



Assessment Workshop on CCS Near-Term Opportunities: Follow-Up from the Issues Workshop

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Oslo, Norway
21-22 June, 2007



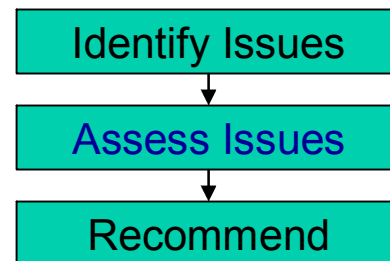


Request from the G8: Gleneagles Plan of Action, July 2005

We will work to accelerate the development and commercialization of Carbon Capture and Storage technology by:

...inviting the IEA to work with the CSLF to hold a workshop on short-term opportunities for CCS in the fossil fuel sector, including from Enhanced Oil Recovery and natural gas production.

- First workshop held in San Francisco, August 2006
- Second workshop now in Oslo, June 2007
- Third workshop to be held in Canada, late 2007
- Recommendations to be delivered to the G8, Japan, 2008





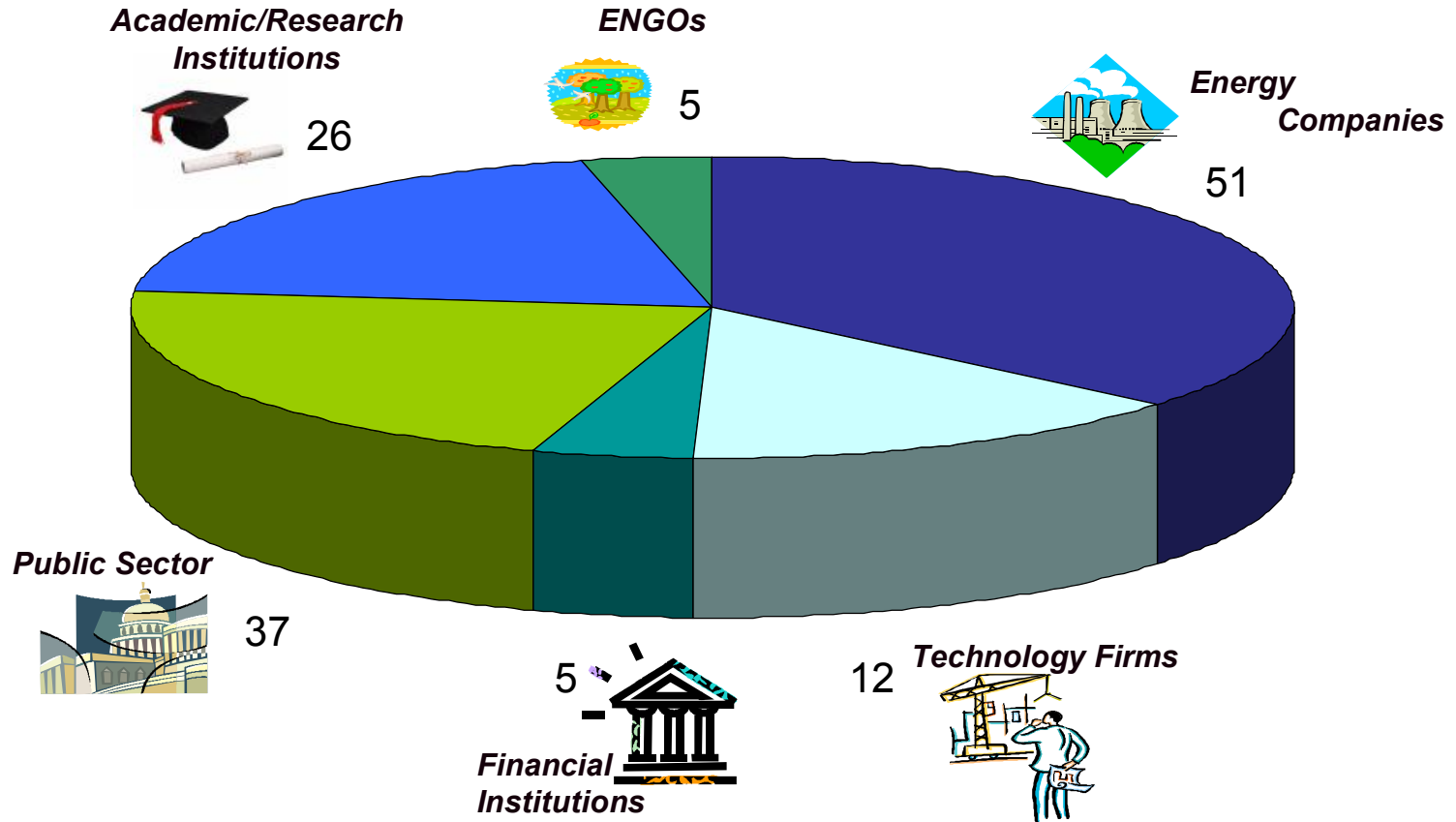
Goals of San Francisco Workshop

- Define issues and opportunities by addressing questions such as:
 - What is the potential for near-term opportunities?
 - What are their niches, status and outlooks?
