

Carbon Sequestration Leadership Forum CCS in the Academic Community Task Force

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Outline

- Overview of the Task Force
 - Why I'm here today
 - A proposal
 - Why it's important
 - Next steps
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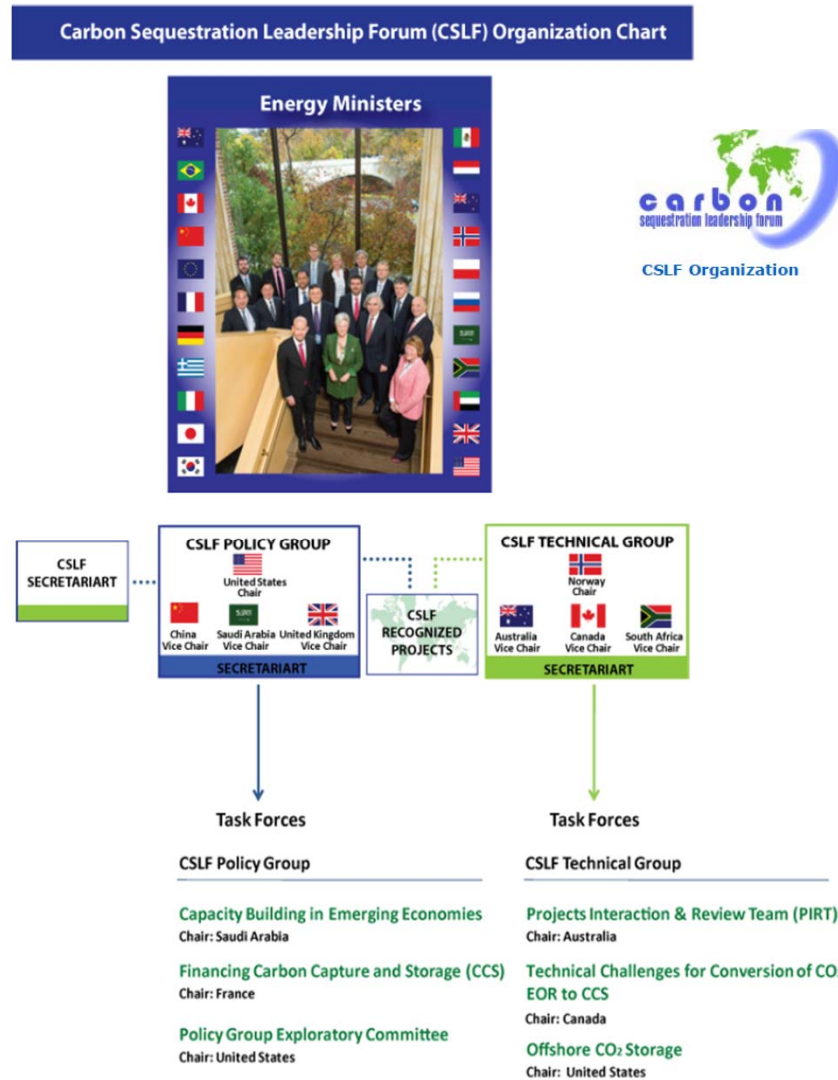
The Academic Community Task Force

- Formed by CSLF in 2008 at the Policy Group meeting in San Francisco.
- **Task Force Mission:**
 - Identify and engage academic programs on CCS throughout the world
 - Help determine the path forward for the CSLF
- **Activities to Date**
 - Mapped CCS post-graduate academic courses worldwide; conducted gap analysis
 - Established links to Capacity Building Task Force

The Academic Community Task Force

- Recently, this Task Force has been dormant.

No mention of it on the CSLF Web page



Why I'm Here Today

- Strong interest by CSLF Secretariat in re-starting this activity
- To me, this makes a lot of sense; the CSLF should develop and draw upon strong links with academia
- I'm here to present a specific proposal for your consideration

The Proposal

- Re-establish the Academic Community Task Force with a focus on fostering and supporting:
 - International CCS collaborations
 - International research exchanges
 - CCS summer schools, short courses, etc.
 - International networks
- **Motivation:**
 - Many governments do not have mechanisms to support such activities
 - Programs that do exist are mostly *ad hoc* and not coordinated to maximize benefits; but they have had substantial success and impact, *for example*

Collaborations and Exchanges

- **Dr. Hannah Chalmers**

- As a UK PhD student (w/ Prof. Jon Gibbins) spent three 1-month visits to Sask Power, EPRI and U. of Texas, Austin.
- Now a Senior Lecturer at Univ. of Edinburgh and a well-known CCS researcher w/ many collaborators.



