



Minutes of the Policy Group Meeting

Beijing, China

Tuesday and Wednesday, 20 and 21 September 2011

LIST OF ATTENDEES

Policy Group Delegates

Chairman:	Charles McConnell (United States)
Australia:	Ann Boon, Margaret Sewell
Brazil:	Daniel Falcon Lins
Canada:	Marc D'Iorio, Milenka Mitrović
China:	Li Xin, Sizhen Peng
European Commission:	Wiktór Raldow
France:	Bernard Frois
Germany:	Hubert Höwener, Peer Hoth
Italy:	Liliana Panei
Japan:	Hirotsada Bessho, Shigenori Hata
Korea:	Byong Ki Park, Wonchang Yang
Mexico:	José Miguel González Santaló
Netherlands:	Paul van Slobbe
Norway:	Tone Skogen, Kristoffer Stabrun
Poland:	Janusz Michalski
Saudi Arabia:	Abdulmuhsen Alsunaid, Abdullah AlSarhan
South Africa:	Muzi Mkhize, Faizel Mulla
United Arab Emirates:	Bader Al Lamki, Keristofér Seryani
United Kingdom:	Jeremy Martin, James Godber
United States:	James Wood

Technical Group Chairman

Trygve Riis

CSLF Secretariat

Barbara McKee, Jeffrey Price, Richard Lynch, Jeffrey Jarrett, Adam Wong, Kathryn Paulsgrove

Observer Participants

Brazil:	Marcelo Ketzér (Chairman of the CSLF Task Force on CCUS in the Academic Community)
United Kingdom:	Jeff Chapman (Co-chair of the CSLF Stakeholders Forum)
Clinton Foundation:	Tony Wood
Global CCS Institute:	Barry Jones
International Energy Agency:	Juho Lipponen
World Bank:	Natalia Kulichenko-Lotz

Tuesday, 20 September**1. Opening Remarks**

Policy Group Chairman Charles McConnell welcomed participants. He thanked the participants for their commitment to the CSLF, the Chinese hosts for their hospitality, Barbara McKee and the Secretariat for the hard work organizing the conference, and the various task forces for their work that would be reported in the meeting. He said that CCS was at a turning point in the policies and practices that needed to be implemented and in the commercial scale projects that were about to be launched leading to commercial deployment. Chairman McConnell also introduced himself, providing background on the 34 years he spent in industry at Praxair and the Battelle Memorial Institute where he was developing a business related to the geologic storage of carbon dioxide (CO₂), particularly related to Enhanced Oil Recovery (EOR).

Chairman McConnell said that there was a need to embrace a new term – Carbon Capture Utilization and Storage (CCUS) – to address applications such as EOR that make productive use of CO₂ in order to provide a bridge into CCS. It is necessary to provide economic benefit and an incentive for industry to invest because CO₂ storage alone does not yet provide adequate incentive in the current global economic environment. It is also vitally important to reduce the cost of capture and to effectively communicate to the public about the need for CCUS. All this is necessary so that the coming decade of research, development and demonstration actually succeeds in enabling global deployment.

2. Introduction of Delegates

Chairman McConnell asked the Policy Group delegates seated at the table to very briefly introduce themselves, which they all did.

3. Adoption of Agenda

Barbara McKee, Director of the CSLF Secretariat, stated that the Agenda was prepared based on recommendations from the Policy Group and items that resulted from the last Policy Group Meeting and she asked that the Agenda be approved. The Agenda was approved without change.

4. Review and Approval of Minutes from Warsaw Meeting

The draft Minutes of the previous Policy Group meeting held in Warsaw, Poland in October 2010, had been circulated for comment to the Policy Group prior to the meeting. The final draft, which incorporated comments received, had been posted on the CSLF website. The Minutes were approved without further change.

5. Review of Warsaw Action Items

Barbara McKee, Director of the CSLF Secretariat, reviewed the status of the Action Items. She stated that most of the Action Items had been completed and that Bernard Frois, Chairman of the Task Force on Financing CCS, would inform us of the status of one of those Action Items, the study of trigger points for CCS investment.

Chairman Frois stated that the study was to address trigger points for mobilizing investment. Trigger points were understood as potential show stoppers for investment and the most significant of these is a lack of clear policy on CO₂. Other important issues

are regulatory frameworks, attractive returns for investors and performance based on commercial-scale systems. These conclusions are based on several workshops on financing, information sharing with financial experts with the Global CCS Institute and coordination with the World Bank.

