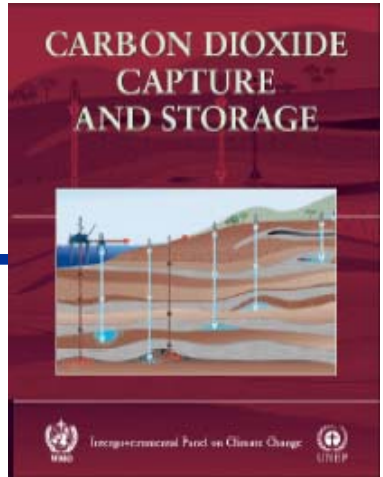
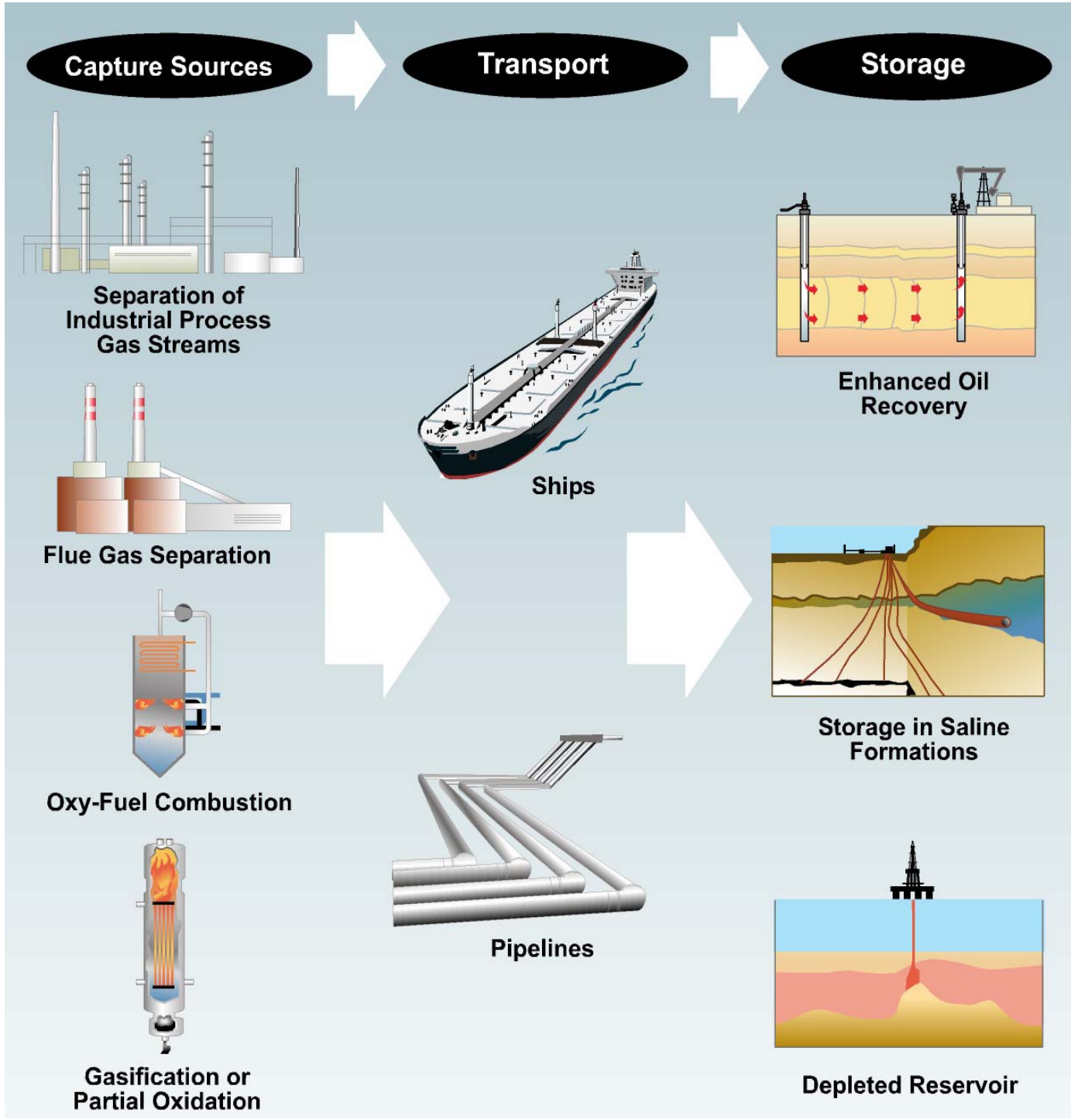




Carbon capture & Storage: what it is and why we need it

**Stakeholder Consultation Meeting
8 May 2007**

**Scott Brockett
C5 Energy & Environment
European Commission
DG Environment**



CCS Chain of Processes

Explicitly
excludes ocean
storage



Why do we need CCS?

