



CO₂ Capture Project

CO₂ Capture Project's Policies & Incentives Work Program 2006-2007

Communications of Principles

CCP2 Policy and Incentives Team and NGOs Discussion

6 December 2006

*Discussion to be facilitated by:
Arthur Lee and Iain Wright*

P&I Team Mission Statement

- **The Policy & Incentives Team provides information and advice to the CO2 Capture Project Executive Board on national and global policies, regulations and legislation, incentives and any other external developments that may impact or benefit the technology program being developed by the CO2 Capture Project.**



P&I Team Objectives

- **Update the survey of existing policies, regulations, and incentives that impact or benefit CO₂ capture and injection and storage in geologic formations. (*Updating the 2003 study*)**
- **Continue the network monitoring function for the team and share information about proposed regulations, policies, and incentives that can affect the CO₂ Capture Project. Through this monitoring function, identify potential opportunities to inform the debate on CO₂ capture and geologic storage.**
- **Participate in international forums to discuss the formulations of policies and incentives in CO₂ capture and storage technology.**
- **Make recommendations to the Executive Board of the CO₂ Capture Project on appropriate actions to address issues identified.**
- **With team consensus and Board approval, provide written comments on select, significant proposed policies and incentives in CO₂ capture and storage technology – “light” advocacy**



Terms of Reference 2006 - 2007

- **Task 10: Continue development of position papers on specific issues**
- **Task 11: Continue monitoring of key areas of policy development and engage in “light” advocacy as appropriate, in the following:**
 - Carbon Sequestration Leadership Forum
 - European Commission Consultation Papers, Directives
 - US Ground Water Protection Council, Environmental Protection Agency, and Interstate Oil & Gas Compact Commission model regulations and standards
- **Task 12: Adopting Elements of CCS Methodology in Clean Development Mechanism and Other Regulatory Regimes (See IEA GHG R&D Programme Report**

P&I Team Tasks Have a Potential Component of “Light” Advocacy



Continue “Light” Advocacy Elements

- ***Only in response to specific regulatory proposals or policy white papers from governments and multi-lateral bodies, e.g.:***
 - UNFCCC meetings when CCS technology is discussed
 - Carbon Sequestration Leadership Forum
 - European Commission Directives
 - Model standards from the US Groundwater Protection Council and the Interstate Oil & Gas Compact Commission
 - Elements of a CCS methodology in Clean Development Mechanism and other regulatory regimes
- **The Policy & Incentives Team will:**
 - Provide information to correct or clarify facts
 - Offer options or approaches
 - Describe and explicitly recommend any approach or approaches preferred by the CO₂ Capture Project
- **Draft submittals by the Policies and Incentives Team will be reviewed and approved by the Executive Board pursuant to the Board’s voting procedures.**



Key Issue Areas (1)

“Light” Advocacy entails response to regulatory proposals and policy white papers. Areas of key issues will likely focus on:

- **Promotion of CCS as a viable means of managing significant GHG emissions worldwide**
- **Acceptance of CCS within GHG emissions trading systems**
- **Acceptance of CCS within international conventions not originally contemplating CO₂ capture and storage**
- **Promotion of appropriate levels of environmental, health and safety protection for site evaluations and permitting of transport and storage structures.**
- **Regulations commensurate with the risk level associated with CCS**



Key Issue Areas (2)

“Light” Advocacy entails response to regulatory proposals and policy white papers. Areas of key issues will likely focus on:

- **Consistency in regulations between jurisdictions as possible and appropriate**
- **Consistency in regulations regardless of source or location of CO₂ emissions**
- **Government incentives for pre-commercial CCS technology development without promoting a particular technologic solution (i.e. government should not pick the winner)**
- **Government partnership in CCS technological development and public education/outreach**
- **Opportunity for industry involvement in public policy development**
- **Facilitation of technology transfer to developing countries**



Positioning of CCP2

There will be issues in these areas:

- ✓ **Decommissioning and long term liability (Approved by EB)**
- ✓ **Addressing impurities (Approved by Executive Board)**
- ✓ **Incentives for deployment (Approved by EB)**
- ✓ **Submitted comment letter (date) to US Minerals Management Service and Bureau of Land Management on incentives framework (Approved by EB)**
- **Siting and permitting requirements (no draft yet), including technical requirements in:**
 - Well integrity
 - Risk assessment
 - CO2 monitoring

Develop position papers to inform the actions of the CO2 Capture Project.



Principles Paper for Decommissioning & Long Term Liability

- Shared liability with governments.
- CCS Operator remains responsible for the integrity of the site, monitoring of the site, and make reasonable efforts to reinject or offset any re-emission to the atmosphere, after decommissioning in a period referred here as “post closure” period.
- After the post-closure period, full transfer of all liability, monitoring, mitigation responsibilities to the government authority occurs.

Shared liability with government and full transfer of such liability to government after a period of time post closure.