Another Action Item that was outstanding was a communications roundtable. This would need to be implemented at a later meeting.

Policy Group Task Force Reports

6. Capacity Building Task Force Report

Task Force Chairman Abdulmuhsen Alsunaid of Saudi Arabia reported on the Capacity Building Task Force. He noted that an understanding was reached at the Warsaw meeting as to the responsibilities of the Capacity Building Task Force and the Capacity Building Governing Council and that work has been proceeding based on that understanding. A joint report by both the Task Force and the Governing Council is included in the notebook provided to delegates. In addition to the projects noted in that report, two additional projects, one for Mexico and one for China, were approved by the Task Force and recommended for funding to the Governing Council in the Task Force meeting in the morning prior to the Policy Group meeting. The Task Force is also requesting that developing country Members submit further requests for capacity building. In addition, some of the activities of the Task Force on CCS in the Academic Community may also have the potential to involve capacity building.

7. Report from the Capacity Building Governing Council

Capacity Building Governing Council Chairman Tone Skogen of Norway reported that CSLF donor countries have committed approximately US\$3 million to the CSLF Capacity Building Fund, which is administered by the Secretariat. The governance of the Fund is performed by the Capacity Building Governing Council, which has developed a Terms of Reference for its operation.

To date, a total of 14 requests for assistance have been received from developing country CSLF Members, two of which were subsequently withdrawn. A total of eight capacity building projects in four countries have been approved to date and will be conducted by the CSLF. Four proposals are also in development and a couple of other projects are also in the pipeline, but have not yet been received. About US\$1 million is still available for further projects. Projects approved so far include:

- Brazil – training program for CCS and monitoring in the offshore environment;
- China – CCUS website and information sharing workshops;
- Mexico – project to educate professors in CCS; and
- South Africa – workshops and conferences on CCS and a study on the impacts of CCS on national priorities.

Discussions are also underway for a project with India and another project with Brazil. Even though projects may be held in one country, they are open to CSLF participants from other Members.

Delegates made several comments on the capacity building activities. It was noted that the CSLF had been holding capacity building workshops for over five years and these provided the impetus for the current program, which is intended to be driven by the needs of the recipient country. The need to share information developed for CSLF capacity

building activities among Members was also noted. Delegates from the countries receiving capacity building assistance also thanked the donor countries and the CSLF and stated that they believed the projects would benefit their countries. Asked what she would like to see changed, Tone Skogen stated that she would like to see more applications for capacity building projects.

The need for further funding to continue the Capacity Building Program was also discussed. The Secretariat and the Capacity Building Governing Council were directed to work to raise further money for the CSLF Capacity Building Fund. In response, Barbara McKee asked that Policy Group delegates provide the names and contacts of organizations that could potentially donate to the CSLF Capacity Building Fund.

8. Communications and Public Outreach Task Force Report

Task Force Chairman John Grasser of the United States stated that the Task Force was following a strategic plan and that the goal of the strategic plan was to address the barriers to public awareness and acceptance of CCS technology. The principal objectives of the strategic plan were to raise visibility of the CSLF, engage key audiences, meet CSLF Strategic Plan requirements and achieve the objectives at low or no cost. He noted that this Task Force had been very active over the past year. The Task Force had developed DVDs and a communications kit and talking points on CCS for use by CSLF Members. This includes a standard speech and a Power Point presentation. The Task Force provides news clips to CSLF Members and stakeholders on a daily basis and has developed an event recognition agreement that conference and meeting sponsors can use to request CSLF co-sponsorship. The CSLF is now starting to use social media, including Twitter and Facebook. All of this is done by the United States Department of Energy with no budget from the CSLF.

Chairman McConnell asked delegates how often they or their colleagues used the information produced by the Task Force. Several delegates indicated that they used informational materials produced by the Task Force and found it useful. This initiated a more general discussion on communications about CCS. It was pointed out that opponents of CCS are often well-funded and, in some places, the public fears geologic storage. The marketplace for messaging about CCS, however, is not homogeneous and there are different audiences with varied interests and opinions and this varies by country. One opportunity for communications is seen as science journalists. The performance of planned large-scale demonstrations may also influence public attitudes. The fact that CCS is being developed and demonstrated globally (and not just in a single country) is seen as a positive message. An issue that also needs to be addressed is that people ask how they specifically benefit when a CCS project is to be located in their local communities. The difficulties that engineers and other technical people have communicating with the public in terms the public understands were also discussed.

