

International Energy Forum – Global CCS Institute Symposium on Carbon Capture and Storage

Hosted by the Ministry of Energy and Mines, Algeria.
31 May – 01 June 2010, Hotel El Aurassi, Algiers, Algeria

Carbon Capture and Storage Current Perspectives

John Panek
Deputy Director
CSLF Secretariat



We Have a Global Problem



- An international effort is needed
- Solutions require unprecedented level of technical, political and scientific cooperation



Major Operating Projects

- Three large-scale CO₂ storage projects (Sleipner, Weyburn, In Salah) — injecting 1–3 million tons annually — have operated for several years



Sleipner ▲



Weyburn ▲



In Salah ▲



Key Issues

- Capture
- Compression
- Transport
- Storage
- Monitoring
- Legal and Regulatory
- Public Acceptance



CCS Framework

A legal and regulatory framework specifically for CCS is under development in some countries

- Effective regulatory development process in individual countries needed for successful CCS implementation

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Mission

An international initiative focused on improved cost-effective technologies for the separation and capture of carbon dioxide for its transport and long-term safe storage.

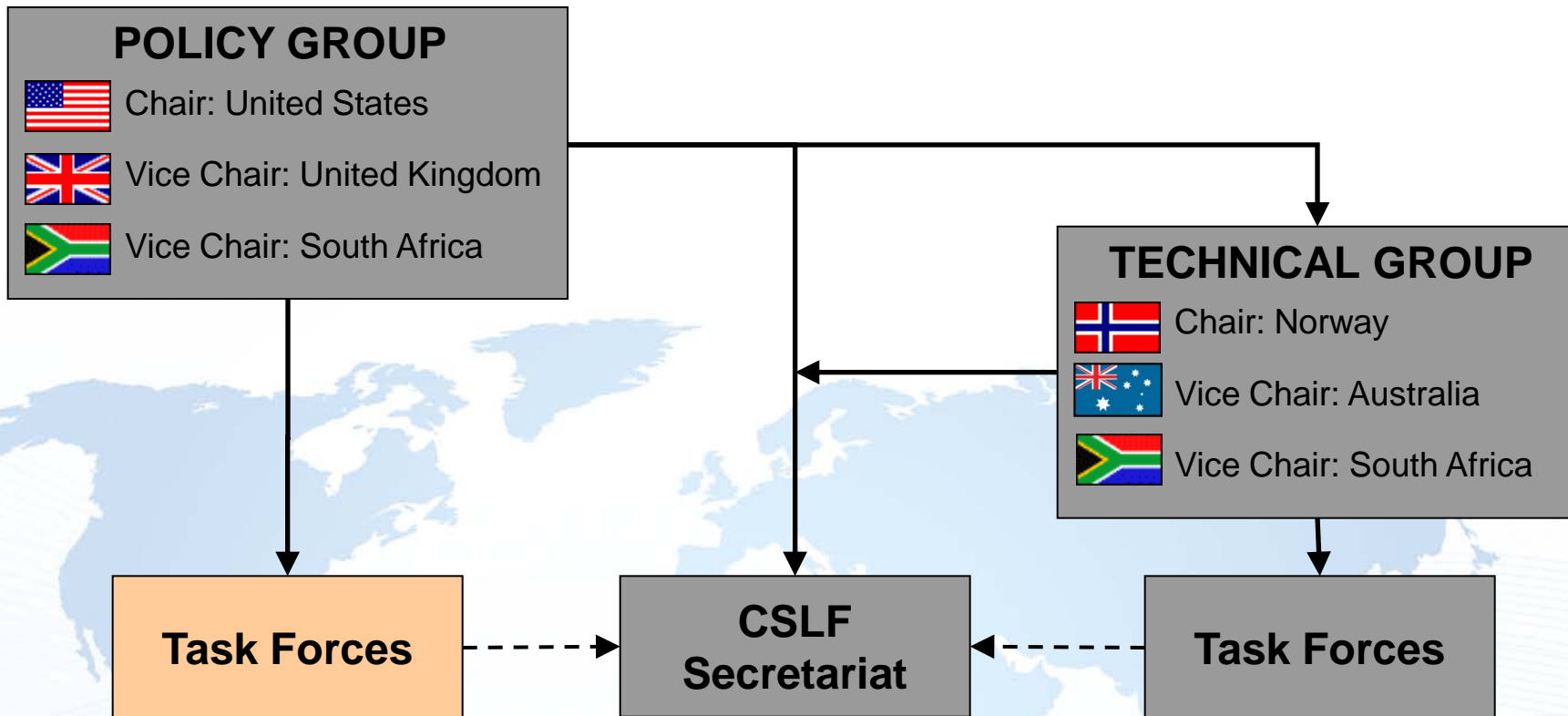
Purpose

Make technologies broadly available internationally;

Identify and address wider issues

24 members





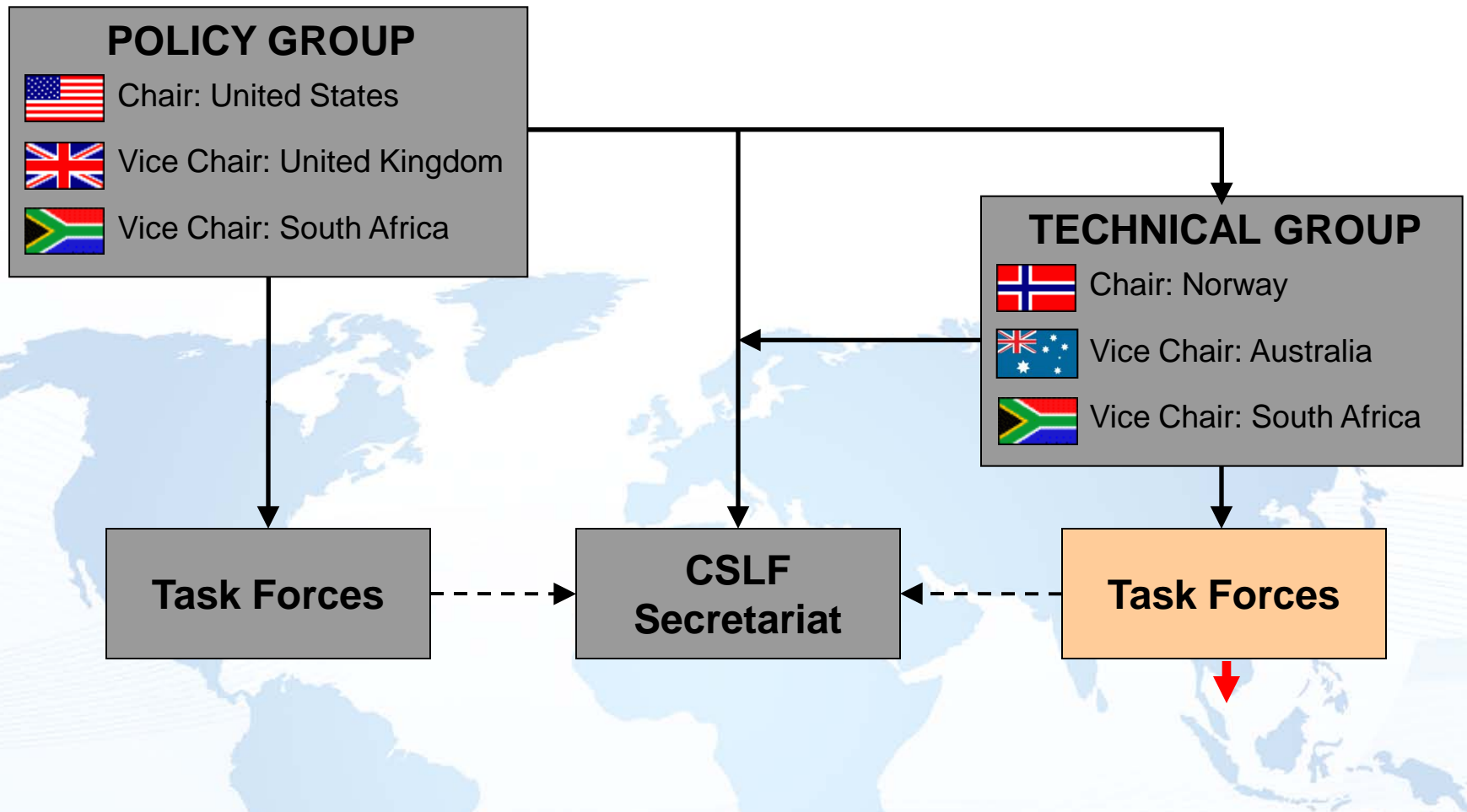
CSLF Policy Group Governs Overall Framework and Policies of CSLF

