



CSLF-P/T-2007-06

**MINUTES**  
**of the**  
**Joint Business Meeting of the CSLF Policy and Technical Groups**  
**Paris, France**  
**Thursday, March 28, 2007**

**LIST OF ATTENDEES**

**Policy Group Delegates**

Chair:	Thomas Shope
Australia:	John Hartwell(Vice Chair), Dale Seymour
Canada:	Ian Hayhow, Anne Marie Thompson
Denmark:	Søren Frederiksen
European Commission:	Wiktor Raldow, Derek Taylor
France:	Bernard Frois, Phillipe Geiger
Germany:	Helmut Geipel, Hubert Höwener
India:	Anil Razdan, Alok Kumar
Japan:	Akio Takemoto, Toshihiko Miyagawa
Korea:	Shin Sung-Chul, Kim Hyun-Cheol
Netherlands:	Hans Bolscher
Norway:	William Christensen, Tone Skogen
Russia:	Gurgen Olkhovsky
Saudi Arabia:	Fareed Alasaly
South Africa:	Bethuel Kgobane, Leluma Matooane
United Kingdom:	Brian Morris, Tim Dixon
United States:	Judd Swift, Harlan Watson

**Technical Group Delegates**

Australia:	John Bradshaw, Peter Cook
Brazil:	Paulo Cunha, Paulo Rocha
Canada:	Bill Reynen (Vice Chair), Stefan Bachu
Denmark:	Niels Peter Cristensen, Fleming Ole Rasmussen
European Commission:	Manuel Sánchez
France:	Christian Fouillac, Pierre Le Thiez
Germany:	Jürgen-Friedrich Hake
India:	R.R. Sonde
Italy:	Giuseppe Girardi, Giovanni Ciceri
Japan:	Makoto Akai, Chiaki Shinohara
Korea:	Chang-Keun Yi, Chong-Kul Ryu
Netherlands:	Erik Lysen
Norway:	Trude Sundset (Chair), Jostein Dahl Karlsen, Odd-Magne Mathiassen
Russia:	Dmitry Volokhov
Saudi Arabia:	Khalid Abuleif, Mohammed Alzayer
South Africa:	Stan Pillay, Harko Mulder

United Kingdom: Nick Otter, Philip Sharman  
United States: Victor Der, Howard Herzog

**CSLF Secretariat**

Barbara McKee  
Sean Courtney  
Rob Donovan  
Robert Gentile  
Richard Lynch  
Scott Miles  
John Panek  
Kathy Paulsgrove  
Jeffrey Price

**Other Attendees at Both March 28 Joint Business Meeting and March 26 Plenary Session**

Peta Ashworth, Australia  
Mark Bonner, Australia  
Damian Dwyer, Australia  
Bill Koppe, Australia  
Cassandra McCarthy, Australia  
Howard Morrison, Australia  
Clement Yoong, Australia  
Marcelo Ketzer, Brazil  
Anthony Credo, France  
Andreas Ehinger, France  
Patrick Faisques, France  
Didier Houssin, France  
Samuel Saysset, France  
Fontina Petrakopoulou, Greece  
Jacek Podkanski, International Energy Agency  
Fabrizio Pisanu, Italy  
Chang-Keun Yi, Korea  
Enrique Moreno, Spain  
Jeff Chapman, United Kingdom  
Barbara DeRosa-Joynt, United States  
John Grasser, United States  
George Guthrie, United States  
Alicia Kersting, United States  
Arthur Lee, United States  
Raj Luhar, United States  
John Harju, United States  
Philip Marston, United States  
Kenneth Nemeth, United States  
Jean-Philippe Nicot, United States  
Mike Smith, United States  
Helene Monidol, World Coal Institute

