



## **MEETING SUMMARY**

Projects Interaction and Review Team (PIRT) Task Force Meeting  
Al Khobar, Saudi Arabia  
03 March 2011

Prepared by the CSLF Secretariat

### **LIST OF PARTICIPANTS**

Australia:	Clinton Foster (Chair)
France:	Pierre Le Thiez
Germany:	Jürgen-Friedrich Hake
Japan:	Ryo Kubo
Mexico:	José Miguel González Santaló
Norway:	Trygve Riis
Saudi Arabia:	Khalid Abuleif, Abdulmuhsen Alsunaid
South Africa:	Tony Surridge
United States:	Joseph Giove
Global CCS Institute:	Kathy Hill
Observers:	Axel Liebscher (Ketzin Test Site Project) Hubert Fabriol (Lacq CO <sub>2</sub> Capture and Storage Project) Tetsuo Arii (Japan) John Harju (Zama Acid Gas EOR, CO <sub>2</sub> Sequestration, and Monitoring Project) Susan Hovorka (SECARB Early Test at Cranfield Project) Ed Steadman (Fort Nelson Carbon Capture and Storage Project) Steve Whittaker (IEA GHG Weyburn-Midale CO <sub>2</sub> Monitoring and Storage Project)
CSLF Secretariat:	John Panek, Adam Wong

### **1. Welcome and Opening Remarks**

PIRT Chairman Clinton Foster called the meeting to order and welcomed the participants and noted that the seating format for this meeting has been modified to enhance discussion and interaction during the meeting.

## **2. Introduction of Meeting Attendees**

The PIRT meeting attendees introduced themselves. Nine countries were represented at the meeting. As a result of conducting the meeting in conjunction with the CSLF Workshop, representatives from seven recognized projects were also in attendance.

## **3. Approval of Meeting Summary from Warsaw PIRT Meeting**

Dr. Foster noted the consensus for approving as final the Summary of the October 2010 PIRT meeting in Warsaw, Poland.

## **4. Review of Action Items from Warsaw PIRT Meeting**

Dr. Foster stated that all of the action items from the Warsaw meeting have been completed or are included on the agenda to be discussed later in the current meeting.

## **5. IEA GHG Weyburn-Midale Monitoring and Storage Project: Press Articles and Responses**

Steve Whittaker, Senior Project Manager from the IEA GHG Weyburn-Midale Project, reviewed the chronology of press and media stories claiming potential CO<sub>2</sub> leakage at a farm near the Weyburn project. Dr. Whittaker reviewed the main communications activities undertaken by the Petroleum Technology Research Centre (PTRC). Dr. Whittaker further listed the assertions in the Petro-Find report and the corresponding PTRC/Weyburn-Midale strategy in addressing the claims and formulating a technical response.

During the discussion, several attendees commended the timely and effective response prepared by PTRC to the Petro-Find report.

## **6. Saudi Arabia's Perspectives on the CSLF Storage and Monitoring Projects Interactive Workshop**

Abdulmuhsen Alsunaid thanked all the participants and stated that the topic-specific Workshop was a success. CCS is a key mitigation technology in the future and Workshops like this one and the CSLF can play an important role in proving the technologies and reducing the cost. Future Workshops can be focused on reducing the costs. For example, the challenges ahead would be moving from R&D monitoring technologies to commercial monitoring technologies. He again reiterated that the current Workshop was exemplary.

Dr. Foster thanked Saudi Arabia for taking the initiative and offering to host this CSLF Storage and Monitoring Projects Interactive Workshop.

## **7. Global Efforts to Manage Knowledge from CCS Projects**

Dr. Foster called upon Kathy Hill from the Global CCS Institute who provided background on the Global CCS Institute activity. Dr. Foster identified an action item going forward to coordinate and inform the Global CCS Institute on CSLF efforts.

## **8. Discussion on Improving Interaction with CSLF-recognized Projects**

Dr. Foster stated that we had an excellent example over the past few days with many opportunities and the time for projects to discuss and interact. Susan Hovorka agreed that the

Storage and Monitoring Interactive Workshop was well focused. The narrow scope was definitely an advantage and that these types of Workshops are very beneficial. Ed Steadman added that the recent dramatic example at Weyburn indicated that that global support is important and interaction amongst the projects is critical. Mr. Steadman thanked Saudi Arabia for hosting the current Workshop. John Harju reinforced the position that the Weyburn example emphasized the positive benefits of networking and communication of the projects and also commended the hosts for their efforts in sponsoring the Workshops.