- **Financing Carbon Capture and Storage (CCS) Task Force** (France chair)
- **Communications Task Force** (United States chair)
- **Capacity Building Task Force** (Saudi Arabia chair)



Policy Group

- Capacity Building Task Force
 - Six Capacity Building Workshops
 - Expanded global CCS Capacity Building Initiative
- Communications Task Force
- Financing CCS Task Force



CSLF Technical Group Reviews Progress of Collaborative Projects and Identifies Promising Directions for Research

- **Projects Interaction and Review Team** (Australia chair)
- **Risk Assessment Task Force** (United States chair)
- **CCS in Academic Community Task Force** (Brazil chair)



Technical Group

- Projects Interaction and Review Team (PIRT)
- Risk Assessment Task Force
 - Working Group on Safety and Integrity
- Formation of New Task Force for Assessing Progress on Closing the Gaps
 - Capture Technologies
 - Transport and Infrastructure
 - Storage
 - Integration



Involvement of Stakeholders

We affirm that the development and deployment of CCS requires the active involvement of stakeholders, including business and civil society.

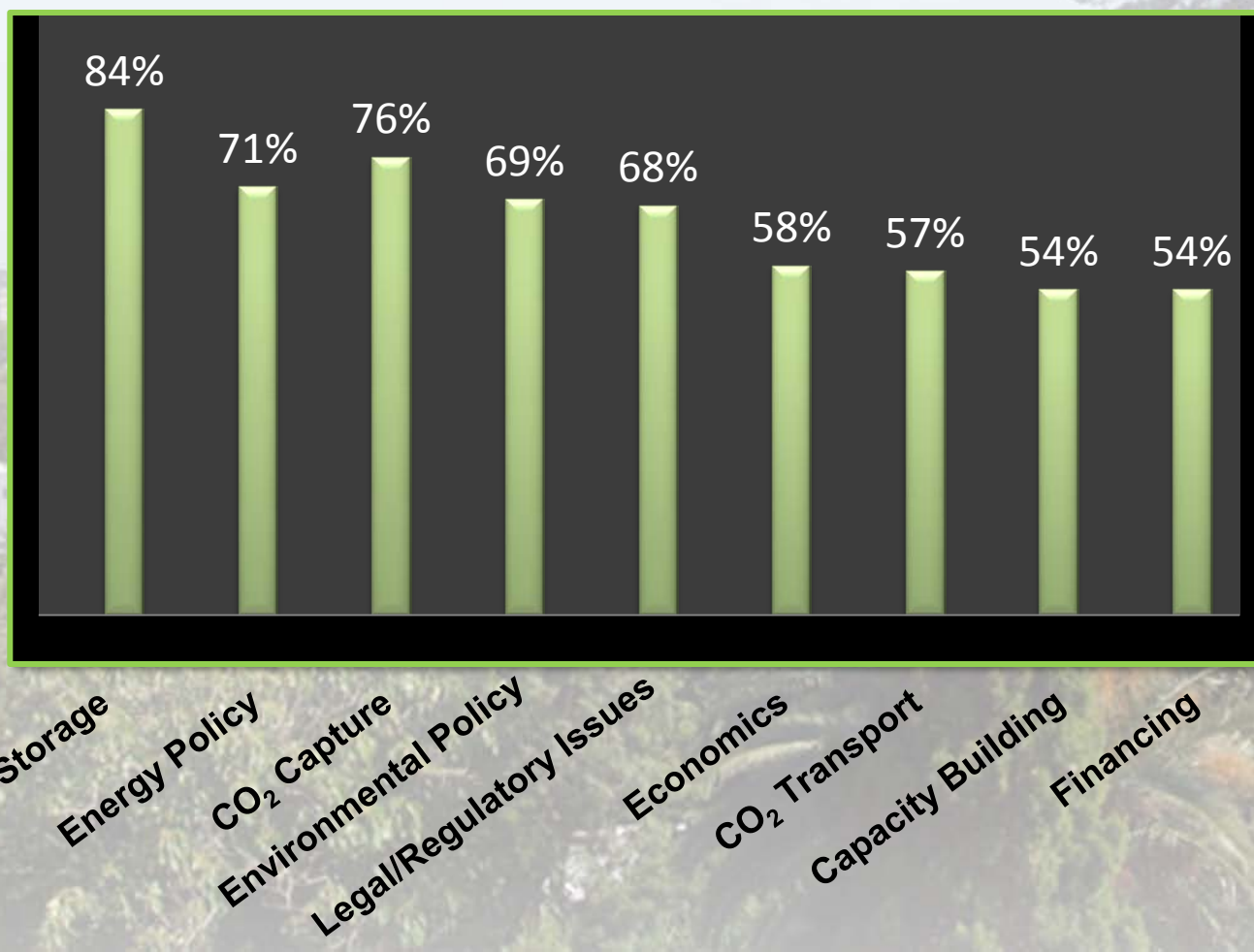


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268 CSLF Stakeholders



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CSLF Mission

“Facilitate the development and deployment of CCS technologies via collaborative efforts that address key technical, economic and environmental obstacles”



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London Ministerial Meeting — Energy Ministers





London Ministerial Meeting

Key areas of work to be taken forward by the CSLF Policy and Technical Groups

- Development of business models for commercial CCS
- Knowledge sharing principles
- Implementation of a capacity building program for developing country members



Major Ongoing CSLF Activities

- Recommendation to G8: CO₂ capture and storage with at least 20 integrated industrial-scale projects;
- Take concerted international action to accelerate the development and deployment of CCS;
- Address the financial gap and risks facing early CCS projects;
