CO_2 Capture Project

NGO Focus Group Meeting

Wednesday November 5th 2003

Washington Terrace Hotel, 1515 Rhode Island Ave NW, Washington DC, USA

Participants

David Hawkins	Natural Resources Defense Council (NRDC)
Antonia Herzog	" " " " "
Jason Anderson	Climate Action Network Europe (CANe)
Sarah Wade	Keystone Center
Jeremy Kranowitz	Keystone Center
Neil Strachan	Pew Center on Global Climate Change
Fredric Hauge	Bellona Foundation
Vello Kuuskraa	Advanced Resources International
Dr. Scott Imbus	CO_2 Capture Project & ChevronTexaco
Dr. Tom Brownscombe	CO_2 Capture Project & Shell
Gardiner Hill	CO_2 Capture Project & BP
Dr. Helen Kerr	CO_2 Capture Project & BP
Iain Wright	CO_2 Capture Project & BP
Tim Sumner	ON Communications

Meeting Objectives

Communicate the progress and expected results of the CO_2 Capture Project.

Update key stakeholders on Project progress to date, plans for communication of Phase 1 results and the next phase of development. Provide opportunities for ongoing engagement and participation to help shape and steer CCP's communications and outreach program in 2004. Also to seek input to future work for the next phase of technology development.

Meeting Structure and Content

Presentations were given by CCP participants (see agenda below), outlining technologies developed by CCP and the expected results that will be communicated in 2004.

Participants were then asked to give their views on four key questions:

1. What did you learn today ?
2. What do you think it would take to make CO_2 capture and geological storage (CCS) a viable GHG mitigation option ?
3. How should CCP communicate its results (in early 2004) ?
4. What can/should CCP do next ?

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Agenda

8.00am	Light Breakfast available in the Meeting Room	Lisse Montanez
8.15am	**Welcome, Safety Moment, Introductions, Agenda**	Iain Wright
8.30am	**CO2 Capture Project (CCP): Context & Overview**	Gardiner Hill
8.45am	**CO2 Capture & Storage: How can it Contribute ?**	Vello Kuuskraa
9.15am	**NGO Engagement and the CCP Program** • **How CCP has been improved by NGO Input**	Iain Wright
9.30am	**CO2 Capture & Storage: NGO Perspectives** • **Expectations for meeting**	NGOs
10.00am	Break	Lisse Montanez
10.15am	**Capture Technology Summary** • **What are the Key Questions/Issues** • **Review of Capture Technologies** • **Expected Results (due end Dec)** - Questions, Discussion & Feedback	Iain Wright Dr Tom Brownscombe
11.15am	**The Economics of Capture & Storage** - Questions, Discussion & Feedback	Iain Wright
12.15pm	Lunch	Lisse Montanez
1.00pm	**Geological Storage Assurance:** • **What are the Key Questions/Issues** • **Review of Storage, Monitoring & Verification Program** • **HSE Risks and Lessons Learned** • **Expected Results (due end Dec)** - Question, Discussion & Feedback	Iain Wright Dr. Scott Imbus
3.00pm	Break	Lisse Montanez
3.15pm	**Communications/Outreach Plans** • **Review and feedback (Café Style, Charterhouse Rules)**	Iain Wright & Tim Sumner
5.00pm	Adjourn	

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NGO Feedback Summary

Q1. What did you learn today ?

- CCP Participants will be asked many disparate questions as we roll-out our results. Some will be within our project scope (technology development) and others will be outside CCP's remit. It will be important to understand the limitations of CCP (ie to draw a box around what CCP is) and not stray into areas beyond that, such as regulations and advocacy.
- Most technology gaps in the area of CO_2 capture and storage (CCS) seem to have been identified and plugged. Further progress will now require demonstration projects
- The oil and gas industry has taken up this issue, but other players (ie utilities and coal industry) have not.
- CCP has a big opportunity/challenge to communicate cost data on a consistent basis.
    - How good are the data and how are they calculated
    - There is wide variation in cost estimates for CCS and different types of cost estimates will be required by different stakeholders
    - Need to be wary of overestimating the baseline
- There is a wide spectrum of industry positions on CCS
    - Even within individual companies
- CCP has made excellent progress on cost targets.
    - But the potential exists for considerably more
    - Local factors are very important
- The size of the GHG problem and the need for early action means that a portfolio of technology options has to be deployed. CCS could play an essential role in GHG mitigation, especially when security of energy supply issues could act to keep coal in the energy mix.
- Other NGO groups need to be engaged – e.g. WWF (who were invited today but chose not to participate).
- EOR may be first commercial application of CCS
- Energy security concerns could impact the commercial deployment of CCS technologies e.g. dirty domestic coal vs clean foreign gas.
- Renewables – solar/wind – need to account for energy investment in material production.
- Economics – need to consider the appropriate level of detail for communication and provide guidelines on the use of the economic model if people wish to adapt it to different scenarios.
- Cost reduction: CCP has worked this to the level required for further development, but this does not necessarily represent what could be achieved in commercial deployment. Need an understanding of how the scale of the capture operation affects cost
- Stakeholders need a better understanding of how close are these technologies to commercial deployment
- Different technologies will work in different places - depends on the cost / availability of CO2, O2 etc.
- Given the limitations of the economic model (e.g. using US Gulf Coast costs), the % reduction in cost achieved by the CCP is more significant than actual $ reductions over baseline
- The issue of storage leakage over a portfolio of projects needs to be better communicated
- The showstopper for CCS could be public perception