Dr. Whitaker observed that the focus and format of the meeting made it much more effective and easier to interact. The discussion on specifics set this apart from larger forums which have general project overviews and limited specific or targeted discussion. Dr. Whitaker expressed his appreciation for the extraordinary hospitality provided by our hosts. Axel Liebscher indicated that this type of meeting is exactly what is needed by the projects and suggested similar types of Workshops on topics such as capture and transport. Hubert Fabriol suggested informal forums and discussion amongst similar projects would also be effective.

Pierre Le Thiez noted that we might have to develop classifications of projects as CCS as many projects are expected to be added to the CCS landscape in the near future. Mr. Alsunaid stated the current workshop was successful as a start but CSLF may play an important role in identifying technologies for the CCS commercialization phase.

Trygve Riis noted the interesting comments from the projects and suggested that even further specificity within certain technology topics would be valuable. He further observed that capture technology discussions may be limiting because of proprietary and competitive issues among vendors. Perhaps a more general initial format with splitting up into segmented discussions might be workable. Tony Surridge commended the effectiveness of Saudi Arabia in conveying global project knowledge through local participation in the Workshop. José González Santaló suggested that the information from the Workshop and be further disseminated throughout the CSLF and acknowledged the excellent work and warm hospitality of our hosts.

Jürgen-Friederich Hake agreed that the Workshop was an excellent starting point with very high quality and consistent with the types of events requested by the CSLF projects. The mission of the CSLF is to link the lessons learned from the individual projects to the CSLF Technology Roadmap. Mr. Hake also observed that the maturity of CCS within EOR applications is advanced compared to the context electrical generation.

Dr. Foster summarized the discussion points by noting that there was an excellent response from the projects and that we need to think about classifying projects within groupings. He further emphasized the importance of project knowledge and technology gaps efforts being linked to the Technology Roadmap.

## **9. Discussion on Task Force to Assess Progress on Technical Issues Affecting CCS**

As a follow-up to the discussion in agenda item 7, Dr. Foster suggested an action item for the Secretariat to set up a Technical Executive Committee teleconference with the Global CCS Institute concerning knowledge sharing.

Dr. Foster described the current CSLF recognition process and governance structure and noted that there is limited interaction with the projects after achieving recognition. During the discussion Khalid Abuleif suggested that involving the CSLF projects and the richness of the messages from the Workshops in addressing gaps and gathering and assembling this knowledge and use towards the ultimate objective of CCS commercialization. Additional discussion indicated that additional work would be needed to redraft the charts.

Dr. Foster covered the initial purpose of the Task Force and to date there has been limited work thus far. The current issue is how to stimulate activity within the Task Forces. Mr. Riis noted that it has been difficult to get the groups energized and commit the resources.

## **10. Review of Plan for 2011 CSLF Technology Roadmap**

Dr. Foster presented a draft schedule for the roadmap and indicated that considering the major overhaul in the 2010 roadmap, the current update would be mostly limited to be refreshing the country profiles and project activity. Mr. Riis agreed that the 2010 revision was particularly effective and that the 2011 update should be limited to the country profiles with a major effort expected towards the 2012 version which would incorporate the current technology gaps reviews being undertaken by the Working Groups. Mr. Abuleif stated that the CSLF Roadmap is an excellent document and a living document and concurred with the proposed schedule and scope. Mr. Hake asked about the timing in regards to Edmonton and Beijing Ministerial. Dr. Foster summed up the discussion by stating the CSLF Technology Roadmap was a highly regarded document which was recently updated and that the 2011 version will primarily reflect changes in the member country activities. There was consensus with the Chair's proposed schedule.

## **11. Status of Technology Readiness Assessment for CSLF-Recognized Projects**

Dr. Foster called upon Joseph Giove to present the status of technology readiness assessment for the CSLF recognized projects. Mr. Giove began by stating that his presentation was the result of consensus within the subgroup undertaking the Technology Readiness Assessment activity, which consisted of Norway, the United States and the Global CCS Institute. The intention of this activity, as agreed during the Pau Technical Group Meeting in March 2010, was to use NASA technology readiness criteria for this purpose. However, the subgroup determined that the NASA technology readiness model was very complex, and several teleconferences between subgroup members conducted over the past several months ultimately concluded there were several difficulties in applying the model to CCS. For example, the NASA Technology Readiness Levels (TRL) model does not take cost or risk factors into account. These are key considerations when evaluating CCS technology readiness. Mr. Giove stated that while the criteria are objective the assessment is subjective, and he also relayed some of the United States Department of Energy's experiences in attempting to utilize the NASA TRL model as an evaluation tool.

