



Minutes of the CSLF Policy Group Meeting

Tuesday, 5 December 2017

Rosewood Abu Dhabi

Abu Dhabi, United Arab Emirates

List of Attendees

Policy Group Delegates

Australia:	Josh Cosgrave, Tim Sill
Brazil:	Paulo Pires
Canada:	Claude Gauvin
China:	Jinfeng Ma
European Commission:	Jeroen Schuppers
France:	Didier Bonijoly, Dominique Copin
Germany:	Almut Fischer
Italy:	Sergio Persoglia
Japan:	Ryozo Tanaka, Jiro Tanaka
Korea:	Chong Kul Ryu, Mi Hwa Kim
Mexico:	Leonardo Beltrán, Jazmín Mota
Netherlands:	Laurens Baas, Harry Schreurs
Norway:	Stig Svenningsen
Romania:	Constantin Stefan Sava, Anghel Sorin
Saudi Arabia:	Khalid Abuleif (Vice Chair), Hamoud AlOtaibi, Abdullah Alsarhan
South Africa:	Landi Themba, Noel Kamrajh
United Arab Emirates:	Fatima Al Shamsi, Arafat Al Yafei
United Kingdom:	Brian Allison (Vice Chair)
United States:	Steve Winberg (Chair), Jarad Daniels, Mark Ackiewicz

Organization Representatives

Global CCS Institute:	Jeff Erikson
IEA:	Tristan Stanley
IEAGHG:	Tim Dixon

CSLF Secretariat

Richard Lynch, Adam Wong

Invited Speakers

Australia:	Andrew Barrett, Geoscience Australia (PIRT Chair)*
Norway:	Åse Slagtern, Research Council of Norway (Technical Group Chair)* Lars Ingolf Eide, Research Council of Norway*
Saudi Arabia:	Tidjani Niass, Saudi Aramco
United Arab Emirates:	Matar Al Neyadi, Ministry of Energy
United States:	Sallie Greenberg, University of Illinois Barry Worthington, United States Energy Association
World Bank (Consultant):	Brendan Beck

Observers

Australia:	Max Watson*
Korea:	Chang-Keun Yi*, Kwon Yi Kyun
Japan:	Leandro Figueiredo
Netherlands:	Angus Gillespie
Norway:	Arne Graue
Saudi Arabia:	Wolfgang Heidug, Pieter Smeets
United Arab Emirates:	Mohammad Abu Zahra
United Kingdom:	Gardiner Hill, Tom Howard-Vyse, Ceri Vincent
United States:	Damian Beauchamp, Bill Brown, Frank Morton, Chris Romans, Ed Steadman

*CSLF Technical Group Delegate

1. Welcome and Opening Statement

Steven Winberg, Policy Group Chair, United States, called the meeting to order and thanked the United Arab Emirates (UAE) and the Ministry of Energy for hosting.

2. Introduction of Delegates

Delegates around the table introduced themselves. Nineteen of the twenty-six CSLF members were present, including representatives from Australia, Brazil, Canada, China, European Commission, France, Germany, Italy, Japan, Korea, Mexico, Netherlands, Norway, Romania, Saudi Arabia, South Africa, United Arab Emirates, United Kingdom, and United States.

3. Host Country Welcome

H.E. Dr. Matar Al Neyadi, Undersecretary of the Ministry of Energy, UAE, welcomed attendees to the UAE. H.E. Al Neyadi stated that carbon capture, utilization, and storage (CCUS) is rapidly evolving from joint oil and gas producers to address sustainability and climate change. He commended the CSLF for working towards the future of CCUS.

4. Adoption of Agenda

The agenda was adopted with three changes:

- 1) "Report from the CSLF Academic Council" from Sallie Greenberg, Academic Council Co-Chair, United States, was moved to the afternoon, between "Mission Innovation: Capture Challenge Update" from Tidjani Niass, Saudi Arabia and "Clean Energy Ministerial Update" from Jarad Daniels, United States.
- 2) "Report from the Financing for CCS Projects Task Force" was presented by Didier Bonijoly, Acting Task Force Chair, France in place of Bernard Frois, Task Force Chair, France.
- 3) "Financing CCS" was presented by Brendan Beck, Energy Consultant to the World Bank, in place of Nataliya Kulichenko, World Bank.