Barbara McKee noted that the IEA and the Global CCS Institute also have communications activities and suggested closer coordination in this area.

9. Financing CCS Task Force Report

Task Force Chairman Bernard Frois of France reported on the work of the Financing CCS Task Force. This Task Force was created two years ago and focuses its work on CCS at commercial scale in both developing and developed countries. The Task Force has held four successful roundtables on financing CCS. These involved people with considerable relevant expertise from law firms, insurance companies and banks, as well as industry.

The Task Force has had a number of findings. One finding was that people in different types of organizations involved in CCS do not talk to each other and that was one achievement of the roundtables. A key finding was also the differences among projects and that no one financing method or incentive would work for all. Problems and solutions differ. Moreover, money was not the only issue; regulatory frameworks are absolutely essential. Clear policies are needed. CCS is predicted to be cost-competitive with other sources of low-carbon power such as on or offshore wind, solar power and nuclear in the EU in the early 2020s. However, costs are considerable, but rewards are not clear and all risks must be addressed. In the roundtables, funding models in different parts of the world were presented, in particular by the Asian Development Bank, the World Bank, Alberta, Japan, and several private companies. Each example shows the value of adapting tools to regional and project features. Rather than waiting for the perfect first step on CCS, it is critically important to launch CCS demonstration projects and build confidence in the technology and improve the understanding of its value.

After the presentation and at the request of Chairman McConnell, James Wood of the United States Department of Energy described the CCUS projects in his portfolio in terms of how those became financeable. Mr. Wood said that eight projects have moved forward over the last year from an early stage of analysis to construction, FEED studies or detailed estimates. Two of these projects were polygeneration involving the creation of value through the sale of electricity, urea fertilizer and CO₂ for EOR. Other projects included industrial projects with high-concentration CO₂ emissions and off-take agreements for CO₂ for EOR or methanol. While EOR was used for several of the projects; however, it was not seen as a total solution and will not be used in the FutureGen project. It is now also estimated that 85 billion barrels of unrecovered oil could be recovered through CO₂ used for EOR in the United States. That may also be an opportunity in China. In response, several delegates pointed out that not every country has an opportunity for EOR using CO₂.

10. Report from the Task Force on CCUS in the Academic Community

Task Force Co-Chairman Marcelo Ketzer of Brazil reported on the Task Force's activities. The objective of the Task Force's activities was to identify courses in the area of CCS and Climate Change inside the academic programs currently available in universities worldwide. Courses were mapped in the Americas; Europe; Africa (South Africa); Asia (Japan, Korea); and Oceania (Australia, New Zealand). A new annex on China is to be added to the report. Differences were found in number and types of courses offered in each country. These courses were identified through an internet search of university websites. For each university, all the offered courses were summarized on tables in accordance with four themes: (i) Capture; (ii) Storage; (iii) Environment; and (iv) Economy, Social, Political and Legal aspects. The methodology has an important limitation. This work was done searching the web, using tools such as Google. This is not necessarily complete or accurate. Delegates were asked to take this document to their own countries and contacts in order to validate and improve this document. Maintaining this document will be an ongoing effort because there will always be new courses and others will no longer be offered.

After the presentation, the discussion centered on how CCUS-related courses were identified, differences among courses offered in different countries, and how the information gathered could be used.

11. Report and Approval of Proposed Projects

Trigve Riis, Chairman of the Technical Group, described six projects that were being recommended by the Technical Group for recognition by the CSLF. These projects were:

Project	Type	Nominators
Jämschwalde	Oxycombustion Pilot (30 megawatts) with no storage	Germany, European Commission
Zero Emissions Porto Tolle (ZEPT)	Post-combustion (660 megawatts) with saline formation storage	Italy, European Commission
CGS Europe	Collaborative project involving knowledge transfer and information exchange to facilitate large-scale CCS deployment in EU member states and associated countries	France, Italy
SaskPower Integrated CCS Demonstration at Boundary Dam Unit 3	Integrated project (110 megawatts) with post-combustion capture and utilization of CO ₂ for EOR	Canada, United States
Rotterdam Opslag en Afvang Demonstratieproject (ROAD)	Integrated CCS chain project (250 megawatts) with post-combustion capture. CO ₂ pipelined 25 km to saline aquifer storage site beneath North Sea seabed	Netherlands, European Commission
CO ₂ Capture Project – Phase 3	Partnership of seven major energy companies working to advance the technologies that will underpin the deployment of industrial-scale CO ₂ Capture and Storage (CCS)	United Kingdom, United States

The Policy Group approved these projects for recognition by the CSLF.

