

G8-IEA-CSLF Workshop on Near Term Opportunities for Carbon Capture and Storage (CCS)

August 22-23, 2006

St. Regis Hotel

125 3rd Street

San Francisco, California 94103

T: 415-284-4000

Workshop Chair: **Barbara McKee**, Chair, IEA Working Party on Fossil Fuels (WPF); Director, CSLF Secretariat; Director, Office of Clean Energy Collaboration, Office of Fossil Energy, Department of Energy, United States

Vice-Chairs: **Jostein Dahl-Karlsen**, Vice Chair, IEA Working Party on Fossil Fuels; Advisor, Ministry of Petroleum, Norway
Brian Morris, Vice Chair, IEA Working Party on Fossil Fuels; Head Carbon Abatement Technologies Unit, Department of Trade and Industry, United Kingdom

International Organizing Committee:

Chair: Arthur Lee, CSLF Stakeholder; Principle Advisor, Global Policy and Strategy, Chevron, United States

Vice-Chairs: Jacek Podkanski, IEA Secretariat; Senior Energy Technology Specialist, IEA, Poland

Bill Reynen, Vice Chair, CSLF Technical Group; Canada Representative, IEA GHG Programme; S&T Director, Clean Electric Power Generation, Natural Resources Canada, Canada

Tuesday, August 22, 2006 - *Early Markets for CCS: Setting the Scene*

Gallery Rooms I and II, 2nd Floor

08:00 **Welcome**

Georgia Callahan, General Manager, Health Environment & Safety, Chevron, United States

08:15 **Outline of the Workshop Program and IEA-CSLF activities for the G8**

Barbara McKee, Chair, IEA Working Party on Fossil Fuels; Director, CSLF Secretariat; Director, Office of Clean Energy Collaboration, Office of Fossil Energy, Department of Energy, United States

08:35 Keynote Speech

John Ryan, Vice Chair, CSLF Policy Group; Chair, IEA Governing Board; Deputy Secretary, Department of Industry, Tourism and Resources, Australia

08:50 Oil and Gas Industry Perspective

Rhonda Zygocki, Vice President, Chevron Corporation; Chairman, International Association of Oil and Gas Producers, United States

09:05 European Perspective

Evangelos Tzimas, Scientific Officer, The Institute for Energy of the EC-Joint Research Institute Centre, The Netherlands

09:20 CSLF Technical Group Perspective

Bill Reynen, Vice Chair, CSLF Technical Group; Canada Representative, IEA GHG Programme; S&T Director, Clean Electric Power Generation, Natural Resources Canada, Canada

09:35 IEA Executive Perspective

Neil Hirst, Director, Office of Energy Technology and R&D, IEA, France

09:50 Coffee Break (*Sculpture I Foyer, 2nd Floor*)**10:20 Environmental Perspective**

Daniel Lashof, Science Director, Climate Center, Natural Resources Defense Council (NRDC), United States

10:35 Overview of Near-Term CCS Projects and Prospects

Harry Audus, General Manager, IEA Greenhouse Gas R&D Programme, United Kingdom

10:50 Coal and Power Perspectives

Michael Mudd, CEO, FutureGen Alliance; Manager, New Generation Development, American Electric Power, United States

11:10 Outlook for Early Markets: Opportunity and Challenges—Results of an IEA WPF Assessment

Pamela Tomski, Managing Partner, EnTech Strategies, LLC, United States

Breakout Sessions

** All attendees proceed to respective breakout session rooms. The 5 breakout sessions are listed below. Participant assignments to specific breakout sessions will be available at registration, as well as the specific breakout meeting room names and locations.*

11:35 Breakout Sessions- Scene Setting and Issue Framing

Session Chairs, Facilitators, Participants

Breakout Session 1: Technical Issues (*Modernist Room, 4th floor*)

Co-Chairs: **Kelly Thambimuthu**, Chairman, IEA Greenhouse Gas R&D Program; Chief Executive Officer, Centre for Low Emission Technology, Australia

Victor Der, Director, Office of Clean Energy Systems, Department of Energy, United States

Facilitator: **John Cain**, Staff Engineer, Chevron, United States

Assistant Facilitator: **John Rezaian**, Vice President for Advanced Engineering, Princeton Energy Resources International, United States

Scene Setting: **Howard Herzog**, Principle Research Engineer, MIT, United States

Svend Søyland, Washington, DC Representative, Bellona, United States

Nick Otter, Director of Technology & External Affairs, Alstom, United Kingdom

Breakout Session 2: Commercial/Financial Issues (*Impressionist I Room, 4th floor*)

Co-Chairs: **Bill Spence**, Vice President CO2, Shell International Renewables, The Netherlands

James Slutz, Deputy Assistant Secretary, Office of Oil & Gas, Department of Energy, United States