Principles Paper for CO2 and Impurities

- **CCP2 should oppose regulatory proposals that label pure CO2 as a waste, particularly as a hazardous waste.**
- **CCP2 should support the inclusion of an assessment of transport, injection, and storage of CO2 either co-captured with other chemical compounds (or not) as part of any environmental impact assessment that is normally conducted in the permitting process of a project.**
- **CCP2 should advocate a position consistent with the protection of health and safety of workers and the local community, and the protection of the environment surrounding the capture, transport, and storage facilities. The concentrations of these compounds in the CO2 stream should be reduced cost-effectively to levels posing no immediate harm to workers or the local community. If reductions to trace levels are not cost-effective, then CCP2 should advocate cost-effective monitoring of these compounds to ensure that adequate warning can be given to workers and the local community to take protective actions.**

CO2 should not be defined as a waste. If it is so defined, and the co-capture of other chemical compounds are deemed as such, CCP2 should advocate principles of cost-effective reductions and monitoring, consistent with the protection of health, environment, and safety of the local community.



Principles Paper for Incentives and Disincentives for Widespread Deployment

Select principles for advocacy:

- **Funding basic research and development of CO₂ capture and storage technologies is the shared responsibility of government and industry.**
- **Government should provide some form of assistance for up-front capital costs necessary to develop large-scale CO₂ capture, transportation and storage infrastructure.**
- **Government policy should recognize that the capital and operating costs associated with CO₂ capture are the largest single piece (>80%) of the capture, transportation and storage life cycle.**
- **Policy incentives to encourage deployment of capture technology are appropriate.**
- **Regulations related to CCS should not act as a disincentive for CO₂ capture.**

The high costs of current capture technology and the need for infrastructure development remain key areas where targeted financial and policy incentives can help spur widespread deployment.



Current Members

- **Dag Christensen (Norsk Hydro)**
- **Wolf Heidug (Shell)**
- **Arthur Lee (Chevron) – Team Lead**
- **Iain Wright (BP)**
- **Eric Beynon / Stephen Kaufman (Suncor)**
- **Cal Cooper/ Bruce Wilcoxon (ConocoPhillips)**
- **Sue Young (ConocoPhillips)**
- **Paulo Cunha (Petrobras)**
- **ERM consultants (led by Paul Zakkour, Greg Cook, Lee Solsbery)**



Communicating CCP2 Policy & Incentives

Principles to Multi-lateral Forums

- **UNFCCC Meetings**

- Purpose: To help shape a favorable decision for inclusion of CCS in Clean Development Mechanism
- SBSTA May 2006
- IPIECA Side Event at COP12 and distribution of Principles Papers 1, 2, and 3, 7 November 2006
- Possible interventions in a joint-industry position, 8 November 2006

- **Carbon Sequestration Leadership Forum**

- Purpose: To help shape Legal & Regulatory positions jointly being developed with the IEA
- Policy Group meeting and side-bar discussions in April 2007

- **G8 IEA CSLF Workshops on Near Term Opportunities for CCS**

- Purpose: To help shape Legal & Regulatory critical issues affecting near term deployment of projects
- Continuing participation in Legal & Regulatory discussions in workshops to be hosted by Norway and Canada 2007



Communicating CCP2 Policy & Incentives

Principles to Governments, NGOs

- **California**
 - Purpose: To help shape a favorable regulatory climate in the next few years
 - AB1925 mandates a study of CCS in California by November 2007
 - Scoping plan to be completed by 2009
 - Regulations to be completed by January 2011
 - “Maximum technically feasible and cost effective emissions reductions”
 - Taxes, fees, charges, emissions trading, technology options: Nothing precluded
- **US Bureau of Land Management and Minerals Management Service**
 - Purpose: To help shape a favorable framework of Incentives for CO₂ EOR with storage optimized for CO₂
 - Submitted letter of comments to the US BLM and MMS in line with that purpose
- **CCP2 NGO Focus Group Meetings**
 - Purpose: To share CCP policy team’s results
 - Periodic meetings in Europe and US to update NGOs interested in CCP2 work



G8 IEA CSLF Workshop on Near Term Opportunities

San Francisco, CA, 22-23 August 2006

Five Breakout Sessions Designed to Work Issues
Influencing Near Term Opportunities:

- Technical
- Commercial & Financial
- Legal & Regulatory
- Public Awareness
- International Mechanisms

Participants assigned to each session have expertise
and opinions to share.

Preamble

Category	Issue
Urgency	1) Ensure legislators/regulators understand the sense of urgency
	2) Don't aim for 'perfect' regulation (i.e., shouldn't make projects wait)
Uniqueness of CCS	1) Recognition that CCS differs in scale of operations (both size and time) from analogues (e.g., AGI, natural gas storage)
Policies/regulations for early movers	1) Use of early movers to develop regulation
	2) Put legislation/regulation in place necessary to encourage likely, near-term projects
	3) In absence of regulation, can 'appropriate guidelines' be used?
	4) 'Temporary regulation may not be complied with
	5) Policy needs to be set before legislation can be derived
	6) Implementation of regulatory regimes that incentorize early adoption back-stopped by willingness to 'grandfather' early projects
	7) Discretion of regulators

Specific Opportunities Discussed

- **High concentration industrial sources**
- **Hydrogen production**
- **Enhanced oil recovery**
- **Gas Production with CO₂ reinjection**
- **“Capture ready” power plants and other facilities**
- **Early demonstrations**

Any others?