The TRL subgroup concluded that the NASA model would not be an effective tool for use in this assessment. Simpler iterations of the technique were also examined with similar problems noted. The current CSLF Portfolio of projects is unique and therefore it would be extremely difficult to draw conclusions across the spectrum. For example, some projects fit in several classifications while other projects do not fit in any classification. Mr. Giove indicated that the subgroup concluded that any end product may prove argumentative,

divisional and at times misapplied. It was unanimously decided by the subgroup to recommend not pursuing the TRL analysis. Dr. Foster asked and received consensus from the PIRT to declare the group closed and the TRL analysis activity terminated.

## **12. Review and Approval of Projects Nominated for CSLF Recognition**

Dr. Foster asked the PIRT to review the Wandoan Project Submission Form in the PIRT documents book. This project was nominated for CSLF recognition by Australia, the United States, and Canada.

Dr. Foster briefly summarized this IGCC project (which utilizes the General Electric gasifier) and mentioned that the project is part of the Australian Government's CCS flagship program.

Dr. Le Thiez asked whether the project would be storing CO<sub>2</sub> at two different locations. Dr. Foster confirmed that the project was considering an enhanced oil recovery (EOR) component as well as additional storage areas, including a deep saline aquifer.

There were several questions regarding initial start up and funding activity. After review of the project submission form and discussion, consensus was reached for the PIRT to recommend the Wandoan Project for CSLF recognition at the Technical Group in Edmonton in May 2011.

## **13. Identification of Issues and Concepts for Future PIRT and Technical Group Meetings**

Dr. Foster stated that the CSLF needs to identify the direction and what will be new and different if the organization is to extend beyond 2013. He further mentioned that earlier in this meeting the PIRT had noted that the focus is shifting from R&D to demonstration. Mr. Alsunaid agreed with the comments and cited the importance for the CSLF to add value over the next ten years. Dr. Le Thiez noted that CCS is very complex and that helping support the first movers is critical. Organizations such as the CSLF and the Global CCS Institute can be a key link going forward.

Dr. Foster indicated that this is effectively the end of Phase I and the start of Phase II. The Technical Group should upscale its thinking and identify the big technical issues and objectives for the next ten years. Mr. Abuleif noted that we should collect ideas for the Ministerial Committee at the next Technical Group Meeting. Dr. Foster and Mr. Riis asked for a proactive response and tasked the Secretariat to send an email to the Technical Group soliciting ideas and concepts prior to the Edmonton Technical Meeting.

## **14. New Business**

No new business items were noted.

## **15. Adjourn**

On behalf of the Secretariat, John Panek cited the importance of several key CSLF recognized projects for their input during the PIRT Meeting and the CSLF Workshop. Mr. Panek further noted the extraordinary hospitality of our hosts and the invaluable support provided this week by the Ministry of Petroleum and Mineral Resources of the Kingdom of Saudi Arabia and the organizing committee. All participants joined in acknowledging the

graciousness of our hosts. Dr. Foster thanked everyone for their participation and adjourned the meeting.

### **Summary of Consensus Reached**

- 1) Consensus was reached regarding the schedule for the 2011 Technology Roadmap.
- 2) Based on the recommendation of the TRL subgroup, the PIRT reached consensus on terminating the Technology Readiness Level analysis activity.
- 3) Consensus was reached to recommend the Wandoan Project for CSLF recognition at the Technical Group in Edmonton in May 2011.

### **Summary of Action Items**

- 1) Inform the Technical Group that we are looking for ideas for the Ministerial. Secretariat to send an email to the Technical Group soliciting ideas and concepts prior to the Edmonton Technical Meeting.
- 2) Clinton Foster will take the lead in coordinating with the Global CCS Institute about CSLF efforts regarding Knowledge Management.
- 3) The Secretariat will set up a Technical Executive Committee teleconference with the Global CCS Institute concerning knowledge sharing efforts and activities.