Facilitator: **Jeffrey Price**, Managing Partner, Bluewave Resources, LLC, United States

Assistant Facilitator: **Dewey McLemore**, Venture Assessment Manager, Chevron, United States

Scene Setting: **Stephen Kaufman**, Director, Business Development, Natural Gas and Renewable Energy, Suncor Energy Inc., United States

Vello A. Kuuskraa, President, Advanced Resources International, Inc., United States

Alice LeBlanc, Director, Office of Environment and Climate Change AIG Corporate Affairs, United States

Breakout Session 3: Legal and Regulatory Issues (*Collections I Room, 3rd floor*)

Co-Chairs: **Hartmut Schneider**, Deputy Director, General Energy Policy IEU, IEA, Federal Ministry of Economics and Technology, Germany

Arthur Lee, CSLF Stakeholder; Principle Advisor, Global Policy and Strategy, Chevron, United States

Facilitator: **Jacek Podkanski**, IEA Secretariat; Senior Energy Technology Specialist, IEA, Poland

Assistant Facilitator: **Gemma Heddle**, Environmental Engineer, Chevron, United States

Scene Setting: **John Campbell**, Technical Director, International

Draft

Draft

Draft

9/18/2006 3:44:11 PM

Association of Oil & Gas Producers, United Kingdom
Tim Dixon, Cleaner Fossil Fuels Unit, Department of
Trade and Industry, United Kingdom
Kevin Bliss, Washington Representative, Interstate Oil and
Gas Compact Commission, United States

Breakout Session 4: Public Awareness (*Muse Boardroom, 3rd floor*)

Co-Chairs: **Philippe Lacour-Gayet**, Vice President & Chief Scientist,
Schlumberger, United States

Milton Catelin, Chief Executive, World Coal Institute,
United Kingdom

Facilitator: **Nancy Mohn**, Director, Marketing Strategy, Alstom,
United States

Assistant Facilitator: **Brian Ricketts**, Energy Analyst - Coal,
International Energy Agency, France

Scene Setting: **David Reiner**, Lecturer in Technology Policy, Cambridge
University, United Kingdom

Anne-Marie Thompson, Program Manager, CO2 Storage,
CANMET Energy Technology Centre (CETC), Canada

Breakout Session 5: International Mechanisms (*Collections II Room, 3rd floor*)

Co-Chair: **Alex Zapantis**, Manager, Energy & Sustainable
Development, Rio Tinto, Australia

Ian Hayhow, Chief, Supply Analysis and Modeling Team,
Energy Policy Sector, Natural Resources Canada, Canada

Facilitator: **Andrew Mingst**, Carbon Markets Manager, Chevron,
United States

Assistant Facilitator: **Debra Justus**, Senior Energy Analyst,
International Energy Agency, France

Scene Setting: **Junhui Wu**, Sector Manager, Office for East Asia and
Pacific Region, World Bank, United States

Paul Zakkour, Senior Consultant, Energy & Climate
Change, ERM, United Kingdom

12:10 **Lunch** (*Gallery Rooms I and II, 2nd Floor*)

13:00 **Breakout Sessions - Issues Raising and Prioritization**

Breakout Session 1: Technical Issues (*Modernist Room, 4th floor*)

Breakout Session 2: Commercial/Financial Issues (*Impressionist I, 4th floor*)

Breakout Session 3: Legal and Regulatory Issues (*Collections I, 3rd floor*)

Scene Setting: **Shona Butler**, Senior Policy Officer, Carbon Capture and
Storage Section Resources Division, Department of
Industry Tourism and Resources, Australia

Breakout Session 4: Public Awareness (*Muse Boardroom, 3rd floor*)

Breakout Session 5: International Mechanisms (*Collections II, 3rd floor*)

Draft

Draft

Draft

9/18/2006 3:44:11 PM

Note: The Co-Chairs, Facilitators and Assistant Facilitators remain the same from the morning Breakout Sessions and throughout all Breakout Sessions on the agenda.

14:55 **Coffee Break** (*Sculpture I Foyer, 2nd Floor*)

**The remainder of today's program is plenary session in Gallery I and II Rooms on the 2nd floor.*

15:10 **Plenary Room Panel 1: Near-Term Opportunities and Emerging Economies**

Chair: **Fernando Zancan**, President, Brazilian Coal Association, Brazil

Ambassador R.S. Jassal, Deputy Chief of Mission, Embassy of India

Panelists: **Li Gao**, Deputy Director, Office of Global Environmental Affairs, Ministry of Science and Technology, China

Mariano Bauer, Senior Researcher, Instituto de Fisica-UNAM, Mexico

Bill Koppe, Development Manager, Anglo Coal, Australia

16:20 **Plenary Room Panel 2: Near-Term Opportunities and Developed Economies**

Chair: **Antonio Pflüger**, Head, Energy Technology Collaboration Division, IEA, France