The Meeting was adjourned for the day.

Wednesday, 21 September

Chairman McConnell opened the meeting and called on the Secretariat to summarize the Policy Group meeting on the previous day.

12. Summary of Previous Day's Session

Secretariat Director Barbara McKee gave a brief summary of the discussion held on the previous day covering the four Task Force reports and the recognition of projects.

In discussing the report of the Task Force on CCUS in the Academic Community, which had extensively identified courses on CCUS, Ms. McKee stated that identification of the professors who teach the courses could have even more value than identifying the courses. The Task Force should consider how a network of these professors could be assembled, perhaps using the internet. The goal would be to enable them to communicate with each other in order to exchange ideas, improve courses, and spread the teaching of CCUS. This could provide valuable support to CCUS and to the CSLF. Since this is capacity building on a global scale, it should be coordinated with the Capacity Building Task Force. There was consensus that this would be an action item for the Task Force on CCUS in the Academic Community.

Updates from Collaborating International Organizations

13. IEA CCS Activities Update

Juho Lipponen of the IEA Secretariat, the Head of the IEA's CCS Unit, described its activities. He said that while energy demand and CO₂ emissions continue to grow rapidly, the role of CCS is currently very limited, but critical in order to address climate change. The IEA has developed a work programme with activities in several different areas, including CCS strategy and policy, legal and regulatory, technical and economic, capacity building, outreach and stakeholder relations. He also described several new reports from the IEA, including reports on the Industrial CCS roadmap, incentives for CCS, the IEA Model CCS Regulatory Framework, the cost of CCS in power generation, and early commercial plants. He also described the roundtable meetings and workshops that comprise IEA's outreach activities. A number of planned new reports will also cover CCS, including the World Energy Outlook 2011.

14. Global CCS Institute Work Plans

Barry Jones of the Global CCS Institute gave an update on the work of the Institute. He discussed the work done in four areas:

The Status of CCS. The Institute continues to publish its Global Status of CCS reports. The 2010 edition was published in March and the 2011 edition will be released in October. This is intended as a comprehensive overview of the state of development of large-scale projects around the world and of the technologies that make up the CCS chain, as well as the status of policy, legal and regulatory developments to support CCS. The Global CCS Institute also produces reports which give an overview of the status of CCS in various different technology areas or industry areas. In addition, the Institute works on costs. The Institute maintains a comprehensive database of large-scale integrated projects, which is frequently updated.

Capacity and Policy Development. The Institutes contributes to the CSLF Capacity Building Fund as well as trust funds of the Asian Development Bank and the World

Bank. It also undertakes capacity development initiatives itself focusing on China, India, Malaysia, Indonesia, South Africa, and Mexico. The Institute also conducts baseline studies needed before capacity development projects can be undertaken. The Institute is also active in the regulatory area to complement work done by the IEA. It has produced a Regulatory Test Toolkit, which provides a process for national or provincial government administrations to undertake. The Institute is also actively engaged in the lead up to COP 17 in Durban and has recently gained accreditation as an observer under the UNFCCC process.

Project Support. The Institute supports selected projects in order to share knowledge about project development with the global CCS community, and publishes on its website very detailed reports on aspects of project development. The Institute also shares that information through webinars, workshops and seminars which are conducted in countries around the world, bringing project developers together with interested governments and companies. The Institute has also published a number of aids to public acceptance and public engagement.

Knowledge Sharing. The Institute has a comprehensive knowledge-sharing platform, which comprises a public website with a wealth of information about CCS and other knowledge-sharing methods. The Institute also has specialized communities that have much more specialized needs, for example, a Japanese knowledge-sharing network for very targeted and private discussions among the Japanese membership.

15. World Bank CCS Activities Update

Natalia Kulichenko-Lotz, Senior Energy Specialist of the World Bank's Energy, Transport and Water Department, described the Bank's CCS work program. The World Bank has a trust fund for CCS, established in December 2009, with total contributions of US\$11 million with donations from Norway and the Global CCS Institute. The primary objective is to support capacity- and knowledge-building for developing countries and to facilitate inclusion of CCS in their low-carbon strategies. The work has two components: (1) a country-level component focusing on country- and project-specific activities, and (2) an analytic component. Projects are being undertaken in nine different countries. The analytic component consists of a report on barriers to deployment of CCS in developing countries, studies of specific countries and regions and the development of a financing model for CCS projects. The largest World Bank CCS program is in China and considerable work has been done in China with the China Power Investment Corporation.

