Towards a Sustainable 21st Century: International Activities of the DOE Office of Fossil Energy

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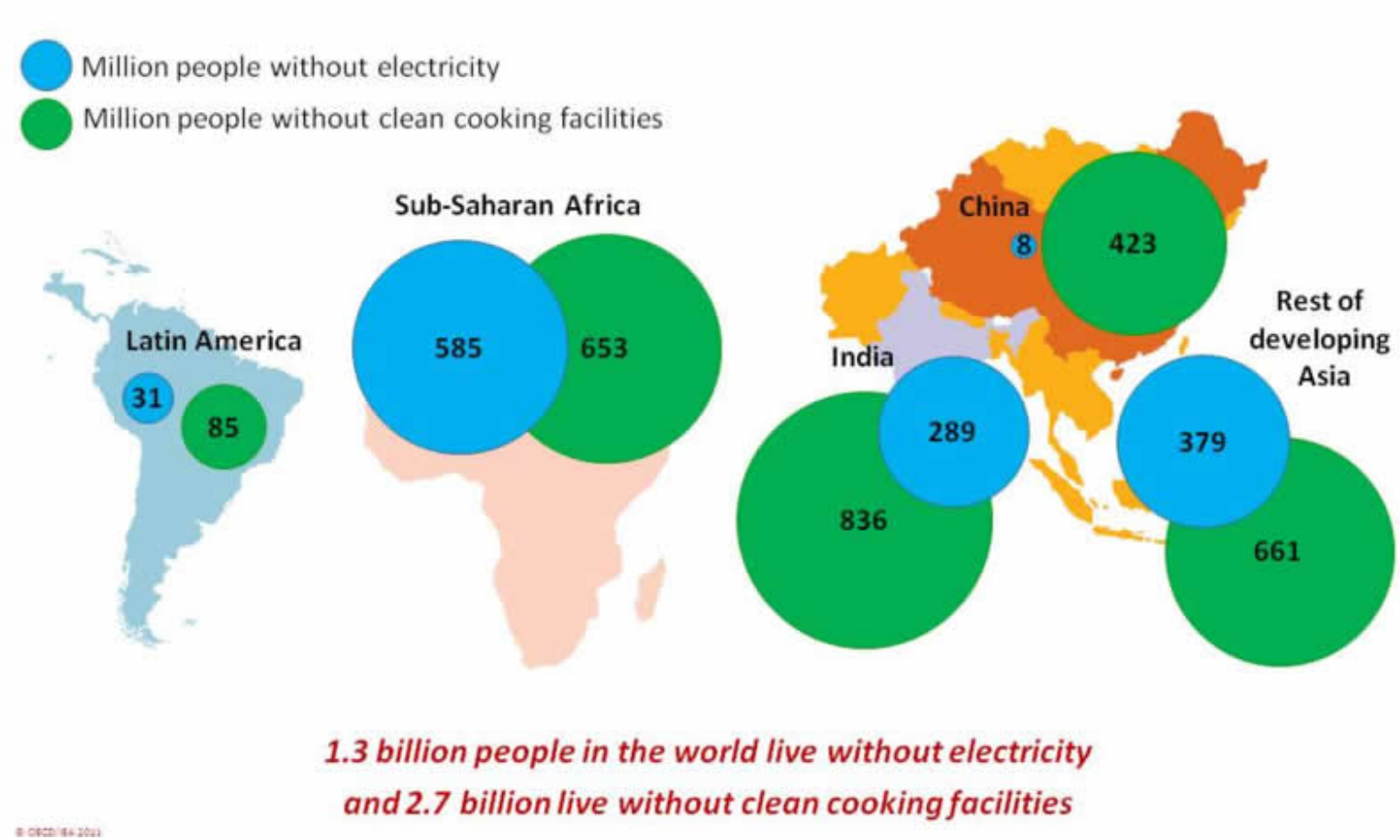
Global Energy Trends

The Past 10 Years…

World population	+12%
Primary energy consumption	+20%
CO_2 emissions	+30%
Fossil energy consumption	+21%
Coal consumption	+35%
Electricity consumption	+32%

Energy poverty is widespread.