 - How can near-term opportunities facilitate widespread CCS?
 - What are the commercialization lessons from current projects?
 - What are the issues and concerns of stakeholders?
 - What barriers must be overcome?
 - What types of policies are needed for implementation?
- Deliverable: IEA Summary REPORT which would produce the output to be input into the next workshop.
- Sponsors: Chevron, Anglo Coal, Rio Tinto, Shell



Invited Experts from Around the World Participated

Total = 136



San Francisco Workshop Agenda

Tuesday, August 22

Start 8:00	
Plenary Early Markets for CCS: Setting the Scene	
Coffee Break	
11:35	Breakout Sessions Scene Setting and Issue Framing
12:10	Lunch
13:00	Breakout Sessions Issue Raising and Prioritization
Coffee Break	
15:10	Plenary •Panel 1: Emerging Economies •Panel2: Developed Economies

Adjourn 17:30

18:00	Welcome Reception
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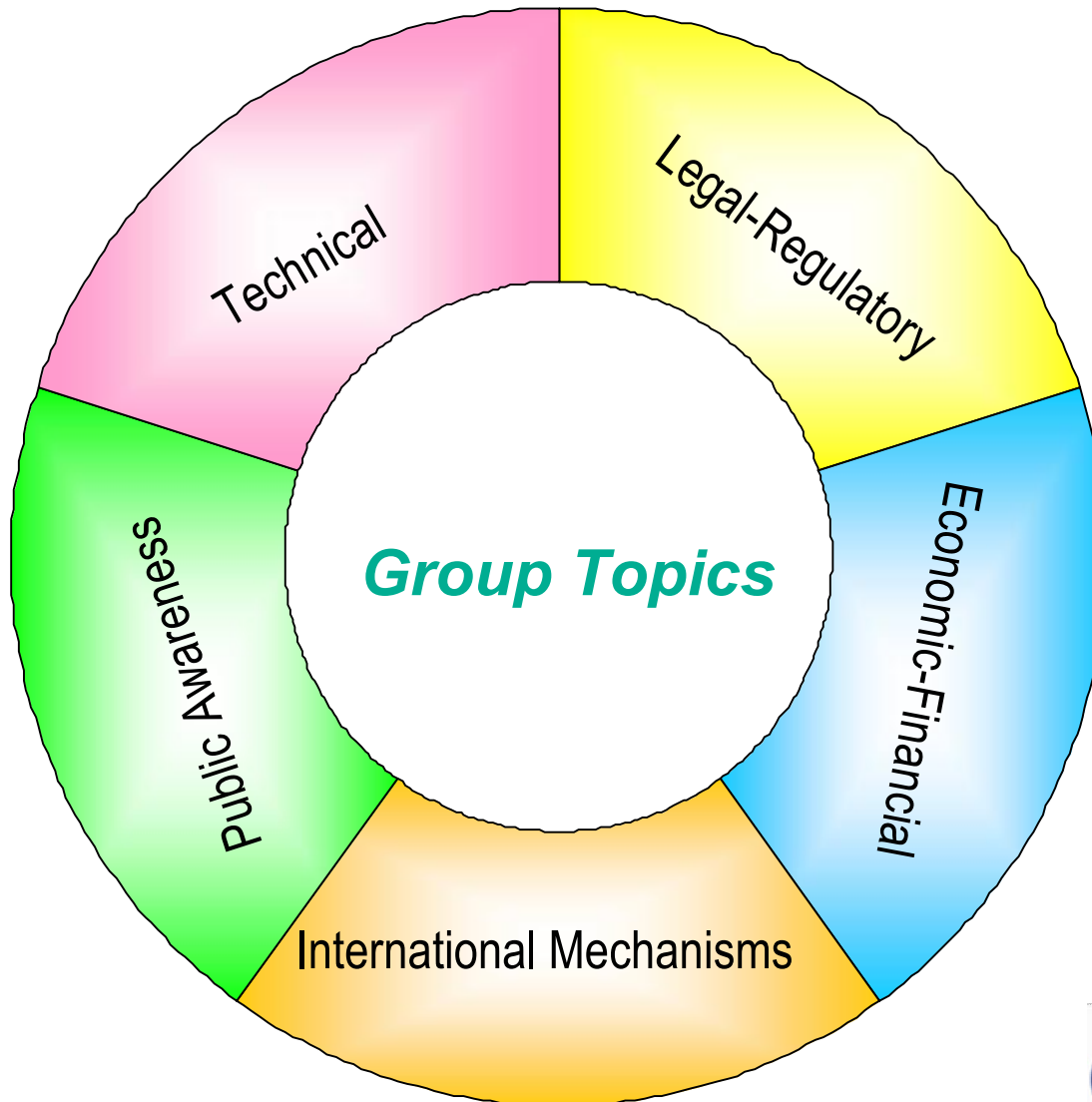
Wednesday, August 23

