



**MEETING SUMMARY**  
CO<sub>2</sub> Utilization Options Task Force Meeting  
Bergen, Norway  
11 June 2012

Prepared by the CSLF Secretariat

**LIST OF ATTENDEES**

**Chairman:** Joseph Giove (United States)

**CSLF Delegates**

Australia: Clinton Foster, Richard Aldous  
Brazil: Paulo Negrais Seabra  
Canada: Stefan Bachu  
China: Ping Zhong  
Germany: Jürgen-Friedrich Hake  
Japan: Ryo Kubo  
Korea: Chang-Keun Yi  
Netherlands: Paul Ramsak  
Norway: Trygve Riis  
South Africa: Tony Surridge  
Saudi Arabia: Ahmed Aleidan  
United Kingdom: Philip Sharman  
United States: Grant Bromhal

**CSLF Secretariat:** John Panek, Richard Lynch

**Observers**

China: Xiaochun Li  
Korea: Chonghun Han  
Norway: Lars Ingolf Eide, Åse Slagtern  
United Kingdom: Mark Crombie  
United States: Chris Babel, Jeff Jarrett

**1. Welcome and Summary of Task Force Formation**

Joseph Giove of the United States, the Chair of this task force, welcomed the meeting attendees and provided a short summary of how the task force was formed. “CO<sub>2</sub> Utilization Options” was one of the twelve Actions in the new Technical Group Action Plan. At the previous meeting of the Technical Group, in September 2011 in Beijing, the United States had volunteered to chair a new task force on this Action.

## 2. Objective and Scope of Task Force

Mr. Giove noted that the CSLF Charter was amended in 2011 to specifically include CO<sub>2</sub> utilization technologies as an important aspect of a CO<sub>2</sub> emission reduction strategy, in addition to carbon capture and storage (CCS) technologies that have been the focus of CSLF efforts since its inception in 2003. To that end, Mr. Giove proposed that the objective of this task force would be to identify/study the most economically promising CO<sub>2</sub> utilization options that have the potential to yield a meaningful, net reduction of CO<sub>2</sub> emissions. The proposed scope of the task force would be to summarize existing information regarding utilization options, assess the state of each relevant technology and application, and assess the relative value of specific utilization options for making a meaningful impact on CO<sub>2</sub> emissions.

Ensuing discussion centered around the wording of the task force's objective and scope, but in the end there was consensus that the wording of the objective was sufficient for at least the initial phase of task force's activities. Mr. Giove agreed that the objectives could be refined in greater detail as the task force proceeded, and Philip Sharman of the United Kingdom kindly offered his assistance.

## 3. Activities, Schedule, and Deliverables of Task Force

Mr. Giove proposed a two phase activity plan and schedule for the task force, with Phase I (broadly focused analysis) setting the stage for Phase II (more narrowly focused analysis). Specifically, the focus of the Phase I work will be to do an initial assessment of all technologies that beneficially utilize CO<sub>2</sub>. The purpose of the Phase II work will be to narrow the Phase I technologies down to those that have the greatest potential for future impact on emissions reductions, and do a more in-depth study of those technologies.

In regard to task force deliverables, Mr. Giove stated that the Phase I report will provide a summary of existing information regarding CO<sub>2</sub> utilization options, a discussion of the state of each relevant technology and application, a preliminary assessment of the relative value of the utilization option to make a meaningful impact on CO<sub>2</sub> emission reduction, and an indication regarding the economic viability of the technology. The Phase I report is intended to be a deliverable at the upcoming 2012 CSLF Annual Meeting.

Mr. Giove provided the following preliminary list of CO<sub>2</sub> utilization options that he had developed prior to this meeting:

Hydrocarbon Recovery	Non-consumptive	Consumptive
<ul style="list-style-type: none"><li>• CO<sub>2</sub>-EOR</li><li>• CO<sub>2</sub>-EGR</li><li>• CO<sub>2</sub>-ECBM</li><li>• CO<sub>2</sub>-EGHR</li><li>• Oil shale recovery</li><li>• CO<sub>2</sub>-fracturing</li></ul>	<ul style="list-style-type: none"><li>• Fuels &amp; chemicals</li><li>• Desalination</li><li>• Slurry transport</li><li>• Beneficiation</li><li>• Working/HT fluid</li><li>• Extractant</li><li>• Inerting Agent</li><li>• Fire Suppression</li><li>• Food/Products</li><li>• Refrigerant</li></ul>	<ul style="list-style-type: none"><li>• Soil amendment/fertilizer</li><li>• Synthetic cementitious materials, building materials</li><li>• Chemicals</li><li>• Polycarbonates / polymers</li></ul>

Mr. Giove noted that this list was not exhaustive and should be modified in the future as other technologies become more/less useful. In the short term, it was agreed that the focus of the task force not be solely on Enhanced Oil Recovery (EOR), as there is another new Technical Group task force with that mission. As the new Technical Challenges of Conversion of CO<sub>2</sub>-EOR to CCS task force scopes out its mission in greater detail, it will become clearer what elements of EOR can/should be covered by the CO<sub>2</sub> Utilization Options task force. There was consensus for this approach.

**4. Task Force Membership**

Mr. Giove stated that membership of the task force was open to all CSLF member countries and interested parties. The following CSLF Technical Group delegations have volunteered to participate and are “charter members” of the task force:

- a. China
- b. Germany
- c. Netherlands
- d. Saudi Arabia
- e. South Africa
- f. United Kingdom
- g. United States (chair)

**5. Closing Comments / Adjourn**

Mr. Giove thanked meeting attendees for their input and enthusiasm, and adjourned the meeting.

**Action Items**

<b>Item</b>	<b>Lead</b>	<b>Action</b>
<b>1</b>	Task Force Chair	Refine the scope of the task force as necessary.
<b>2</b>	Task Force	Complete a draft of the Phase I Report in time for 2012 CSLF Annual Meeting.