The DOE Fossil Energy Program includes:

- Oil & Gas Technology R&D
- Clean Coal Technology R&D
- Strategic Petroleum Reserves
- National Energy Technology Laboratory (NETL)

Each has international implications.

International collaboration is critical.

Collaboration = Investment

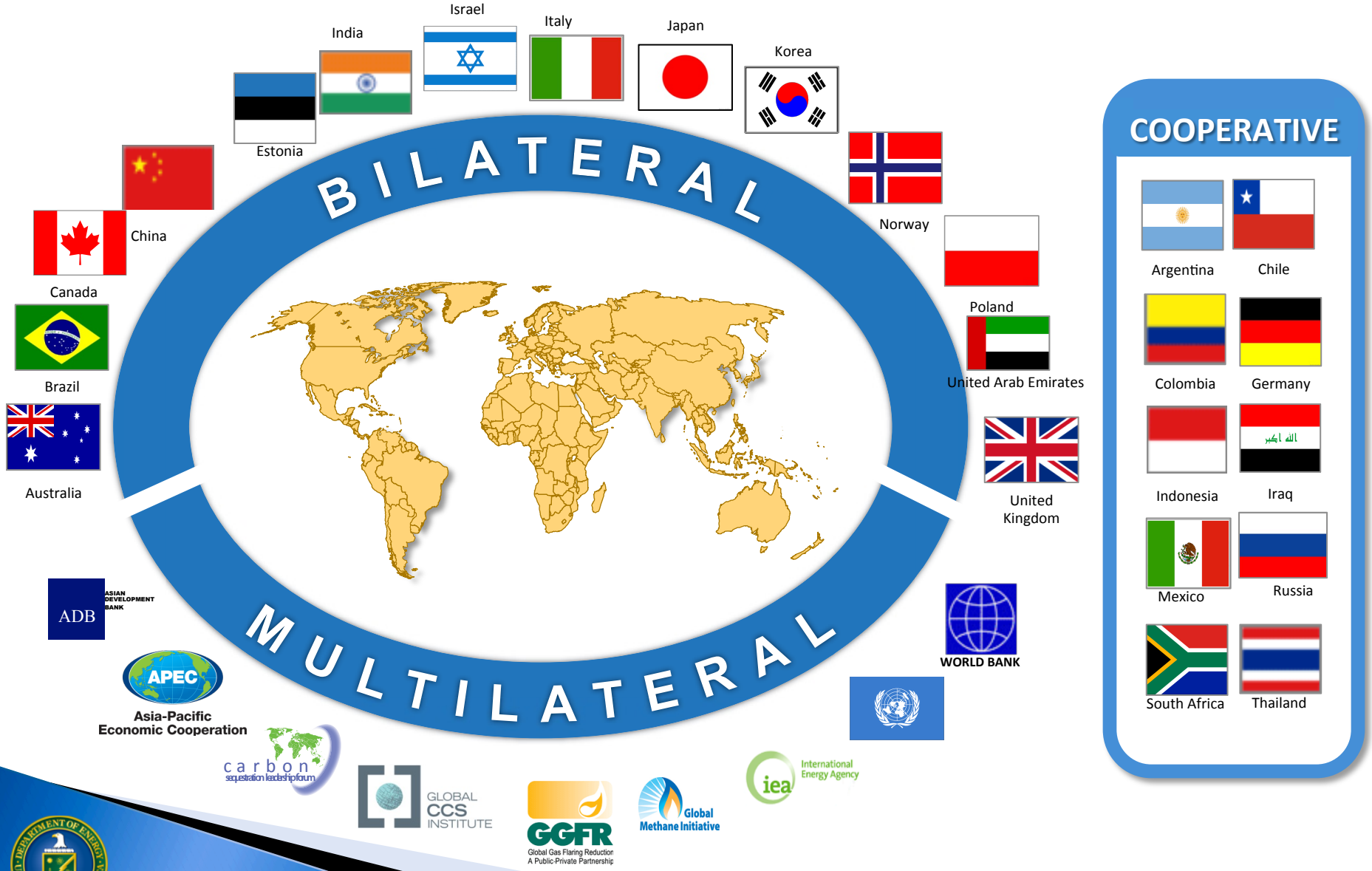
International Collaboration Objectives

Accelerating Clean Fossil Energy Technologies Challenges

Addressing Common Energy

- Carbon Capture Utilization and Storage
- Shale Gas
- Demonstration Projects
- Technology R&D
- Offshore Oil & Gas Safety
- Gas Flaring
- International Capacity Building
- Strategic Petroleum Reserves