**Other Attendees at Plenary Session (March 26)**

Piotr Tulej, European Commission  
 Kamel Bennaceur, France  
 Gilles Bloch, France  
 Didier Bonijoly, France  
 Catherine Bourgois, France  
 Daniel Clement, France  
 Vincent Coll, France  
 Isabelle Czernichowski, France  
 Sophie Galey-Leruste, France  
 François Laurans, France  
 Karim Selouane, France  
 Alexandre Throo, France  
 Thomas Kerr, International Energy Agency  
 Claude Mandil, International Energy Agency  
 Antonio Pflüger, International Energy Agency  
 Declan Murphy, Ireland  
 Giuseppe Deriu, Italy  
 Roberto Garosi, Italy  
 Pieter Boot, Netherlands  
 Hans Speigeler, Netherlands  
 Catherin Bauserin, Norway  
 Paal Frisvold, Norway  
 Dara Brice, United Kingdom  
 Mathew Webb, United Kingdom  
 Steve Crookshank, United States  
 Robert Dry, United States  
 John Easton, United States  
 Milton Catelin, World Coal Institute  
 Elena Nekhaev, World Energy Council

**Joint Meeting of 28 March 2007****1. Opening Remarks**

Thomas Shope, Chair of the Policy Group, opened the meeting and thanked the delegates and other attendees for their hard work in the meetings.

**Adoption of Agenda**

The Agenda was adopted without change.

**Review and Approval of Minutes of Delhi Meeting**

The Draft Minutes of the previous Joint meeting of the Policy and Technical Groups held in Delhi, India in April 2006 had been circulated for comments prior to the meeting and the final draft had been posted on the CSLF website. The Final Draft of the minutes of the Joint Meeting was approved.

## 2. Report from the Policy and Technical Groups

### Report from the Policy Group

Thomas Shope, Chair of the Policy Group, presented the report of the Policy Group on its deliberations earlier in the day. He made the following points in his presentation:

- The Policy Group discussed implementation of policy group aspects of the CSLF Strategic Plan and came to a consensus on a number of actions to implement the Strategic Plan. These action include:
  - Strategy 2: Policy and Legal Framework
    - The Technical Group will be requested to identify policy and legal strategies and instruments needed for research needs.
    - Australia, as Chair of Legal/Regulatory Task Force, will consider whether needs identified by the Technical Group warrant further actions by that Task Force.
  - Strategy 3: Capacity Building
    - The Technical Group will be requested to develop mechanisms to involve emerging economies in industrialized country and lighthouse projects.
    - Materials from the May workshop will be distributed to Members.
    - The Capacity Building Task Force will consider further activities in its June meeting in Oslo and identify projects similar to those already recognized in emerging economies.
  - Strategy 4: Public Awareness and Acceptability
    - Members are to identify public outreach experts to Secretariat and add to the list of stakeholders.
    - Each country is to report its public outreach activities to the Secretariat.
    - The CSLF Website and PuMP will continue to be updated.
  - Strategy 5: Involve Stakeholders
    - No consensus reached on a seat at table for Stakeholders in Policy or Technical Group meetings.
  - Strategy 6: Collaboration with Other Organizations
    - The Secretariat is to develop recommendations for collaboration with other international organizations.
- A task force was established to develop a detailed plan for financing Carbon Capture and Storage in emerging economies. India will Chair the Task Force and Australia, Canada, the European Commission, India, the United Kingdom and the United States will be members.
- New election procedures were agreed upon and Policy Group Vice Chairs were elected, although not using the new procedures, which could not be immediately implemented. South Africa (pending consultations) and the United Kingdom and were elected as Vice Chairs.

- The next annual meeting of the CSLF will be held in South Africa. The United Kingdom has also offered to host a future meeting and Japan has offered to consider hosting a future meeting.