- Establish legal and regulatory frameworks for CCS; and
- Raise public education and awareness of CCS.



Major Ongoing CSLF Activities

- Expanded global CCS capacity building initiative
- Develop Technical Group action plan
- CSLF Incentives Registry
- Coordination with other international organizations
 - Asian Development Bank
 - The Global Carbon Capture and Storage Institute
 - International Energy Agency
 - World Bank



Recent Events

- 01-03 February – CSLF PIRT Working Session Meeting in Canberra, Australia
- 05 February – CSLF PIRT Visit to the CO2CRC Otway Project
- 11 March – CSLF “CCS Ready” Definition Meeting in Ottawa, Canada
- 15-16 March – CSLF Technical Group Meeting in Pau, France
- 17 March – CSLF Technical Group Visit to the Lacq Integrated CCS Project
- 06 April – CSLF Financing CCS Task Force Financing Roundtable in Washington, D.C., United States
- 15-16 April – CSLF Secretariat Participation in a Peer Review Workshop in Genoa, Italy

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CSLF Projects PIRT

CSLF PIRT Meeting
Canberra, Australia
February 1–3, 2010
Hosted by Geoscience Australia



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CSLF Projects
Interaction
Review Team
(PIRT) Working
Session visit to
the CO2CRC
Otway Project

Canberra, Australia

05 February 2010



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CSLF Projects Interaction
Review Team (PIRT)

Working Session at the CO2CRC
Otway Project Canberra,
Australia

05 February 2010

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CSLF Technical Group Meeting
Pau, France ■ 15-17 March 2010



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CSLF Technical Group at the
Lacq Integrated CCS Project ■ 17 March 2010



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A Global Response to the Challenge of Climate Change



The Carbon Sequestration Leadership Forum is an international initiative to develop affordable technologies to separate and securely store carbon dioxide produced by energy facilities, and reduce its potential impacts on global climate change.