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Q2. What would it take to make CO_2 capture and geological storage a viable GHG mitigation option ?

- Benefits (ie CO_2 cap & trade)
- Public Policies: need a clear classification of CO2 in terms of risk
- Public acceptance
    - Geological storage quality assurance (measurement, monitoring and verification)
    - Summary and integration of information (ie how much leakage is acceptable)
    - Storage site quality control
        - Describe an ideal storage site
        - Storage site acceptability check list
        - Global (site specific) storage site inventory
    - CCP could directly inform the US Regional Carbon Sequestration Partnerships. (RCSPs). There will be ppportunities at future meetings of all RCSP's
    - Demonstration Projects
    - Understanding of the effect of H2S, SOx and NOx in reservoirs and local environments plus potential mobilization of methane
    - Understanding of the potential of monitoring technologies - how much CO2 can they see? - in understandable units
    - A quality forecast of cost reduction potential and comparison with alternatives (e.g. wind power) at local level
    - Life cycle analysis of CCS including toxic components, decommissioning etc.
- Industry has to prioritize spending on CCS technology development vs other investments

Q3. How should CCP communicate its results ?

- Don't rely on CCS to be the single "silver bullet"
    - Requirement for a portfolio of GHG options
- CCP communications must be objective, technical and factual
- Needs clear communication of economic model and cost comparison including key assmuptions such as pressure of CO2 captured
- Communicate how CO_2 behaves within a reservoir and how science can predict that
    - Needs to be easily understandable
- Need to have some control of the delivery of the message
- Discuss natural and industrial (e.g. natural gas storage) analogues for CCS
- Discuss possible role of CCS in hydrogen economy and for use in association with biomass as future 'climate cleaning' technology
- Produce educational materials
    - Review what CCS material already exists and compliment/enhance it
- Engage a wider audience
    - Intra-company
    - Other relevant industries (e.g. coal, utilities, cement)
    - Academia
    - Conduct US Congressional Public Briefings and the EU equivalent
    - Write articles for the popular press
        - Business week, Economist.
        - New York Times (Andy Renkin)
        - Washington Post
    - CCP Representation at the tenth Kyoto Protocol Conference of the Parties (COP 10)
    - Through Participants' corporate retail sites ?

Q4. What can/should CCP do next ?

- Recruit/involve coal-based utilities for CCPe
  - Cynergy, Entergy, AEP
- Engage coal-based organizations
  - International (India/China)
  - Work with the Carbon Sequestration Leadership Forum (CSLF)
- Take risks on breakthrough concepts for cost reduction: novel/radical/long-term
- Develop understanding of where next cost reductions will come from - will they be technology developments or economies of scale?
- Make an assessment of potential for hydrogen production and comparison of cost of hydrogen from hydrocarbons (with CCS) and from alternatives
- Address the high priority technology gaps that have already been identified
- Add new technologies/studies as well as focus more on promising technology
- Inform a wider audience (communications program)
  - Include Developing Countries
  - Financial / investment / trading community
- Carry on informing
  - Rolling basis, using existing forums.
- Join Chicago Climate Exchange (CCX) i.e. on the advisory board
- Involve coal industry e.g. gasification of deep coal
- Make projections of the impact of specific new laws on companies share-price
- Kyoto Protocol GHG credits: understand how CCS could be incorporated
- More work to do on transportation
  - Potential cost reductions
- Easily understandable paper to explain storage processes e.g. what is a supercritical fluid, what kind of rock is CO2 injected into, how is it trapped and how does it move within the reservoir - different level of detail for different audiences
- Conduct a geological storage pilot
  - With others?
  - Engage China?
- Need to talk about EOR potential (N Sea more than US ?)
  - Technology could be commercialized first
  - Develop a clear story on when and why do CCS
- Develop the bridge to the Hydrogen economy
- Market driver/legislation/policy
  - Address hurdles to implement CCS ?
- Illustrate the natural gas storage industry to combat the concept of “dumping”
- Biomass (link between renewables and CCS) production with CCS
- The energy industry could estimate the extent of infrastructure required to deploy CCS on a very large scale.