Climate change context

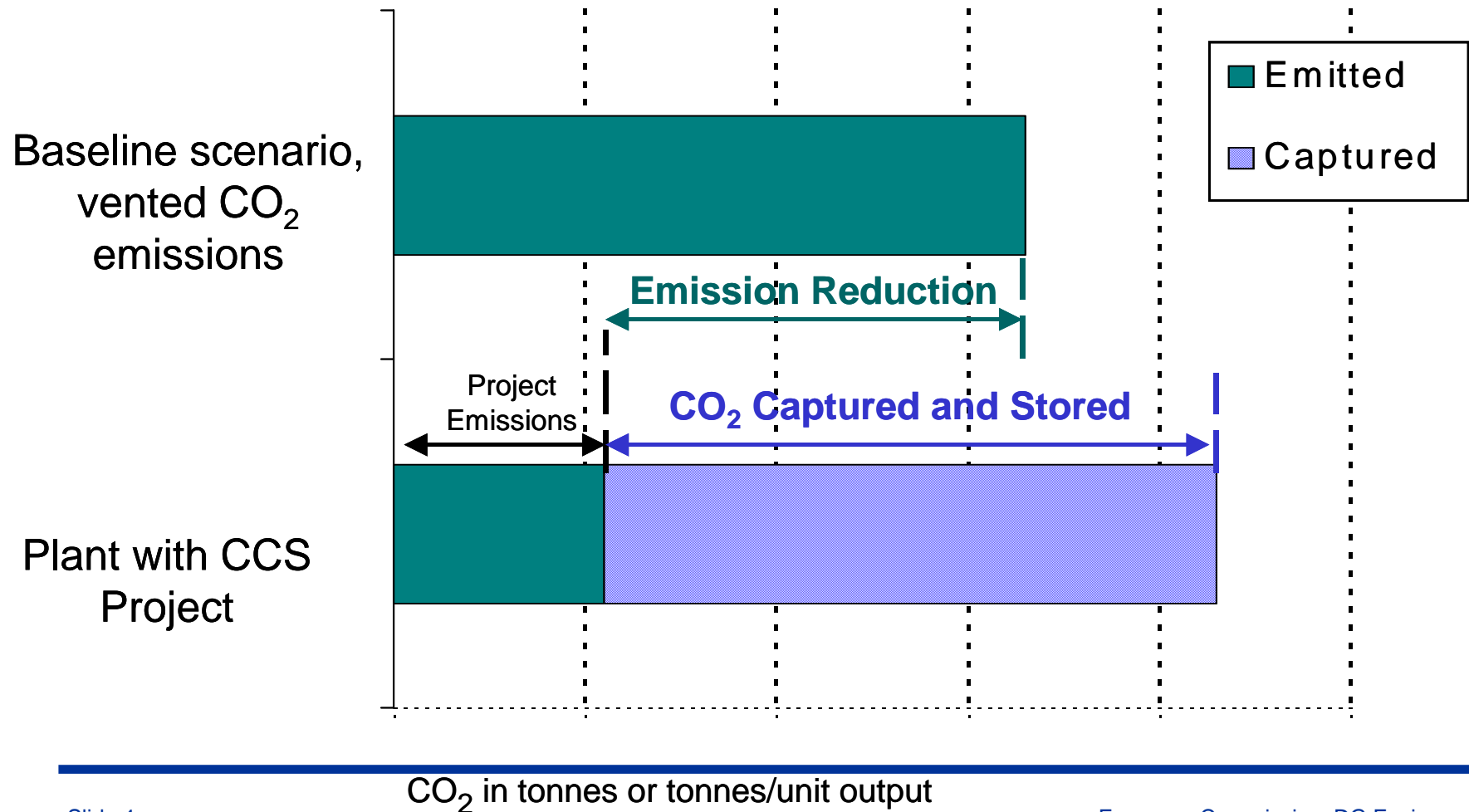
- Cannot reduce EU or world CO₂ emissions by 50% in 2050 with energy efficiency and renewables alone
- Must also use the possibility to capture and store CO₂
- Major fossil fuel use in the developing world must be addressed.

Potential of CCS

- Could contribute around 14% of all reductions needed by 2030
- by 2050 almost 60% of emissions from the power sector should be captured, compared with none today. More than 90% of all coal-fired electricity generation would be from plants equipped with CCS.
- After initial deployment in developed countries, rapid uptake in developing countries will follow.



