Carbon Sequestration leadership forum
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MEETING SUMMARY
CO_2 Utilization Options Task Force Meeting
Perth, Australia
24 October 2012

Prepared by the CSLF Secretariat

LIST OF ATTENDEES

Chairman: Darren Mollot (United States)

CSLF Delegates

Australia:	Clinton Foster, Richard Aldous
European Commission:	Jeroen Schuppers
France:	Didier Bonijoly
Italy:	Giuseppe Girardi
Japan:	Ryozo Tanaka
Netherlands	Paul Ramsak
Norway:	Trygve Riis
South Africa:	Tony Surridge
Saudi Arabia:	Ahmed Aleidan
United Kingdom:	Philip Sharman

CSLF Secretariat: John Panek, Richard Lynch

Observers

Australia:	Roy Anderson, Chris Consoli, Claire Richards
Global CCS Institute:	Peter Grubnic
India:	Preeti Malhotra

1. Welcome and Summary of Task Force Mandate

Darren Mollot, the Chair of this Task Force, welcomed the meeting attendees and provided a short summary of the Task Force and its mandate. "CO_2 Utilization Options" was one of the twelve Actions in the new Technical Group Action Plan, and this Task Force was formed to address that action. At the previous meeting of the Task Force, in June 2012 in Bergen, there was agreement that the objective of this Task Force would be to identify/study the most economically promising CO_2 utilization options that have the potential to yield a meaningful, net reduction of CO_2 emissions or to facilitate the development and/or deployment of other carbon capture and storage (CCS) technologies. The focus of this Task Force is not on enhanced oil recovery (EOR), as there is another new Technical Group Task Force for that action.

2. Task Force Plan of Action

Dr. Mollot stated that the Task Force, for its Phase 1 activities, has developed a preliminary list of CO_2 utilization options for initial evaluation. It has also conducted a literature search on use and re-use of CO_2, which is summarized in its Phase 1 report. CO_2 usage options have been grouped into three categories:

- Hydrocarbon Recovery, including enhanced gas recovery (EGR), enhanced coal-bed methane recovery (ECBM), enhanced gas hydrate recovery (EGHR), oil shale recovery, and CO_2 fracturing.
- Non-Consumptive, including fuels and chemicals production, desalination, slurry transport, beneficiation, use as a working high-temperature fluid, use as an extractant, use as an inerting agent, fire suppression, food/beverages, and as a refrigerant.
- Consumptive, including soil amendment/fertilizer, synthetic cementitious materials (SCM)/building materials, chemicals, and polycarbonates/polymers.

Dr. Mollot stated that the plan for Phase 2 activities is for a more thorough analysis of the most attractive CO_2 utilization options, based on economic promise and CO_2 reduction potential. The Phase 2 report would include an assessment of current and potential economic viability, the CO_2 reduction potential of selected options at various price points, and a discussion of RD&D needs.

Ensuing discussion attempted to narrow down the comprehensive list of all possible CO_2 utilization options into a more select listing of the ones for further analysis. Philip Sharman suggested that use of CO_2 for algae-based fuels should be considered, as some utilities are already looking at this. Several delegates commented that use of CO_2 for neutralizing aggregate material from production of high-value metals and carbides should also be considered. An example of this is the Alcoa process, which can consume approximately 1 million tonnes of CO_2 annually world-wide. In the end, there was consensus for the Task Force to do Phase 2 analysis on the following CO_2 utilization options:

- EGR (Netherlands will lead the data analysis)
- Shale Gas Recovery (South Africa, United Kingdom, and United States will lead the data analysis)
- CO_2 Fracturing (Saudi Arabia will lead the data analysis)
- CO_2-assisted Geothermal (France will lead the data analysis)
- Use in Greenhouses (Netherlands will lead the data analysis)
- Urea Production (United States will lead the data analysis)
- Algal Fuels (United Kingdom will lead the data analysis)
- Aggregates/SCM (Australia, Norway, and United Kingdom will lead the data analysis)

Dr. Mollot stated that he would schedule a conference call with all the active participants to set the schedule for finishing the data analysis. The goal will be to have a draft Phase 2 report ready in time for the next Technical Group meeting, in the 2nd quarter of 2013.

Peter Grubnic noted that the Global CCS Institute had published a report on industrial uses of captured CO_2, with emphasis on technologies that have a threshold of 5 million tonnes of CO_2 reuse potential per year. Mr. Grubnic has provided a copy of this report to the Task Force.

3. **Closing Comments / Adjourn**

Dr. Mollot thanked meeting attendees for their input and advice, and adjourned the meeting.

Action Items

Item	Lead	Action
1	Task Force Chairman	Hold a conference call with Task Force participants to set the schedule for Phase 2 analyses.
2	Task Force	Complete a draft of the Phase 2 Report in time for 2013 CSLF Technical Group Meeting.