5. Review and Approval of Minutes from May 2017 Policy Group Meeting in Abu Dhabi

The Minutes from the CSLF Policy Group Meeting on May 4, 2017, in Abu Dhabi, UAE were approved without any changes.

6. Report from CSLF Secretariat

Adam Wong, CSLF Secretariat, provided a brief summary of the action items from the CSLF Policy Group Meeting on May 4, 2017, in Abu Dhabi, UAE. All action items have been completed or are currently in progress.

7. Report from CSLF Stakeholders

Barry Worthington, United States Energy Association gave an update from the CSLF Stakeholders. Recent Stakeholder regional meetings were held in the Americas, Europe, Middle East/Africa, and Asia/Pacific. As a result, each Regional Champion implemented stakeholder input processes as appropriate for their region. Stakeholder messages to the Ministers include a need to identify commonality among regions due to the different messages among regions, improve overall communication, and increase communication to political leaders, policy makers, and regulators. Moving forward, the Stakeholders will endorse the regional approach and hold annual or bi-annual stakeholder meetings, access mechanisms for improvement, and compile a comprehensive report to the Policy Group.

8. International Energy Agency CCS Activities Update

Tristan Stanley, International Energy Agency (IEA) provided an update from the IEA, which is focusing on the role of carbon capture and storage (CCS) in climate scenarios and securing investment. In order to meet various global CO₂ reduction scenarios, CCS will need to be a key solution. While there have been some investments in CCS, more is needed. The IEA hosted a CCUS Summit, held ahead of the IEA's 2017 Ministerial Meeting and co-chaired by U.S. Secretary of Energy Rick Perry and IEA Executive Director Dr. Fatih Birol. Participants included ministers and top government officials from Australia, Canada, Japan, Mexico, Norway, Poland, the Netherlands, the United Kingdom, and European Commission. Industry representatives

included CEOs and senior executives from ExxonMobil, Royal Dutch Shell, BP, Statoil, Chevron, Total Glencore, Suncor Energy, GE Power, Dow Chemical, Mitsubishi Heavy Industries, and Port of Rotterdam. At the CCUS Summit, the IEA also released a report on “The “Five Keys” to unlock CCS investment,” with the five keys being:

1. Harvest low-hanging fruit to build CCS deployment and experience from the ground up.
2. Tailor policies to shepherd CCS through the early deployment phase and to address unique integration challenges for these facilities.
3. Target multiple pathways to reduce costs from technology innovation to progressive financial mechanisms.
4. Build CO₂ networks to better support transport and storage options.
5. Strengthen partnerships and cooperation between industry and government.

9. Global CCS Institute Update

Jeff Erikson, Global CCS Institute (GCCSI) updated the Policy Group on GCCSI activities. Recently, the GCCSI participated in the United Nations Framework Convention on Climate Change (UNFCCC) in Bonn, Germany from November 6-17. The GCCSI has also done global analysis on country-specific national CCS policy, showing how country legal and regulatory policy support can lead to large-scale CCS facilities.

10. Report from CSLF Technical Group

On behalf of the Technical Group, Åse Slagtern, Technical Group Chair, Norway, reported out on recent Technical Group activities. Overall, the Technical Group is making progress toward key CSLF goals by developing a forward-looking vision utilizing how to get there (CSLF Technology Roadmap), facilitating knowledge sharing among CCUS technology developers and users (Project Engagement Strategy), encouraging collaborative activities among CSLF members (CSLF-recognized Projects), and developing messages and recommendations in specific CCUS technology areas (Task Forces). Chaired by Australia, the 2017 CSLF Technology Roadmap was completed on schedule and on time for the 2017 CSLF Ministerial Meeting.