Panelists: **Scott Imbus**, Staff Scientist, Chevron Energy, Australia
Seiichiro Nishida, Deputy Chairman, Mitsubishi UFJ Securities Co., Ltd., Japan

Brian Morris, Head Carbon Abatement Technologies Unit, Department of Trade and Industry, United Kingdom

Barry Worthington, Executive Director, United States Energy Association (USEA), United States

17:30 **Adjourn Day One**

18.00 - 19.30 **Welcome Reception** (*Conservatory Room, 4th Floor*)

Wednesday, August 23, 2006

First session for Breakout Chairs and Facilitators only

08:00 **Breakout Group - Discussion of Cross-Cutting Issues**

(Gallery Rooms I and II, 2nd Floor)

Chair: **Bill Reynen**, Vice Chair, CSLF Technical Group; Canada Representative, IEA GHG Programme; S&T Director, Clean Electric Power Generation, Natural Resources Canada, Canada

Facilitator: **Ian Torrens**, Consultant, IMT Consulting, United States

08:50 **Breakout Sessions - Discussion of Issues Raised**

Breakout Session 1: Technical Issues (*Modernist Room, 4th floor*)
Breakout Session 2: Commercial/Financial Issues (*Impressionist I, 4th floor*)
Breakout Session 3: Legal and Regulatory Issues (*Collections I, 3rd floor*)
Breakout Session 4: Public Awareness (*Muse Boardroom, 3rd floor*)
Breakout Session 5: International Mechanisms (*Collections II, 3rd floor*)

Note: The Co-Chairs, Facilitators and Assistant Facilitators remain the same throughout all Breakout Sessions on the agenda.

10:30 **Coffee Break**

10:45 **Breakout Sessions - Bridging to the Next Workshop**

Breakout Session 1: Technical Issues (*Modernist Room, 4th floor*)
Breakout Session 2: Commercial/Financial Issues (*Impressionist I, 4th floor*)
Breakout Session 3: Legal and Regulatory Issues (*Collections I, 3rd floor*)
Breakout Session 4: Public Awareness (*Muse Boardroom, 3rd floor*)
Breakout Session 5: International Mechanisms (*Collections II, 3rd floor*)

Note: The Co-Chairs, Facilitators and Assistant Facilitators remain the same throughout all Breakout Sessions on the agenda.

12:15 **Lunch** (*Conservatory Room, 4th Floor*)

The Role that Carbon Capture and Storage Will Play for Fossil Fuels and Sustainable Development: Perspective from the Coal Industry

Preston Chiaro, Chief Executive Energy, Rio Tinto PLC; Chairman, Coal Industry Advisory Board (CIAB), Australia

Plenary Panel Discussion (*Gallery Rooms I and II, 2nd Floor*)

14:00 **Reports from the Breakout Group Chairs**

Chair: **Barbara McKee**, Chair, IEA Working Party on Fossil Fuels; Director, CSLF Secretariat; Director, Office of Clean Energy Collaboration, Office of Fossil Energy, Department of Energy, United States

Panelists: Breakout Session Co-Chairs

15:15 **Coffee Break** (*Sculpture I Foyer, 2nd Floor*)

15:30 **Panel Discussion: Conclusions, Key Issues and Tasks for the Following Workshops**

Chair: **Trude Sundset**, Chair, CSLF Technical Group; Chief Researcher, Statoil ASA, Norway

Panelists: **Jostein Dahl Karlsen**, Vice Chair, IEA Working Party on Fossil Fuels; Advisor, Ministry of Petroleum, Norway
Arthur Lee, CSLF Stakeholder; Principle Advisor, Global Policy and Strategy, Chevron, United States
Barbara McKee, Chair, IEA Working Party on Fossil

Draft

Draft

Draft

9/18/2006 3:44:11 PM

Fuels; Director, CSLF Secretariat; Director, Office of Clean Energy Collaboration, Office of Fossil Energy, Department of Energy, United States

Brian Morris, Vice Chair, IEA Working Party on Fossil Fuels; Head Carbon Abatement Technologies Unit, Department of Trade and Industry, United Kingdom

Jacek Podkanski, IEA Secretariat; Senior Energy Technology Specialist, IEA, Poland

Bill Reynen, Vice Chair, CSLF Technical Group; Canada Representative, IEA GHG Programme; S&T Director, Clean Electric Power Generation, Natural Resources Canada, Canada

17:00 **Concluding Remarks**

Jeffrey D. Jarrett, Chair, CSLF Policy Group; Assistant Secretary, Fossil Energy, Department of Energy, United States

17:15 **Adjourn**