FE International Activities



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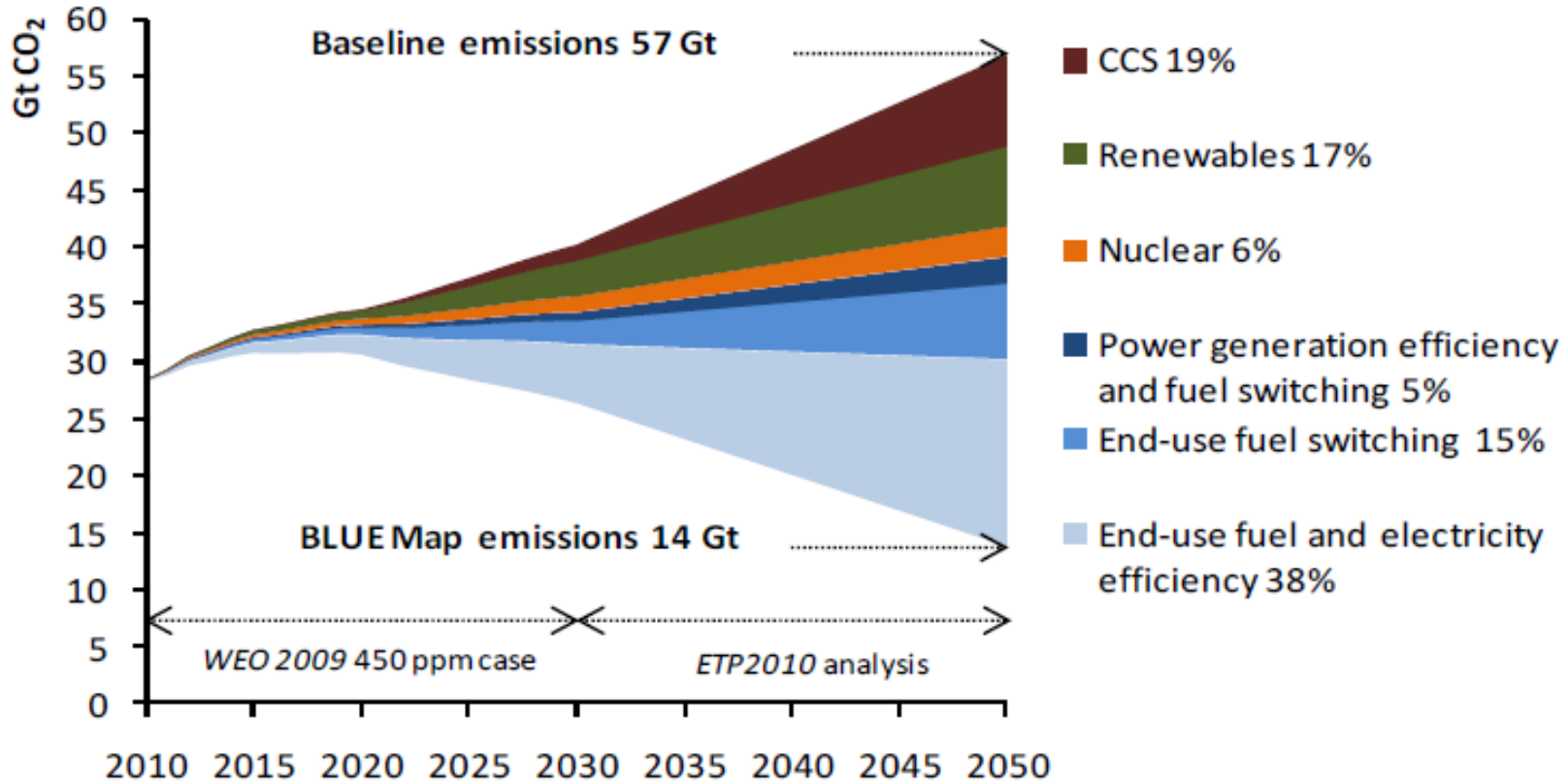
Carbon Capture and Utilization & Storage (CCUS)