Ms. Slagtern summarized highlights and outcomes from the previous day’s Technical Group Meeting, which included updates from four Technical Group Task Forces: Off-Shore CO₂-EOR Bioenergy with CCS (Bio-CCS and BECCS), Improved Pore Space, Utilisation, and Industrial CCS. The Technical Group recommended that the Policy Group provide CSLF recognition to the CO₂CRC Otway Project Stage 3. Located in Australia, this project builds on Otway project Stages 1 & 2 (both CSLF recognized projects), with the goal to validate cost and operationally effective subsurface monitoring technologies that will accelerate implementation of commercial CCS projects. The Policy Group approved the CO₂CRC Otway Project Stage 3 project for CSLF recognition.

The Technical Group also recommended that the Policy Group approve some recommended changes to the CSLF Terms of Reference (ToR). These recommended changes included updating project recognition procedures, ensuring consistency with CSLF Charter, and other miscellaneous corrections and updates. The Policy Group approved these recommended changes.

11. Report on CSLF Technology Roadmap (TRM)

Andrew Barrett, TRM Working Group Chair, Australia, and Lars Ingolf Eide, TRM Editor, Norway, presented an overview of the 2017 CSLF Technology Roadmap. There were numerous changes since the last TRM in 2013, including the focus moving away from R&D to implementation and learning from experience (CCS works), and more emphasis on development of clusters and hubs, and on industrial and biomass CCS. A key priority recommendation is that governments and industries must collaborate to ensure that CCS contributes its share to the Paris Agreement’s aim to keep the global temperature increase from anthropogenic CO₂ emissions to 2°C or below by implementing sufficient large-scale projects in the power and industry sectors.

12. Report from Regulatory Task Force

Ryozo Tanaka, Task Force Chair, Japan, gave a report from the Regulatory Task Force, which was originally proposed by Japan at the CSLF Annual Meeting in Tokyo in October 2016. The Task Force objective is to explore practical regulations and permitting process for geological CO₂ storage. For the 2017 CSLF Ministerial Meeting, the Task Force has prepared a report of findings and recommendations from case studies of project experiences with the regulatory process for CO₂ storage. These findings are complementary to work done by the IEA and GCCSI. A total of 15 findings are included in the report, with the key conclusion being that in the future, experiences for the next generation of CCS projects should be examined to look into how the issues identified in the findings have been resolved in various jurisdictions. Many of the issues, including operator's finance responsibilities, may be specific to a first wave of CCS projects that have no or limited precedent experiences in permitting for geological CO₂ storage.

13. Report from the Communications Task Force

Hamoud AlOtaibi, Task Force Chair, Saudi Arabia spoke on recent activities of the CSLF Communications Task Force. The Task Force's strategy has included efforts to expand strategic engagement, simplify CSLF messaging, expand message delivery mechanisms, and a refresh of the CSLF's digital profile. Ongoing activities include website development, CSLF Ministerial and stakeholder liaison, and maintaining and developing core materials. Activities proposed for 2018 are to promote the 2017 CSLF Communique, promote Technology Roadmap with all stakeholders, review name / brand of CSLF, host Ministerial side event at COP24, develop a powerpoint template for members, support the proposed CCUS initiative under CEM9, deepen political engagement to 2019, explore strategic AR6 communications opportunities (Working Group III), and explore opportunities with media for CSLF-approved CCS projects.

14. Report from the Capacity Building Governing Council

Stig Svenningsen, Governing Council Chair, Norway, provided an update from the Capacity Building Governing Council (Council). To date, the Council has approved 19 capacity building projects in 6 countries, with 13 projects completed and 6 projects in progress. Funds currently available, after approved projects, are AUS \$930,078. Since the CSLF Policy Group Meeting on May 4, 2017, in Abu Dhabi, UAE, the Council has approved one project and made changes to the Council's Terms of Reference.