#### Report from the Technical Group

Trude Sundset, Chair of the Technical Group presented the report of the Technical Group. She made the following points in her presentation:

- The Technical Group has decided to invite the IEA GHG to the next meeting to make a presentation on its “Capture Ready” study.
- The final report from the Task Force to Review and Identify Standards for CO<sub>2</sub> Storage Capacity Estimation Phase II has been accepted. The study will be posted on the CSLF website subject to minor wording changes. Phase III of the Task Force is being supported by the Technical Group.
- Three additional members have volunteered for the Task Force to Examine Risk Assessment Standards and Procedures. The IEA Greenhouse Gas Programme (IEA GHG) is also active in this area and is considered as a member of this task force.
- The Technical Group will recommend establishment of a new Joint Task Force between the Technical and Policy Groups on the topic of examining societal issues impacting CCS deployment. Australia has volunteered to lead this task force and Denmark and France have volunteered to participate.
- The Workshop Overcoming Barriers to CCS Deployment was reviewed by the Technical Group. Positive feedback was received from attendees. It was decided that the workshop had a good balance of public and private participants and underscored importance of communication. Positive feedback was received from stakeholders. The Secretariat is requested to develop a survey of workshop attendees to solicit feedback on which topics they find most interesting and would like to hear more about in future workshops. The results are to be distributed to the attendees.
- The PIRT reported that the Action Plan activity was under control and the Technical Group felt that the PIRT was doing a good job and progress is being made on all action items. It is also thought that progress could be faster if some support resources could be found. There has been some contact with the European Commission regarding its supporting the PIRT in its work.
- The Technical Group tries to have meetings between the annual meetings of the CSLF and Saudi Arabia has expressed an interest in arranging the next Technical Group meeting.
- The Otway Basin and Zama Projects were reviewed and approved by the PIRT and the Technical Group and are being passed on to the Policy Group for its action.

### **3. Review and Approval of Proposed Projects**

Two projects were recommended by the Technical Group for approval by the Policy Group.

Peter Cook of Australia presented the Otway Basin Pilot Project, sponsored by Australia and the United States. This is a project in Australia to study the injection of CO<sub>2</sub> in a saline aquifer, including a very comprehensive system of monitoring and verification. The project was developed by CO<sub>2</sub>CRC with the sponsorship of many organizations and a high level of international collaboration. Injection will commence mid 2007 with a total of 100,000 tonnes CO<sub>2</sub> injected 2007-2008. The project will run to at least mid 2010 with monitoring and validation a key component.

John Harju of the United States presented the Joint Canada-U.S. Monitoring Project of the Zama Acid Gas Enhanced Oil Recovery Pilot Project, sponsored by Canada and the United States. This project is one of four Alberta demonstration projects to receive royalty credits for injecting CO<sub>2</sub> for EOR. It has a unique approach combining acid gas disposal and CO<sub>2</sub> EOR and significant potential to expand its approach. Injection started December 2006. The project is injecting approximately 90 tons of acid gas per day and will sequester 25,000 tons of CO<sub>2</sub> per year and result in an incremental production increase of 10-15% of original oil in place.

The Policy Group reached consensus to approve these two projects for recognition.

### **4. Technical Issues Requiring Policy Group Guidance**

Bill Reynen of Canada, Vice Chair of the Policy Group, proposed a Joint Policy Group-Technical Group Task Force on Societal Issues. He explained that this idea had its genesis at the meeting in Delhi last year and has been discussed since then by the Technical Group. The task force is now being characterized as examining the technical and societal issues for co-management of land use in development of storage sites. There is now a need for dialog on this issue between the Technical and Policy Groups. He further stated that Australia has agreed to co-lead this task force, but identified a need for Policy Group participation.

The floor was then turned over to John Bradshaw, Australian Technical Group delegate. He explained that he envisioned building on the experience the previous year putting through its CO<sub>2</sub> storage legislation as well as the work done in various task forces. The aim is to list the issues that have to be considered.

After discussion, consensus was reached that Australia will prepare a paper on this topic in consultation with any other task force that is interested in this issue. The Policy Group Chair asked that this work be done expeditiously so that action could be taken on it.

## New Business

Norway described the forthcoming workshop on Near-Term Markets for Carbon Capture and Storage to be held in Oslo on 21 and 22 June, 2007. This is the second of a series of three workshops being held jointly by the IEA and CSLF in response to a request from the G8. This workshop will be a two-day event designed to assess issues identified in the previous workshop, held in San Francisco in August 2006. The first day will be on lessons learned and the second on the way forward.