A Critical Technology

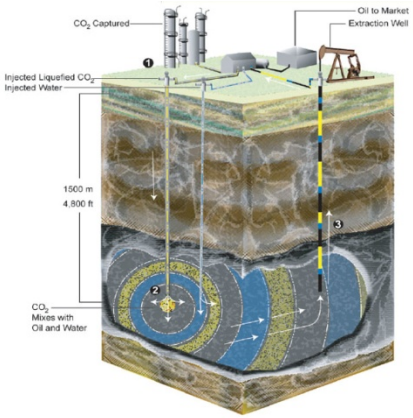


Sources: International Energy Agency, "Energy Technology Perspectives 2010," Paris, June 2010

Utilization: Moving from CCS to CCUS

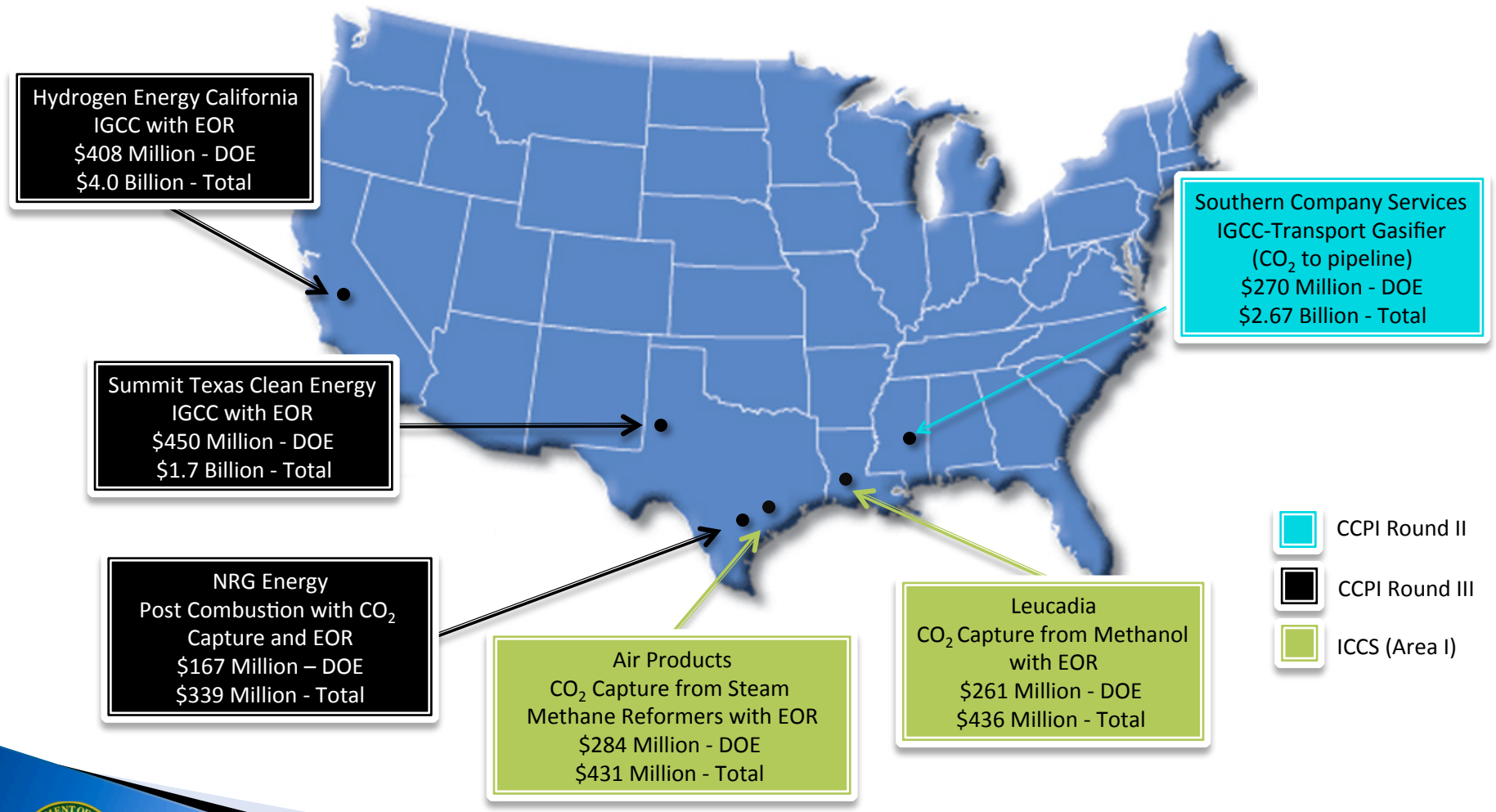
Enhanced Oil Recovery (EOR)