16. CCUS Action Group Update

Ann Boone of Australia and James Godber of the United Kingdom gave an update on the activities of the CCUS Action Group. The Action Group consists of governments, businesses, non-governmental organizations and institutes and is led by the governments of Australia and the United Kingdom. The Action Group has made a number of recommendations to advance CCS:

1. Reduce the financial gap;
2. Funding support in developing economies;
3. Develop legal and regulatory frameworks;
4. Acknowledge importance of marine treaty amendments;
5. Share knowledge;
6. Investigate carbon dioxide (CO₂) storage;

7. Support CCS in industry; and
8. Report on progress.

To date, twelve governments have committed to taking action on these recommendations. The CSLF, Global CCS Institute and IEA are working together to develop a work plan for implementation. The next steps are: CEM 3 Meeting in London in 2012, a report on progress of recommended actions, recommendations from working group on funding support in developing countries and announcements from individual countries.

CSLF Planning

17. Revised CSLF Strategic Plan

Barbara McKee gave a presentation on the draft Second Update of the CSLF Strategic Plan. Ms. McKee said the plan is being updated because the CSLF Charter term is being extended beyond 2013, CO₂ utilization is being added to the scope of the CSLF activities and there is an increased focus on commercial deployment. The draft plan is being presented now to the Policy Group for approval. In this plan, the CSLF organization is unchanged and the Secretariat continues to provide administrative support and requested activities. Various action plans were developed for the Policy Group, the Technical Group and the Secretariat to address key policy and technical barriers. Specific responsibilities are to be assigned for each Action Plan.

The Second Update of the Strategic Plan was accepted by the Policy Group with one edit requested by China to more accurately refer to the second commitment period of the Kyoto Protocol.

18. Planning for the CSLF Ministerial Roundtable

Barbara McKee briefly described the planning process for the Ministerial and thanked those involved in the planning, including the Ministerial Steering Committee; Chairman McConnell; the Li Xin, the Chairman of the Chinese National Organizing Committee; the Chinese hosts; and the organizations that prepared papers for the Ministers (the Asian Development Bank, the Global CCS Institute, the Clinton Foundation and the Secretariat staff). She then invited the authors of the papers not from the Secretariat who were present to give brief overviews of their papers. Barry Jones of the Global CCS Institute gave a brief overview of the paper “Status, Gaps and Measures to Close Gaps” prepared by the Institute. Tony Wood of the Clinton Global Initiative gave an overview of the paper “Driving CCUS RD&D Deployment: What Will It Take” prepared by the Clinton Foundation.

Li Xin of China expressed appreciation to the Secretariat and the Ministerial Steering Committee for their work, as well as to those who prepared the papers for the Ministers. He also noted that there were nearly 500 registered participants.

Jeff Chapman of the United Kingdom CCS Association and Co-Chair of the CSLF Stakeholders Forum gave a brief overview of the planned program for the Forum. He also noted that the stakeholders were working on a preliminary definition of CCUS.

19. Draft Ministerial Communiqué

Chairman McConnell noted that issues remained to be resolved on the Ministerial Communiqué. The Policy Group went through most of the Communiqué on a line-by-line basis. After discussion, these issues were resolved and a number of final edits were made by the Policy Group and the attached Communiqué was approved.

20. New Business

There was no other new business.

21. Closing Remarks/Adjourn

Chairman McConnell adjourned the meeting and stated that the Stakeholders Forum would be in the afternoon.

ACTION ITEMS ARISING FROM THE POLICY GROUP MEETING

Item	Lead	Action
1	Capacity Building Governing Council and Secretariat	Raise further money for the CSLF Capacity Building Fund.
2	Policy Group delegates	Provide the names and contacts of organizations that could potentially donate to the CSLF Capacity Building Fund.
3	Communication and Public Outreach Task Force	Coordinate with the IEA and Global CCS Institute.
4	Policy Group Delegates	Take the report from Task Force on CCUS in the Academic Community to home countries for validation and improvement.
5	Task Force on CCUS in the Academic Community	Consider how a network of professors could be assembled and coordinate with the Capacity Building Task Force
6	Secretariat	Make edits to the CSLF Strategic Plan suggested by China.