## 5. Closing Comments

Chairman Shope restated the growing public and media interest in carbon capture and storage and thanked France for its hospitality and efforts in hosting the CSLF Annual Meeting and the delegates and observers for their participation. In response, France expressed its pleasure in having hosted the meeting.

### ACTION ITEMS ARISING FROM THE JOINT MEETING OF THE POLICY AND TECHNICAL GROUPS

Item	Lead	Action
1	Australia	Prepare a paper on societal issues for co-management of land use in development of storage sites in consultation with any other task force that is interested.
2	Secretariat	Conduct a survey of attendees to gather their feedback and suggestions regarding the Technical Workshop and distribute it to attendees.

**AGENDA**  
**CSLF Plenary Meeting**  
**Le Méridien Étoile Hotel**  
**Paris, France**  
**Monday, 26 March 2007**  
**Dufy/Derain Room**

**08:30-09:30** **Registration – Hall Maillot**

**09:30-12:15** **Opening Session**

*Session Chair: Bernard Frois, Chair of National Organizing Committee, France*

**Opening Statement**

*Thomas Shope, Policy Group Chair*

**Keynote Addresses**

*Sophie Galey-Leruste, Director of Energy and Mineral Resources,  
French Ministry of Economy, Finances and Industry*  
*Gilles Bloch, Director General of Research and the Innovation,  
French Ministry of Research*

**Keynote Panel: Overcoming Barriers to CCS Deployment**

*Howard Herzog, Massachusetts Inst. of Technology, United States  
(Moderator)*

*Claude Mandil, International Energy Agency*

*John Easton, Edison Electric Institute, United States*

*Stan Pillay, Anglo Coal, South Africa*

*Audience Dialog*

**12:15-13:45** **Lunch – Espace Longchamps Room**

**13:45-17:45** **Session II: Overview of CSLF Progress**

*Session Chair: Trude Sundset, Technical Group Chair*

**CSLF Progress**

- Legal Issues  
*John Hartwell, Australia*
- IEA/CSLF/G8 Cooperation  
*Antonio Pflüger, International Energy Agency*
- Capacity Building in Emerging Economies  
*Justin Swift, United States*
- Projects Interaction and Review Team (PIRT)  
*John Bradshaw, Australia*



**15:30–15:45 Coffee/Tea – *Hall Maillot and Cezanne Room***

**CSLF Progress (continued)**

- Review and Identification of Standards for CO<sub>2</sub> Storage Capacity Estimation, Phase II  
*Stefan Bachu, Canada*
- Other CSLF Activities  
*John Panek, CSLF Secretariat*

**Panel: Stakeholder Perspectives**

*Elena Nekhaev, World Energy Council (Moderator)*

*Arthur Lee, Chevron*

*Cassandra McCarthy, Australian Coal Association*

*Milton Catelin, World Coal Institute*

*Jeff Chapman, Carbon Capture & Storage Association*

*Paal Frisvold, Bellona Europe*

*Audience Dialog*

**17:45 Adjourn**

**19:15 Buses depart from front of Le Méridien Étoile Hotel for River Palace Boat**

**CSLF WORKSHOP**  
**“Overcoming Barriers to CCS Deployment”**  
**Paris**  
**27 March 2007**

**Programme**

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**Objectives**

- To identify possibilities for deploying CCS technologies at large scale
- To identify ways of removing obstacles to deployment of CCS
- To identify where actions and initiatives/projects are required to address some of the critical issues and gaps.