[Meetings/Workshops](#)
[Projects](#)
[Publications](#)
[Press Room](#)

...and in the News

May 5, 2010 (United States)
The U.S. Interagency Task Force on Carbon Capture and Storage will host a public meeting on May 6. The meeting will give the public the opportunity to provide ideas for moving forward with carbon capture and storage projects. [More](#)

May 4, 2010 (United Kingdom)
Detailed work on six continents has convinced hundreds of impartial geoscientists that massive capacity for CO₂ storage exists. The UK is especially fortunate as rocks similar to those which host our oil are anticipated to store 100 years of CO₂ from all north-west Europe's power plants. [More](#)

Upcoming Events

ACT's 4th Annual Carbon Capture and Storage Summit
Washington, DC, USA
September 29-30, 2010
[Learn More](#)

Quick Links

- [Get CSLF E-Updates](#)
- [Become a Stakeholder](#)



Key to Success For CCS Deployment

The level of success achieved in finding a solution will likely correspond to how well the international community cooperates on a technical, scientific, and political basis.

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Thank You

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Back Up Slides





Targets Propel Urgency

Example

- **G-8:** “20 in 2020” and reduce emissions 80 percent from 1990 levels by 2050





CSLF Snapshot

- Formed in 2003; Ministerial-level initiative
- 24 members, including European Commission; nations in every stage of economic development
- 268 Stakeholders
- Member countries represent approximately 75 percent of world energy consumption and CO₂ emissions
- Focused on development of improved, cost-effective technologies for separating and capturing, transporting, and long-term CO₂ storage



CSLF Initiatives

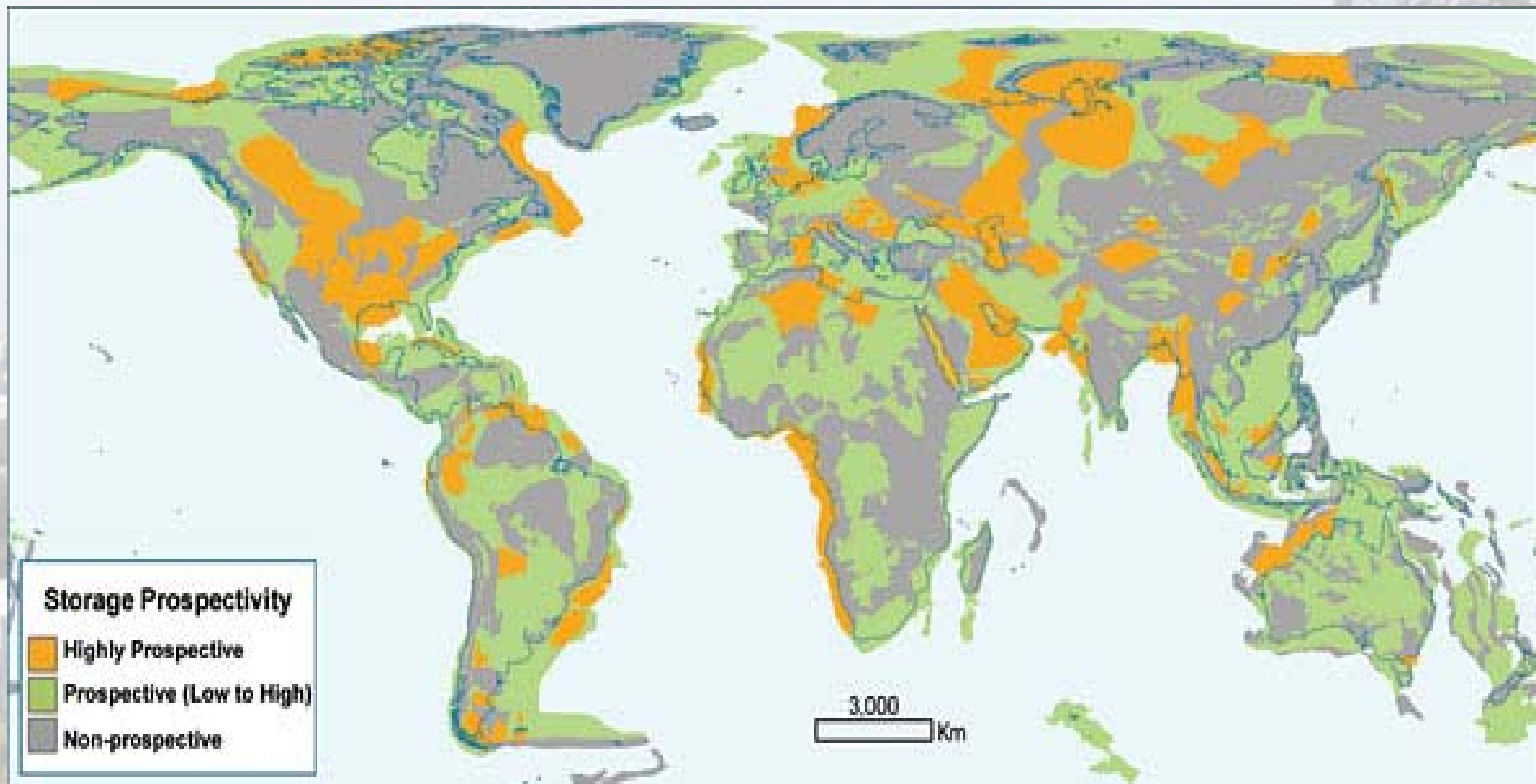
- Forum members committing billions of dollars to CCS technology and demonstration projects.
- Formally recognized 30 demonstrations around the world.

