September, Amsterdam

Technology Roadmap
Carbon capture and storage

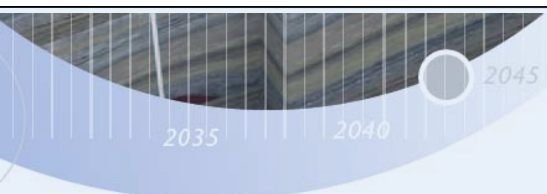
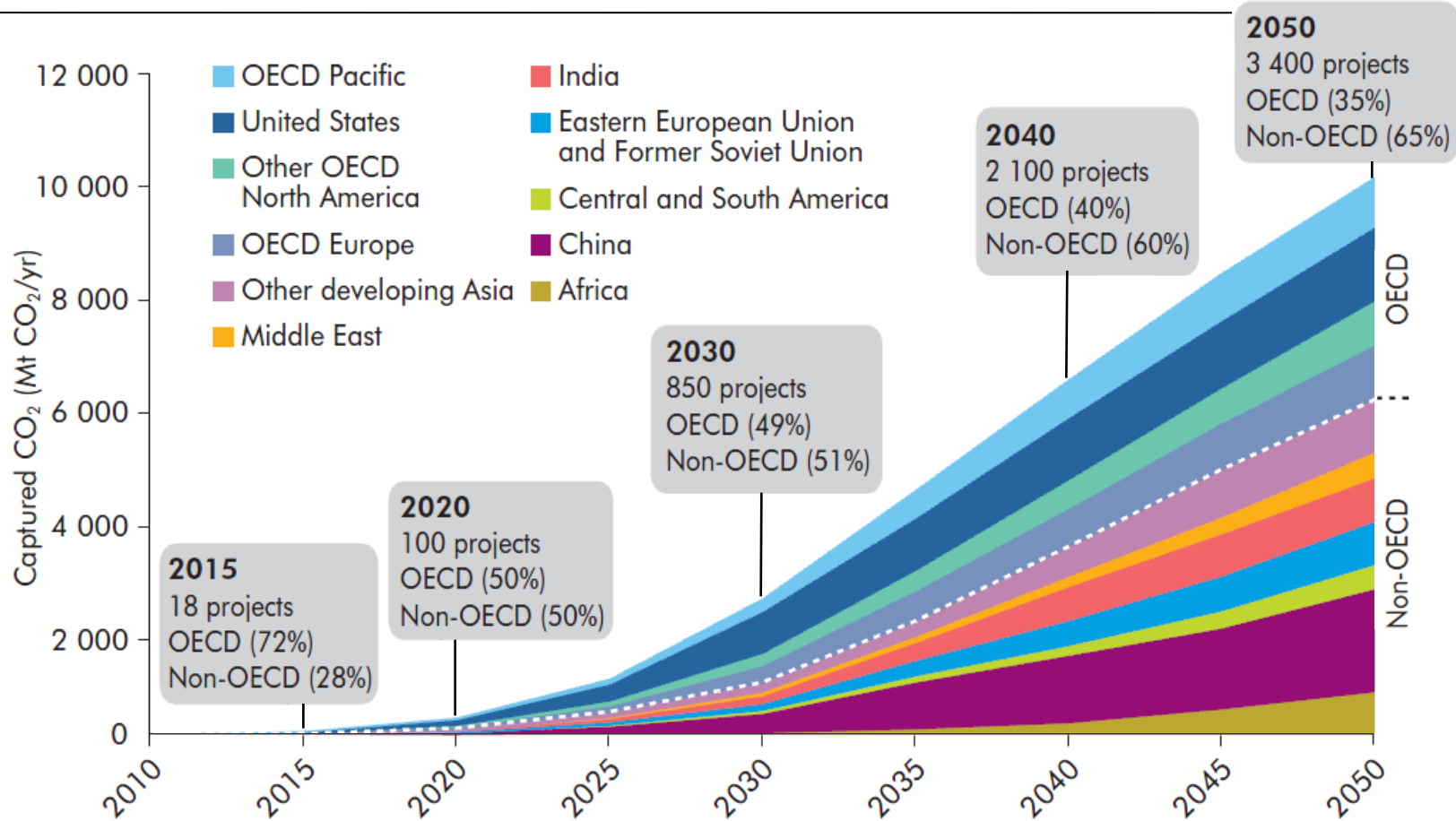
A portfolio of technologies