15. Report from the Financing for CCS Projects Task Force

Didier Bonijoly, Acting Task Force Chair, France, provided a report from the Financing for CCS Projects Task Force, in place of Bernard Frois, Task Force Chair, France, who sent his regrets. Climate change, and with it CCS, now has a driver outside of regulation. This can be a more stable driver for CCS than policy, which has gone through wild swings in various democracies (U.S., UK, Australia). There was also great interest for a CCS side-event at COP23, as everyone agreed that there are no technical showstoppers when it comes to realizing CCS. He provided updates on CCS perspectives in countries including, Norway, UK, and the U.S., with the conclusion that CCS needs to be associated with clean energy, while also being provided with a suite of incentives and regulations.

16. Financing CCS in Developing Countries

Brendan Beck, Energy Consultant to the World Bank, on behalf of Nataliya Kulichenko, World Bank, updated the Policy Group on the World Bank financing CCS in developing countries. The World Bank CCS Trust Fund (CCS TF) was established in December 2009, with the main objectives to support strengthening capacity and knowledge building, to create opportunities for developing countries to explore CCS potential, and to facilitate inclusion of CCS options into developing country low-carbon growth strategies and policies. Contributions to the CCS TF to date total US \$70 million from the UK, Norway, and the Global CCS Institute. Phase 1 of the CCS TF was completed in 2015, and included US \$8 million allocated to desk-top CCUS studies in nine countries. Phase 2 of the CCS TF commenced in 2014, and has allocated US \$49 million to four CCUS pilot projects in Mexico and South Africa.

In order to finance CCUS in developing countries, the World Bank focuses on early-opportunity projects that have host government support, high-concentration CO₂ sources, industrial CO₂ uses,

and EOR opportunities. These factors are gauged in combination with support opportunities from climate finance, concessional finance, payment guarantees, and private sector participation

17. Mission Innovation: Carbon Capture Innovation Challenge Update

Tidjani Niass, Saudi Arabia, presented an update from the Mission Innovation: Carbon Capture Innovation Challenge (CCIC). Co-led by Saudi Arabia and the U.S., the CCIC has 20 of the 23 Mission Innovation country members with the objective to enable near-zero CO₂ emissions from power plants and carbon intensive industries. CCIC held a CCUS Experts' Workshop in Houston, Texas, U.S., from September 25-29 with 257 participants from academy and industry from 22 countries for 13 parallel panel discussions. Next steps include the publication of a workshop report in early 2018, the development of collaboration mechanisms, further fostering engagement with industry, and preparations for the 3rd Mission Innovation Ministerial Meeting (MI-3) in May 2018.

18. Report from the CSLF Academic Council

Sallie Greenberg, Academic Council Co-Chair, United States, updated the Policy Group on the recent activities from the CSLF Academic Council, an advisory group comprised of representatives from institutes and universities, and established by the CSLF Academic Task Force following the 2015 Ministerial Meeting. The Academic Council has three areas of focus: 1. Student training, practical learning, and curriculum development; 2. Communications and outreach; and 3. Academic community and capacity building. Through efforts in these three areas of focus, the Academic Council provided five recommendations to the Policy Group: 1. Engage and explore connections for Academic Council to support Policy Group; 2. Design and conduct consultation process to generate CSLF-supported guidelines for Stakeholder Engagement; 3. Consider potential through CEM/CSLF connections; 4. Evaluate and refine messaging from CSLF; and 5. Leverage existing synergies.

19. Clean Energy Ministerial Update

Jarad Daniels, United States, provided an update on a proposed CCUS Initiative under the Clean Energy Ministerial (CEM). At the 8th Clean Energy Ministerial (CEM8) in Beijing in June, U.S. Secretary of Energy Rick Perry noted that the U.S. feels strongly that CCUS and nuclear should be included within the suite of clean energy technologies under consideration by CEM. Currently, the U.S., along with Canada, Japan, Mexico, Norway, Saudi Arabia, the UAE, and United Kingdom, are jointly proposing a new CCUS initiative which will strengthen the framework for public-private collaboration on CCUS, while complementing the efforts and adding coordinated value beyond the activities of existing organizations and initiatives. Integrating conversations around CCUS in the CEM allows the technology to be considered outside the silo of CCUS proponent governments to date, and potentially widens the range of support. The conversation continued last month when Secretary Perry and IEA Executive Director Birol co-chaired the CCUS Summit on the margins of the IEA Ministerial.