EOR in Saskatchewan, Canada



Capture at Great Plains Gasification Plant, ND, USA

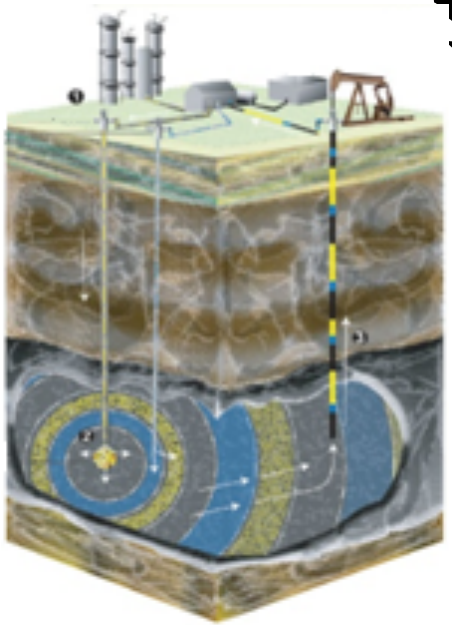
Major CO_2-EOR U.S. Demonstrations



Global interest in CO_2-EOR is increasing.

China

Mexico

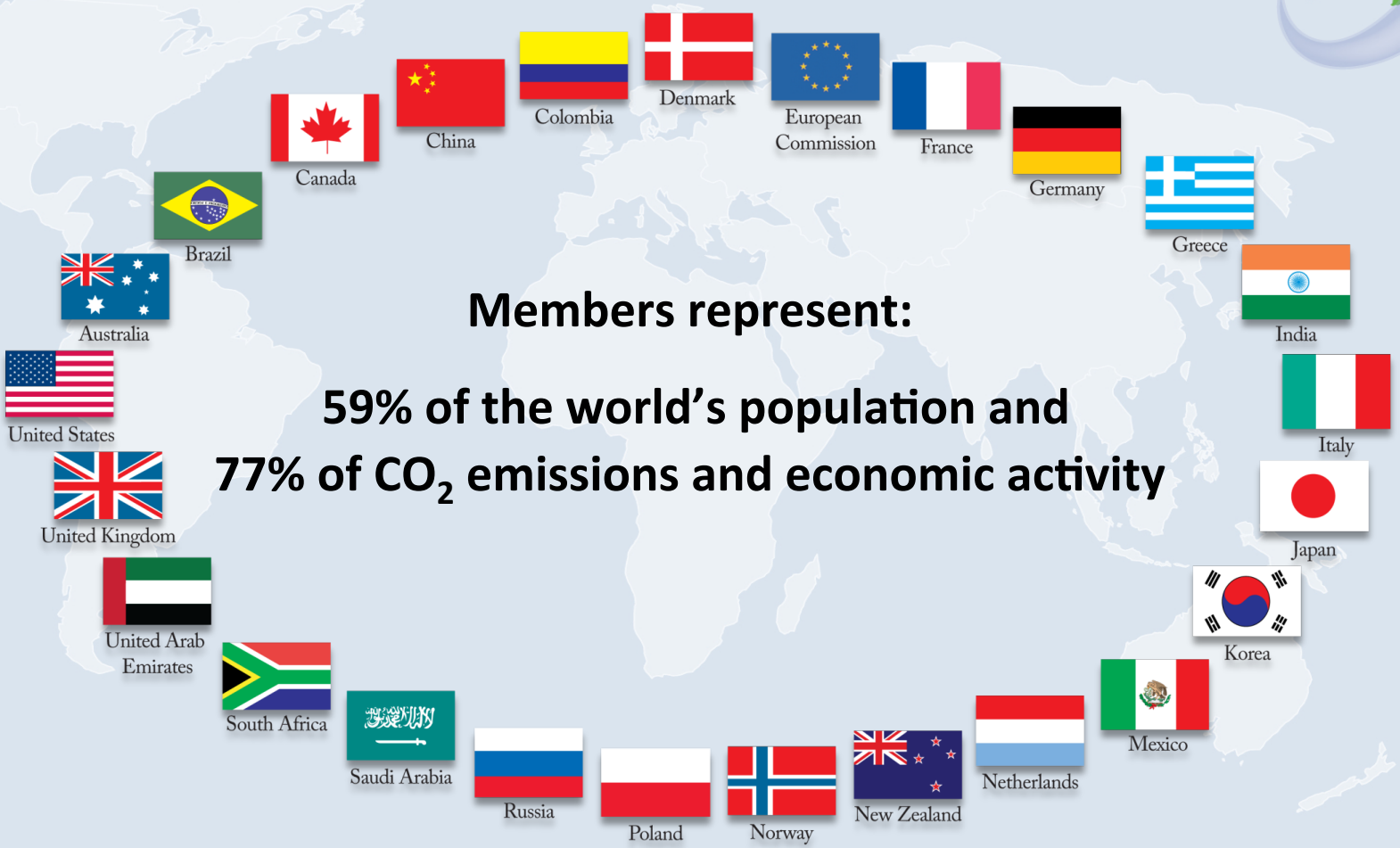


Middle East

Europe

Carbon Sequestration Leadership Forum

www.cslforum.org

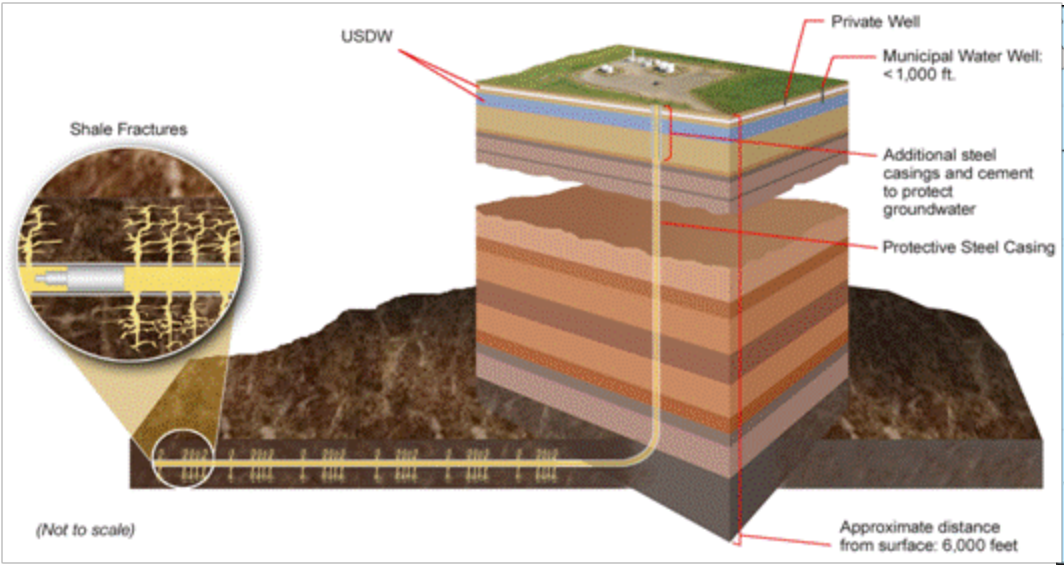


Members represent:

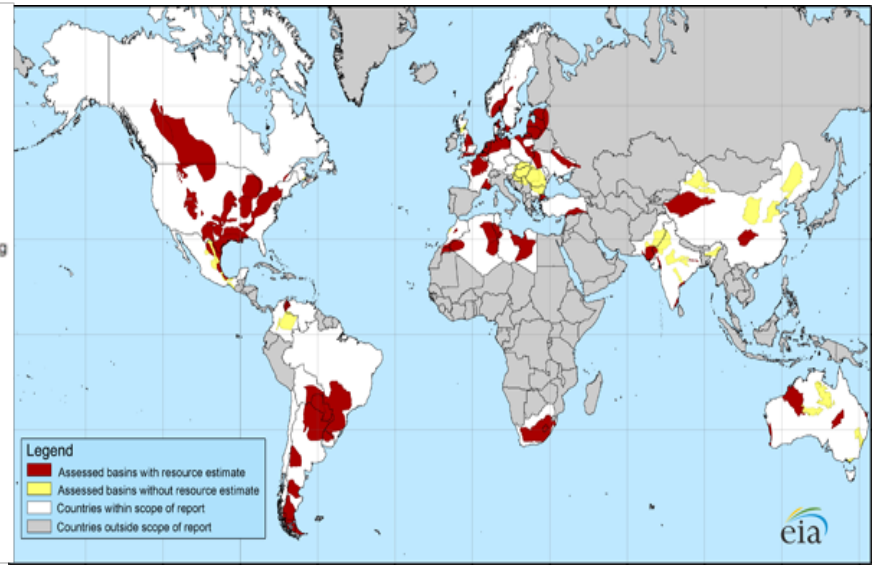
59% of the world's population and

77% of CO_2 emissions and economic activity

Unconventional Gas: The Shale Revolution



Source: National Energy Technology Laboratory



Source: Energy Information Administration

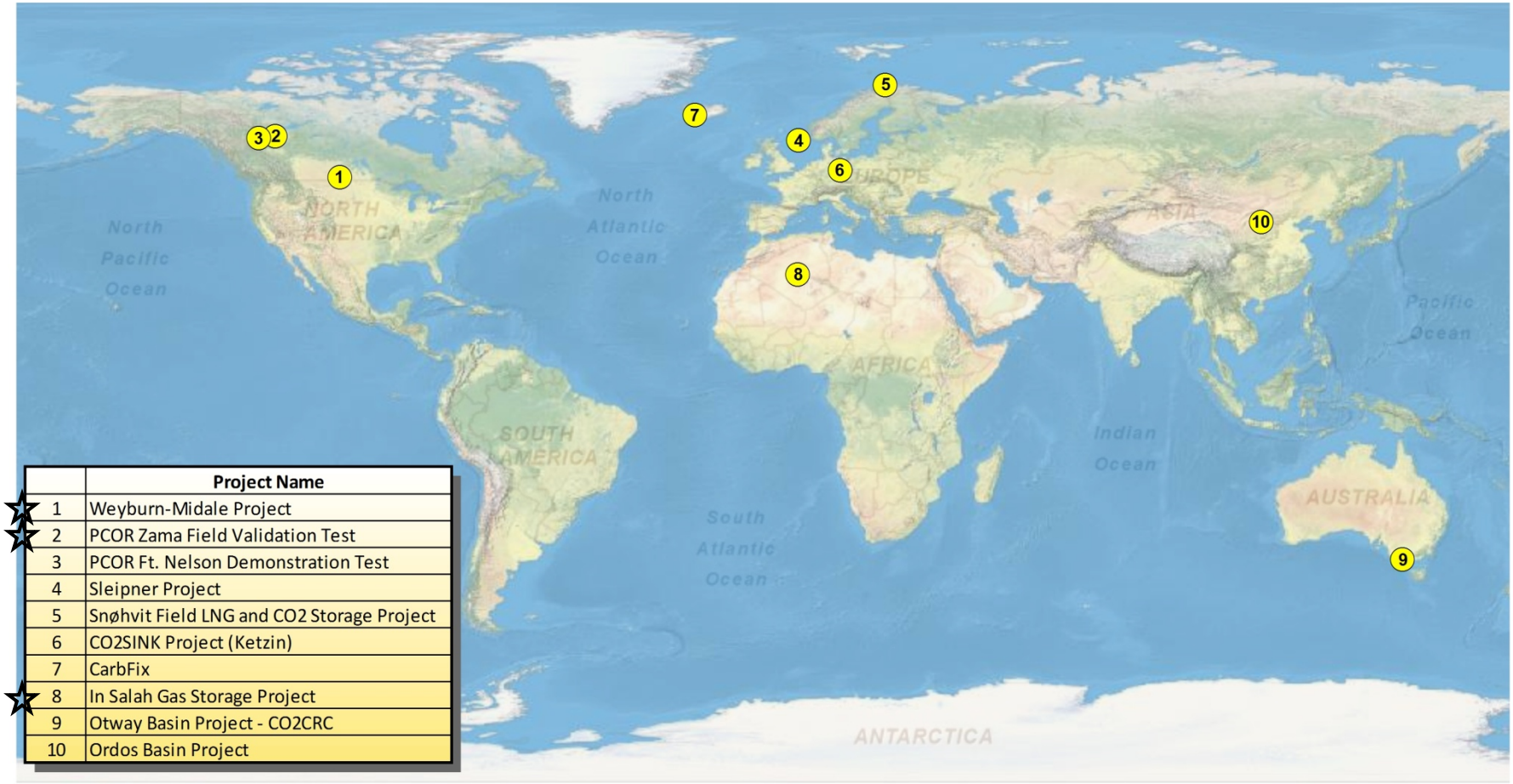
On the Cutting Edge – Around the World

DOE Experts Support International Activities

- ***Weyburn-Midale Project (Canada)***
- ***In Salah Gas Field (Algeria)***
- ***Coal Bed Methane Workshops (China)***
- ***IEA and WEC Shale Gas Workshops (Poland)***

Global Project Collaborations

Leveraging International Geologic Storage R&D Projects



	Project Name
☆ 1	Weyburn-Midale Project