- **Dr. Ric Hoefnagels**

- As a MS student at Utrecht U. (w/ Prof. Machteld van den Broek) spent several months at Carnegie Mellon U. to study learning curves applied to CCS.
- Resulted in several important publications and continuing collaborations between UU and CMU.
- Completed his PhD; currently a Researcher at UU.



Collaborations and Exchanges

- As PhD students, **Dr. Lars Nord** and **Dr. Anusha Kothandaraman** collaborated at NTNU (Norway) and MIT (USA) on CO₂ capture processes (w/ Profs. Olav Bolland and Howard Herzog), authoring several key papers.
- AK now Director, Strategy at Braskem
- LN now Associate Prof. at NTNU.
- Collaborations (w/ Prof. Paitoon Tontiwachwuthikul) at U. of Regina with former PhD students, PDFs or Visiting Scholars, including:
 - **Dr. Zhiwu (Henry) Liang** and **Dr. Ruimin Gao** (China)
 - **Dr. Abdelbaki Benamor** and **Dr. Wichitpan Rongwong** (Qatar)
 - **Dr. Chintana Saiwan** and **Dr. Pech Techarat** (Thailand)



Research Experience in Carbon Sequestration (RECS)

Year	Location	Technical Partner
2004	Santa Fe, NM	LANL / Norway
2005	Santa Fe, NM	LANL
2007	Bozeman, MT	Big Sky
2008	Albuquerque, NM	SWP
2009	Albuquerque, NM	SWP
2010	Albuquerque, NM	SWP
2011	Birmingham, AL	Southern Co.
2012	Birmingham, AL	Southern Co.
2013	Birmingham, AL	Southern Co
2014	Birmingham, AL Kemper, MS	Southern Co
2015	Birmingham, AL Kemper, MS	

- Fosters and advances education, scientific research, professional training and career networks for graduate students and young professionals
- 10-day interdisciplinary program (30 participants) combines classroom instruction with group exercises, hands-on field activities and ten field site and lab visits
- Sponsored by the U.S. DOE and CCUS Research Coordination Network; organized by Pamela Tomski (U.S. focus with some international participation)
- Partnership with Southern Company and SECARB
- 350 RECS alumni – ~50% work in CCS field; active alumni network

IEAGHG CCS Summer School

- Encourage students to consider CCS careers and build international contacts
- Organized by Tim Dixon (IEAGHG) and sponsored by a number of companies and organizations
- Targets PhD students and Post-Docs and a blend from developed and developing countries ~(50-60 participants per year)
- 7-day course on all aspects of CCS with group work, mentored student groups, social program and site visits when available; best group and best student awards.
- ~400 students representing more than 35 countries

Year	Location
2007	Kloster Seeon, Germany
2008	Vancouver Island, Canada
2009	Lorne, Australia
2010	Longyearbyen, Svalbard, Norway
2011	Champaign, Illinois, United States
2012	Beijing, China
2013	Nottingham, United Kingdom
2014	Austin, Texas, United States
2015	Perth, Western Australia, Australia



University-based Networks



UKCCSRC

Anchored at the University of Edinburgh, UK
Prof. Jon Gibbins, Director



RCN-CCUS

Anchored at Columbia University, USA
Prof. Ah-Hyung Alissa Park, Director

Why all this is important

- The academic community plays a vital role in the viability and future of CCS via activities in research (basic and applied), technology development, policy guidance, and educational programs at all levels
- Governments can strongly influence the extent to which the academic community is engaged in CCS developments and applications
- The CSLF is in a unique position to catalyze, grow, and substantially strengthen the contributions and role of the academic community in achieving CSLF goals

Next Steps

The CSLF Must Take Action

- Leadership in engaging the academic community must come from the Leadership Forum

Suggested Near-Term Steps (thru Nov. 2015)

- Review and assess current programs for international CCS research collaborations, student exchanges, summer schools, and other CCS networks.
- Where such programs do not exist, determine if CSLF countries are receptive to initiating such activities.
- Assess current funding commitments and mechanisms
- Assess resource needs for establishing and strengthening these capacity-building activities in support of CSLF objectives

Expected Outcomes

- A report delivered to the 6th CSLF Ministerial that:
 - Summarizes the findings of the program reviews and assessments outlined above.
 - Provides recommendations for enhancing international activities that can strengthen the academic community's contributions to CSLF goals.
- Followed, we hope, by sustained and productive interactions between the CSLF and the academic community

Thank You!

We stand ready to help!

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And all of our colleagues