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Potential Global Storage Capacity

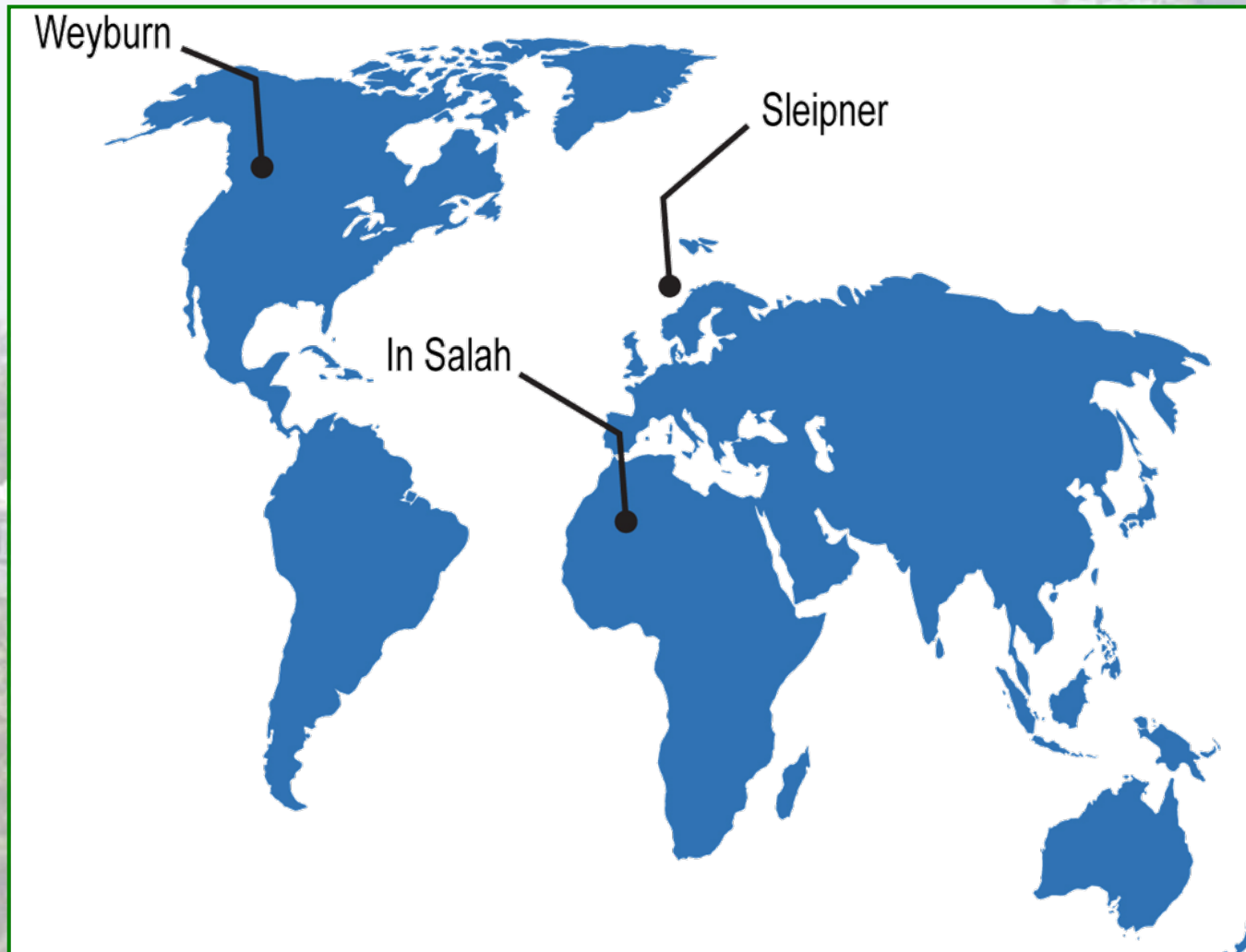


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Majoring Operating Projects



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1st Capacity Building Workshop



Pittsburgh, PA May 7–11, 2007

- Sequestration in coal seams
- *Large-Scale Commercial Deployment of CCS*
- *CO₂ Storage in Geological Media*
- *MMV*
- *Capture Technologies and Costs*

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2nd Capacity Building Workshop

Porto Alegre, Brazil
October 18–19, 2007



- Legal and Regulatory Aspects of CCS
- CCS Safety and Analogues
- Sustainable Oil and Gas Production
- CO₂ Storage in Saline Reservoirs
- CO₂ Well Integrity and Wellbore Monitoring
- Understanding Risks
- Source-Sink Matching

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3rd Capacity Building Workshop



**Al Khobar, Saudi Arabia
January 27–29, 2008**



- **Storage of CO₂ in oil and gas reservoirs**
- **Technology Roadmaps**
- **Legal, regulatory and risk issues**
- **The needs of emerging economy countries**

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4th Capacity Building Workshop



ptura de CO₂ (CCS)
julio del 2008
de la CFE

- Identification and quantification of capacity of CO₂ storage sites
- Enhanced oil recovery using CO₂
- PEMEX experience in CO₂ injection