☆ 2	PCOR Zama Field Validation Test
3	PCOR Ft. Nelson Demonstration Test
4	Sleipner Project
5	Snøhvit Field LNG and CO2 Storage Project
6	CO2SINK Project (Ketzin)
7	CarbFix
☆ 8	In Salah Gas Storage Project
9	Otway Basin Project - CO2CRC
10	Ordos Basin Project

☆ EOR/EGR Related International Project

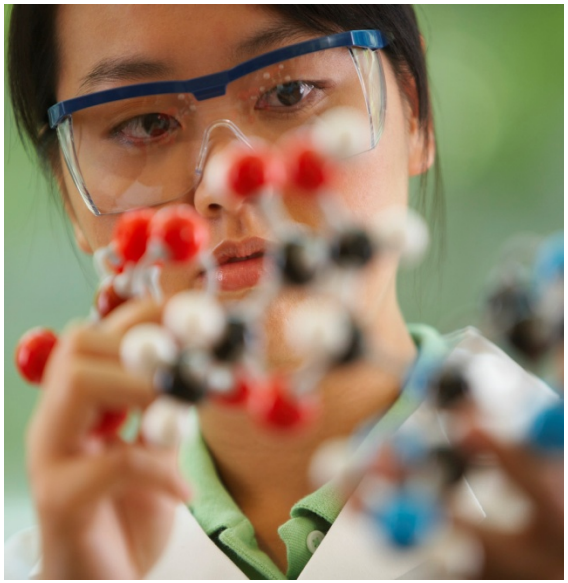
U.S Strategic Petroleum Reserve (SPR)

Current Inventory – 727M barrels

- ✓ Largest emergency oil stockpile in the world
- ✓ Coordination with other industrialized country stockpiles though IEA
- ✓ Bilateral coordination with China

Assuring energy security.

Opportunities for Foreign Direct Investment



Research and Development

Demonstration Projects

Commercial Markets