CO₂ captured or injected vs. avoided or reduced



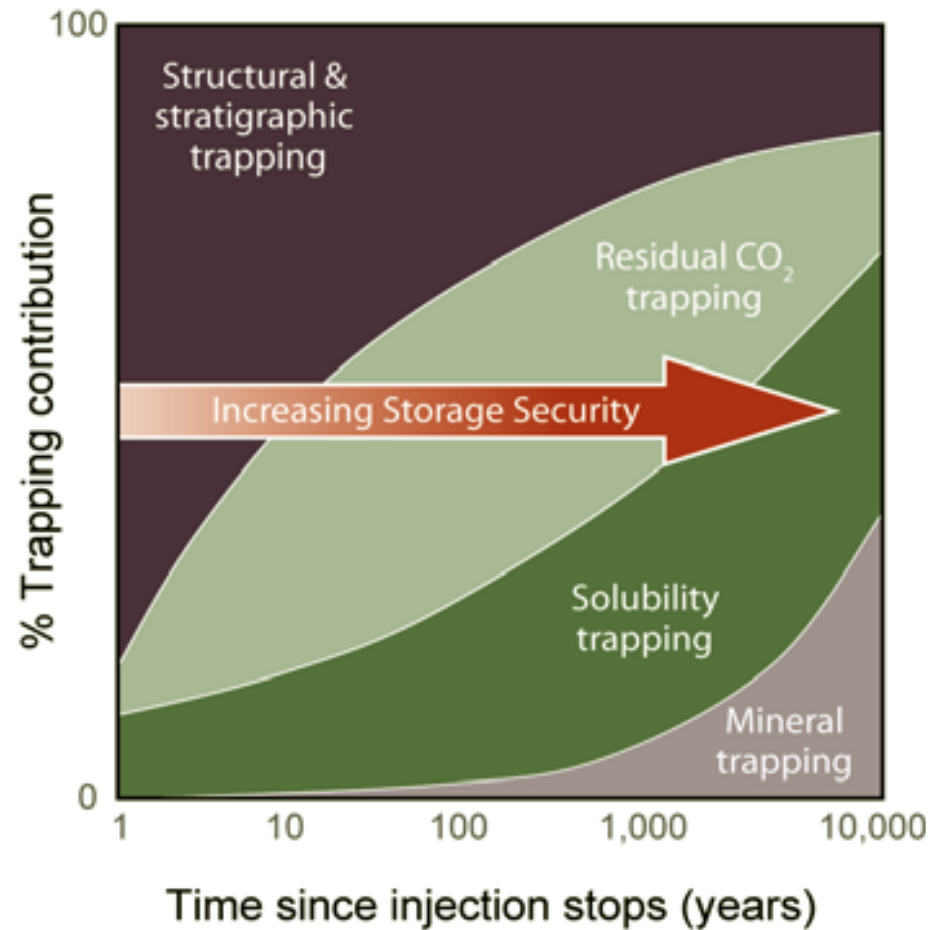


Potential for long-term storage

- **Most oil and gas fields have contained high-pressure CO₂ for millions of years (200 Mt trapped in Purgas Anticline in the US for 65M years)**
- **Significant storage potential**
 - **Technical potential likely to exceed 2000 GT**
 - **Total CO₂ emissions currently around 24 GT/yr**
- **Detailed work on storage potential in Europe:**
 - **National geological surveys**
 - **Geocapacity FP6 project**



Contribution of physical and chemical trapping options over time



Source: IPCC



Locations of CO₂ storage activities





Risks of CCS

Estimates in IPCC Special report:

- Local risks associated with pipeline transport could be similar to or lower than those of current hydrocarbon pipelines
- With appropriate site selection, monitoring and remediation, the local risks of CCS would be comparable to those of natural gas and Enhanced Oil Recovery
- The fraction retained in appropriately selected and managed sites is very likely to exceed 99% over 100 years, and likely to exceed 99% over 1000 years.

Need to balance risks and benefits



How can its potential be achieved?

Requirements

- Manage risks of CCS
- Commercialise the technology – bring costs down substantially

Actions

- Enabling legal framework end 2007
- 10-12 demonstration plants.
- **Widespread deployment by 2020**



Summary

- Can't meet our climate goals without CCS
- Technology for deployment exists today
- Significant storage capacity both worldwide and in Europe
- If sites properly managed, prospects for long-term storage are good
- Regulatory framework needed:
 - Risk management
 - Demonstration/commercialisation
- Widespread deployment by 2020