**Programme**

• **Morning Programme**

**0900 Start: Chair/Olivier Appert**

- Introduction and scene-set for the workshop (10 mins)  
- **Olivier Appert** [IFP]
- Stakeholder input to policy development (EU ZEP) (10 mins)  
- **Nick Otter** [ALSTOM]
- Ongoing work to remove obstacles for large scale industrial initiatives (60 mins)
  - EC – Sustainable FF PG Communiqué of 10 January 2007  
- **Wiktor Raldow** [European Commission, DG RTD]
  - USA – Regional actions and engagement  
- **George Guthrie** [Los Alamos National Laboratory]
  - Canada – infrastructure issues  
- **Bill Reynen** [National Resources Canada]
  - Australia – storage legislation  
- **John Hartwell** [DITR]
  - Developing country viewpoint – what is needed to deploy CCS  
- **R.R. Sonde** [NTPC/India]
- Discussion Session (15 mins)

**1035-1100 Refreshment Break**

**POSTER SESSION for CSLF projects**

- Industrial initiatives: what is needed to make them happen? (120 mins)  
– a series of case studies
  - Planned industrial demonstrations and ‘first of a kind’ plant
    - **Pre combustion capture from gas** **UK**  
- **Gardiner Hill** [BP]
    - **IGCC/pre combustion capture** **Australia**  
- **Howard Morrison** [ZeroGen]
    - **FutureGen** **USA**  
- **Victor Der** [USDOE]
    - **Oxyfuel capture** **Canada**  
- **Bill Reynen** [Natural Resources Canada]

- **Oxyfuel capture** **France**
  - **Luc de-Marliave** [TOTAL]
- **Post combustion capture from gas** **Norway**
  - **William F. Christensen** [Norwegian Ministry of Petroleum and Energy]
- **Post combustion capture from coal** **Germany**
  - **Matthias Krumbeck** [RWE]
- **CO<sub>2</sub> storage in depleted fields** **France**
  - **Marc Florette** [GDF]

Note : the aim is to get a range of capture technologies (pre/post/oxy) with different fuels (gas/coal) and at different parts of the world with different CO<sub>2</sub> storage site types and use.

**1300-1400 Lunch:** Walking buffet with time for interactions

- **Afternoon Programme:**

- **1400 Start: Afternoon Chair/Trude Sundset**

- The Business Case for CCS – an industry perspective (25 mins)
      - **Mike Morris** [AEP]

- **Panel Session**

- Introduction to Panel Sessions (10 mins)
      - Explain aims, objectives and format: **Trude Sundset** [Statoil]
    - What next? Technology (40 mins)
      - Chair : **Manuel Sánchez** [EC DG-RTD]
      - Overview of Gap Analysis work conducted by CSLF/PIRT and way forward with possible new/extended projects (10 mins)
        - **John Bradshaw** [GeoScience Australia]
      - Panel discussion (30 mins)
        - **Pierre Le Thiez** [IFP]
        - **Steve Crookshank** [American Petroleum Institute]
        - **John Bradshaw** [GeoScience Australia]

- **1515-1540 Refreshment Break**

- **POSTER SESSION for CSLF projects**

- What next? Communication and Public Acceptance (40 mins)
      - Chair: **Gardiner Hill**
      - Preparative talk for Panel (10 mins)
        - **David Reiner** [MIT/Cambridge University]
      - Panel Discussion (30 mins)
        - **Peta Ashworth** [CSIRO Australia]
        - **Jason Anderson** [Inst. For European Environmental Policy UK]
    - What next? Legislation and Regulation (40 mins)
      - Chair : **John Hartwell** [DITR]
      - Preparative talk for discussions (to identify key regulatory issues, ...) (10 mins)
        - **Scott Brockett** [EC DG-ENV]

- Panel discussion: (30 mins)
  - **Stefan Bachu** [Alberta Energy & Utilities Board]
  - **Arthur Lee** [ChevronTexaco]
- What next? Putting a value on CO<sub>2</sub> (40 mins)
  - **Chair: Jeff Chapman** [CCSA]
  - Preparative talk outlining issues (10 mins)
    - **Howard Herzog** [MIT]
  - Panel discussion : (30 mins)
    - **Gardiner Hill** [BP]
    - **Bill Koppe** [Anglo]

### **Final Session**

#### **1740 Conclusions**

- Summary and Closure (5 mins)
  - **Trude Sundset** [Statoil]

#### **1745 Closure of Workshop**