Delegates then discussed what CCUS in CEM would mean for the CSLF. It was agreed that while there are already multiple CCUS initiatives in place, the CSLF also campaigns to get CCUS into other clean energy conversations, including other ministerial meetings. Therefore, the CSLF should also work to get CCUS into the CEM. It was agreed that the United States would take the lead to draft a proposal to stand up a CCUS Initiative under CEM, and interested CEM members should contact the United States.

20. 2017 CSLF Ministerial Meeting

Jarad Daniels, United States, reviewed the agenda for the following day's CSLF Ministerial Meeting. The morning will feature scene-setting presentations and key CSLF perspectives from the Stakeholders, Technical Group, and Policy Group. The day will feature three panel discussions, the first on national and international policies to build business cases for CCUS, the second a CCUS project showcase with regional highlights, and the third panel on CCUS infrastructure development. The late afternoon will feature both an open and then a closed session for the Ministers, concluding with a press conference.

21. Review of CSLF Policy Group Messages to Ministers

Jarad Daniels, United States, reviewed the CSLF Policy Group Messages to the Ministers, which included updates and accomplishments from each of the Policy Group Task Forces. Delegates suggested additional items to include. These items were included in the final presentation to the CSLF Ministers.

22. Future CSLF Meetings

Australia stated that it will host the 2018 CSLF Annual Meeting on the margins of the IEA Greenhouse Gas R&D Programme (IEAGHG) 14th Greenhouse Gas Control Technologies (GHGT) Conference from October 21-26 in Melbourne, Australia. The CSLF is looking for a country to host a potential 2018 CSLF Mid-Year Meeting.

23. Review of Draft 2017 CSLF Ministerial Communiqué

Jarad Daniels, United States, led the discussion regarding the draft 2017 CSLF Ministerial Communiqué. Delegates provided numerous suggested changes and edits, which were incorporated into the updated draft. A final draft 2017 CSLF Ministerial Communiqué was approved by the Policy Group, and circulated via email by the CSLF Secretariat for approval by the CSLF Ministers.

24. Open Discussion and New Business

No new business was raised.

25. Action Items and Next Steps

Jarad Daniels, United States, provided a summary of the day's Policy Group Meeting, and noted the significant agreements and action items. The Policy Group reached a consensus on the following items:

- Approved the CO2CRC Otway Project Stage 3 project for CSLF recognition
- Approved revisions to the CSLF Terms of Reference

Action items from the meeting are as follows:

Item	Lead	Action
1	All delegates	Send updated country CCUS developments, including any CCUS-related quotes from country Ministers, to the CSLF Secretariat for the CSLF website country pages
2	Communications Task Force	Prepare generic CSLF presentation for use by CSLF members and look into potential key engagement opportunities to utilize the presentation, including the 2018 United Nations Climate Change Conference (COP24) and Clean Energy Ministerial (CEM)
3	Communications Task Force	Distribute CSLF documents, including both the 2017 CSLF Ministerial Communiqué and the 2017 CSLF Technology Roadmap
4	Capacity Building Governing Council	Solicit additional CSLF Capacity Building project proposals
5	United States	Take the lead to draft a proposal to stand up a CCUS Initiative under the Clean Energy Ministerial
6	United States	Update the Policy Group Message to Ministers with new input from delegates
7	Delegates and CSLF Secretariat	Find a country to host a potential 2018 CSLF Mid-Year Meeting

26. Closing Remarks / Adjourn

Jarad Daniels, United States, closed the meeting. He also highlighted the approval of the CO2CRC Otway Project Stage 3 project for CSLF recognition. He thanked all of the participants and the government of the UAE for hosting the event, and looked forward to the following day's CSLF Ministerial Meeting.