Technology Roadmap

Carbon capture and storage

An ambitious growth path



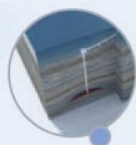
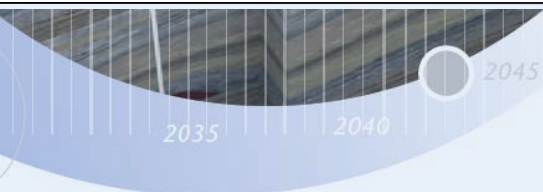
Technology Roadmap

Carbon capture and storage

Legal and Regulatory Actions and Milestones



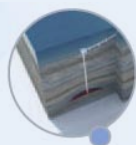
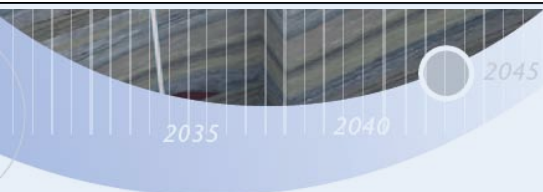
- Existing legal and regulatory frameworks should be reviewed and adapted for CCS demonstration by 2011 in OECD countries and by 2015 in all countries
- International legal issues need to be resolved by 2012
- All countries should have a legal and regulatory framework suitable for large-scale CCS deployment by 2020



CCS law and regulation today



- IPCC 2006 Inventory Guidelines
- London Protocol & OSPAR Treaty
- EU CCS Directive
- EU ETS Directive
- National and Regional Legal & Regulatory Developments
 - Europe, Australia, US

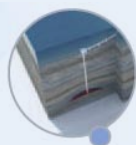
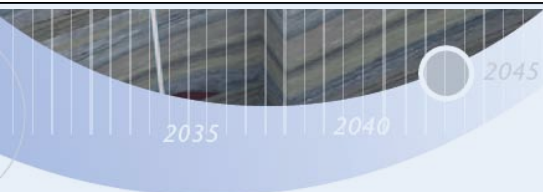


IPCC Guidelines for GHG Inventories - 2006



- Establishes accounting guidelines for CCS
- Provides a methodology for project development and operation
- Provides framework for a monitoring plan
- Based on site specific requirements
- Annex 1 – Description of monitoring technologies

- “For appropriately selected and managed sites, supports an assumption of zero leakage unless monitoring indicates otherwise”



Technology Roadmap

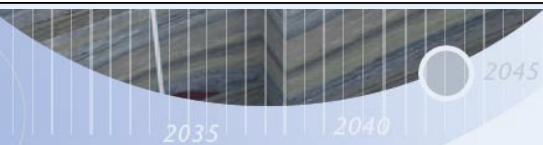
Carbon capture and storage

London Convention and Protocol



- Global agreement regulating disposal of wastes and other matter at sea
- Convention 1972 (86 countries)
- Protocol 1996 – ratified March 2006 (38 countries – including China)

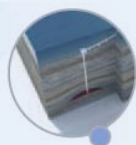
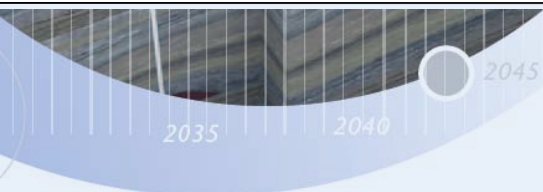
- CCS
 - 1) Prohibited some configurations of CO₂ storage below the subsurface
 - 2) Prohibits the trans-boundary transfer of CO₂



London Protocol Amendments



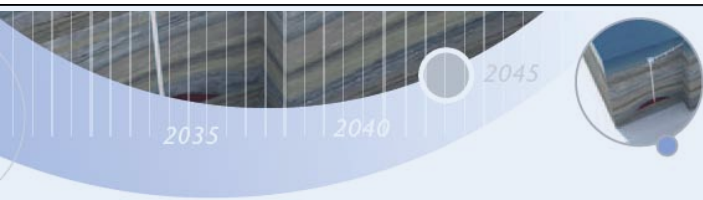
- Amended to allow all configurations of CCS
Entered into force – 2007
- Article 6 prohibits export of waste, including CO₂ –
Transport or migration
- Amendment proposed and passed by vote - 2009
- Adoption needs two thirds of all Parties ratifying