- Development of a Framework for a Proposed CCS Action Road Map in Mexico
- Scenarios for electrical power generation and CO₂ emissions in Mexico for year 2050
- Technologies for CO₂ emissions reduction

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5th Capacity Building Workshop

Salvador, Brazil
Sept. 8–19, 2008



- Why CCS?
- Why CCS in Brazil?
- Carbon Capture
- Legal Frameworks to Enable CCS in Offshore Waters
- An Quick Overview of CCS Projects Around the World
- Stakeholder Integration and Involvement
- Measurement, Monitoring and Verification (MMV) of CCS Projects
- Risk Analysis — Geologic and Policy Issues

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6th Capacity Building Workshop

Washington, USA, Nov. 16–20, 2008



- Financing the First CCS projects
- Getting Large-Scale Geological Sequestration Projects Started: What Does it Take?
- CCS Legal & Regulatory Developments: A Global Round-up
- The Role of CCS in the EU
- International Marine Regulation of CO₂ Geological Storage
- The EU Enabling Legal Framework for Carbon Capture and Geological Storage
- Informed Public Opinion on CCS
- Designing and Implementing Regulatory Frameworks



TRANSPORT

Pipelines for the transport of CO₂

- Most existing CO₂-dedicated pipelines (about 4,000 miles) located in western U.S.
- Pipeline-supplied CO₂ for EOR used since the 1970s



▲ CO₂ pipeline at Great Plains Coal Gasification Plant in Beulah, North Dakota, USA