- **Projects in countries with CO₂ incentives (e.g., cap and trade system, carbon tax)**
- **Capture of CO₂ from biofuels**

Definitions

Priority	Definition
Critical	Progress on near-term opportunities cannot be made unless this issue is resolved.
Important	Progress can be made without fully resolving this issue, but lack of resolution could be a hurdle that could slow implementation.
Other	Resolution of this issue may be helpful, but not necessary at a critical or important level.

Legal and Regulatory Issues

Critical Issues Identified (1)

Category	Issue	Priority
Ownership/liability issues	1) Need to account for liability along the CCS chain	Critical
	2) Retroactive liability	
	3) Insurance for earliest projects	
	4) State aid and its limitations	
Regulatory treatment of CO2	1) Compliance with applicable, existing regulation (if it exists)	Critical
	2) Possibility of CCS regulation under existing regulations	
	3) Tolerance for contaminants	
	4) Definition of CO2 as a waste or commodity (circumstantial)	
Monitoring / remediation issues	1) Need for system to be in place to monitor possible leakages/seepages over time	Critical
	2) Remediation	

Legal and Regulatory Issues

Critical Issues Identified (2)

Category	Issue	Priority
Property rights/IP issues	1) Need for other resources (e.g., mineral) to be protected	Critical
	2) Need for regulation of geophysical trespassing	
	3) How to deal with ownership of resources (e.g., mineral, surface, water)	
	4) Ownership of pore space	
	5) Unitization of CO2 storage to make clear who stakeholders are and what their roles are	
	6) Need to address regulatory status of use and siting of transportation infrastructure	
	7) Intellectual property	
Jurisdictional issues	1) How to deal with competing laws in the case of transboundary issues	Important for national jurisdiction/ critical for some offshore projects
	2) Need to distinguish between national and sub-national jurisdiction for onshore projects versus international law for offshore projects	

CCS in the Clean Development Mechanism:

COP/MOP...

- Requests Executive Board to continue to consider proposals for new methodologies
- Encourages Parties, intergovernmental organizations, non-governmental organizations and others to organize global and regional workshops to enhance capacity-building
- Invites intergovernmental organizations and non-governmental organizations to provide to the secretariat, by 31 May 2007, information addressing [numerous technical and policy] issues [listed on the next slide]
- Invites Parties to make submissions to the secretariat, by 21 September 2007, on carbon dioxide capture and storage in geological formations as clean development mechanism project activities, addressing the issues identified in paragraph 21 above taking into consideration the submissions referred to in the same paragraph
- Requests the secretariat to compile and make available the information referred to in paragraphs 21 and 22 above for consideration by Parties at the twenty-seventh session of the Subsidiary Body for Scientific and Technological Advice
- Requests the Subsidiary Body for Scientific and Technological Advice, at its twenty-seventh session, [note: the meeting will take place in late 2007] to prepare recommendations on carbon dioxide capture and storage in geological formations as clean development mechanism project activities for consideration by Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol at its third session, with a view to taking a decision at the fourth session of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol [note: COP/MOP4 will take place in late 2008];

COP/MOP2 delayed decision to COP/MOP4

CCS in the Clean Development Mechanism

- **Policy and technical issues listed in the COP/MOP2 decision.**
 - (a) Long-term physical leakage (seepage) levels of risks and uncertainty
 - (b) Project boundary issues (such as reservoirs in international waters, several projects using one reservoir) and projects involving more than one country (projects that cross national boundaries)
 - (c) Long-term responsibility for monitoring the reservoir and any remediation measures that may be necessary after the end of the crediting period
 - (d) Long-term liability for storage sites
 - (e) Accounting options for any long-term seepage from reservoirs
 - (f) Criteria and steps for the selection of suitable storage sites with respect to the potential for release of greenhouse gases
 - (g) Potential leakage paths and site characteristics and monitoring methodologies for physical leakage (seepage) from the storage site and related infrastructure for example, transportation
 - (h) Operation of reservoirs (for example, well-sealing and abandonment procedures), dynamics of carbon dioxide distribution within the reservoir and remediation issues
 - (i) Any other relevant matters, including environmental impacts

These issues need to be addressed by experts from many organizations and Parties

The Challenge

- **Carbon Capture and Storage (CCS) may become critical to our industries and to energy supply.**
 - As a cost-effective way to reduce CO₂ emissions.
 - As the technology is developing
- **But:**
 - Policy environment varies around the world
 - Commercial readiness with widespread deployment is a way off
 - A favorable business climate needs to be in place
 - For example, significant CO₂ infrastructure needs to be put in place achieve widespread deployment (e.g., role of integrated regional CO₂ transport networks; role of companies and governments to build and operate these networks will need policy developments)

How can a favorable policy and business environment be created?