Start 8:50	
Breakout Sessions Discussion of Issues Raised	
Coffee Break	
10:45	Breakout Sessions Bridging to the Next Workshop
12:15	Lunch/Speaker
14:00	Plenary Reports from Breakout Chairs
Coffee Break	
15:30	Plenary Conclusions, Key Issues and Tasks for Following Workshops

Adjourn 17:15



San Francisco Breakout Groups





Near-Term Opportunities Identified by the Technical Group

EOR with
CO₂ storage

High purity
CO₂ source

- Hydrogen, ammonia plants
- Opportunities in developed and developing countries

Emerging
projects

- Oil and gas sector
- Power projects





“Critical” issues identified by the Technical Group:

- High capture costs
(early opportunity: high purity sources with lower capture costs)
- Undeveloped CO₂ transport infrastructure
(early opportunity: use existing infrastructure where available)
- Storage
 - Availability and capacity of long-term storage possibilities (early opportunity: proximity to source, EOR, EGR perhaps ECBM)
 - Potential leakage pathways
 - Monitoring for leakage
 - Remediation methods
 - Technical aspects of safety risks and risk reduction





“Critical” issues identified by the Commercial-Financial Group:

- Where is the value from CCS?
- What is an appropriate government role?
- How can viable markets related to CCS be created?
- How can commercial risks be managed?
- How can cost be reduced along the value chain?
- How can we build the necessary commercial expertise?





“Critical” issues identified by the Legal-Regulatory Group:

- Ownership/liability
- Regulatory treatment of CO₂
- Property rights/Intellectual property
- Monitoring and remediation
- Jurisdictional concerns





Legal Concerns Arising from Economic-Financial Group:

- Long-term liability for storage ✓
 - Intellectual property rights ✓
 - Incentives for Carbon Capture and Storage (CCS)
 - Predictable, long-term legal-regulatory framework
 - Making the playing field level for CCS
- ✓ Also identified by Legal-Regulatory Group.





“Critical” issues identified by the Public Awareness Group:

Key Challenges:

- Very limited public awareness
- Need for public acceptance

Opportunities:

- Convergence of interests
- Early demonstrations
- Communication strategy
- NGO engagement
- International architecture





“Critical” issues identified by the International Mechanisms Group:

Relevant International Activities

- International economic mechanisms (e.g., emissions trading, CDM)
- International co-operative forums (e.g., CSLF, IEA)
- Development assistance (e.g., GEF)

Critical Issues and Barriers

- No incentives for CCS
- Uncertainty about targets and mechanisms after 2012 under Kyoto and other institutions
- Absence of int'l. framework for funding, selection and prioritization of CCS projects and RD&D
- Insufficient international and national legal/regulatory framework to support international mechanisms





Suggested Future Activities

- Catalog national/international incentives and models for CCS.
- Identify incentives that address risks in CCS investment due to uncertainties.
- Prepare compendium of incentives and status of ongoing processes.
- Prepare status report on how CCS is included in post-2012 proposals.
- Monitor World Bank activities for new funding mechanisms.
- Review existing financial models for technology demos in other industries.
- Status report on how well regulatory models enable near-term CCS.
- Report on CCS work of CSLF, AP6, and other relevant organisations.
- Conduct thorough stakeholder analysis.
- Prepare summary of CCS activities underway.
- Conduct global review of existing CCS public outreach activity.
- Analyze recent media coverage of CCS and results of focus groups.
- Prepare an accident scenario simulation.



The Challenge from San Francisco