OSPAR Treaty



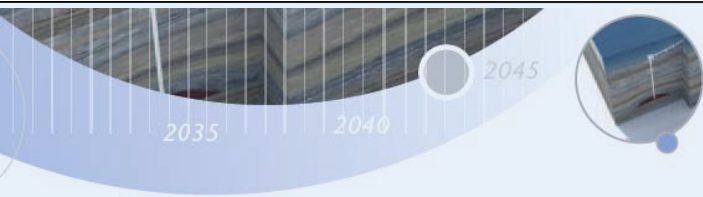
- OSPAR amendments for CO₂ storage
 - OSPAR Guidelines for Risk Assessment and Management of Storage of CO₂ in Geological Formations
 - Includes a Framework for Risk Assessment and Management (FRAM)
 - Requires use of Guidelines when permitting. Including risk assessment and management process
 - Adopted 2007 but need ratification by 7 parties



EU CCS Directive



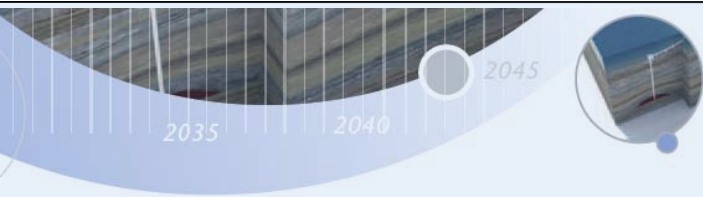
- Enabling regulatory framework to ensure environmentally sound CCS
 - Follows IPCC GHG Guidelines and OSPAR
 - Objective is permanent storage
 - Permits will be required for CCS – exploration and storage
 - Storage permit only if “no significant risk of leakage”
 - Emphasis on site selection, characterization, risk assessment, monitoring plan
 - Corrective measures plan, and provisional post-closure plan



EU Emissions Trading Scheme



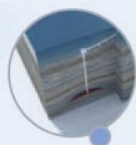
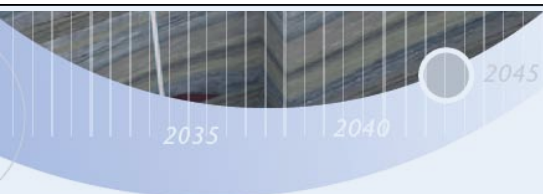
- **Phase II from 2008 – 2012**
 - Monitoring and reporting guidelines
 - CCS able to be “opted in”
- **Phase III from 2013 – 2020**
 - CCS fully included
 - Installation will need to comply with CCS Directive
 - No free allocation to CCS (same as electricity)
 - If any leakage – surrendering of allowances
 - Biomass and CCS can be opted in
 - NER 300



Regulatory developments in other regions



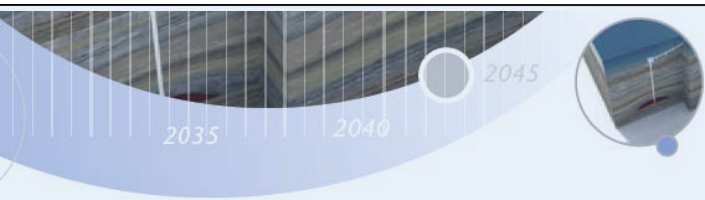
- **Australia**
 - Offshore Petroleum and GHG Storage Act 2008
 - Victoria and Queensland GHG Storage 2008/9
- **USA**
 - US EPA have developed Federal level regulations “Draft Rule” for CO₂ storage (Jul 08)
 - State CCS Legal and Regulatory Developments



Regulatory developments in other regions



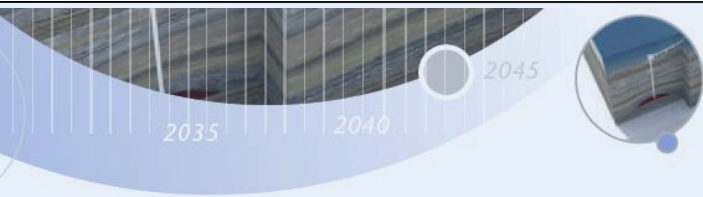
- **Canada**
 - Canada – acid gas injection and CO₂-EOR already permitted in states like Alberta
- **Japan**
 - Adapted marine laws
- **UK**
 - Mandatory CCS demonstration on 300MW of all new coal plant
- **South Africa**
 - CCS-ready on new plant



IEA CCS Programme of Work



- IEA CCS Regulators' Network
 - 1000 members
- IEA Model CCS Legal & Regulatory Framework
 - 28 key issues addressed
- IEA CCS Legal & Regulatory Review
 - 17 countries involved



Technology Roadmap

Carbon capture and storage

The next 10 years are critical.

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