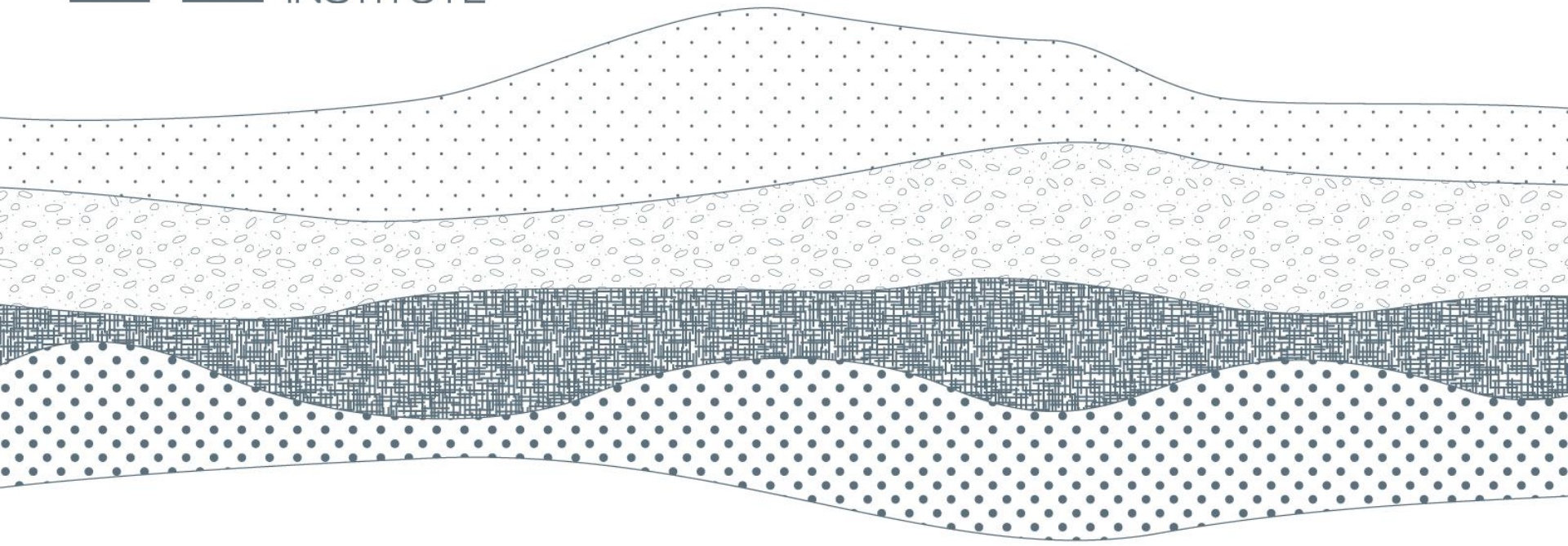


OVERVIEW OF CCUS/ENHANCED HYDROCARBON RECOVERY FRAMEWORKS IN OTHER COUNTRIES

Thomas Russial - Representative, North America

Workshop on California Opportunities for CCUS/EOR

June 27 2012

WHY CCS/CCUS MATTERS

- The 2˚ C challenge.
- Fossil fuels remain abundant and accessible, at low cost.
- Poverty alleviation.
- Energy and fuel sources security.

ABOUT THE INSTITUTE

- Mission to accelerate the development and deployment of CCS, globally.
- Member owned, not-for-profit company.
- 349 Members, internationally.
- Seed funding from the Australian Government.

INSTITUTE FOCUS

SHARING KNOWLEDGE

- collecting information to create a central repository for CCS information; and
- creating and sharing information to fill knowledge gaps and build capacity.

FACT-BASED ADVOCACY

- to inform and influence domestic and international low carbon policies; and
- raising awareness of the benefits of CCS and its role within a portfolio of low carbon technologies.

ASSISTING PROJECTS

- bridging knowledge gaps between demonstration efforts; and
- developing project-specific solutions particularly amongst early movers.

CO_2-EOR PROJECT (STUDY)

- Global CCS Institute project to:
  - Understand the drivers and potential for, and impact of, CO_2-EOR/CCS
  - Examine the 'gap' between existing regimes for EOR and nascent regulatory regimes for CCS.
  - Consider the essential characteristics of /considerations for a flexible regulatory regime – for those jurisdictions with an existing or 'anticipated' EOR industry.

- Legal and regulatory analysis nearing completion and is to be released as a part of the wider thematic study.

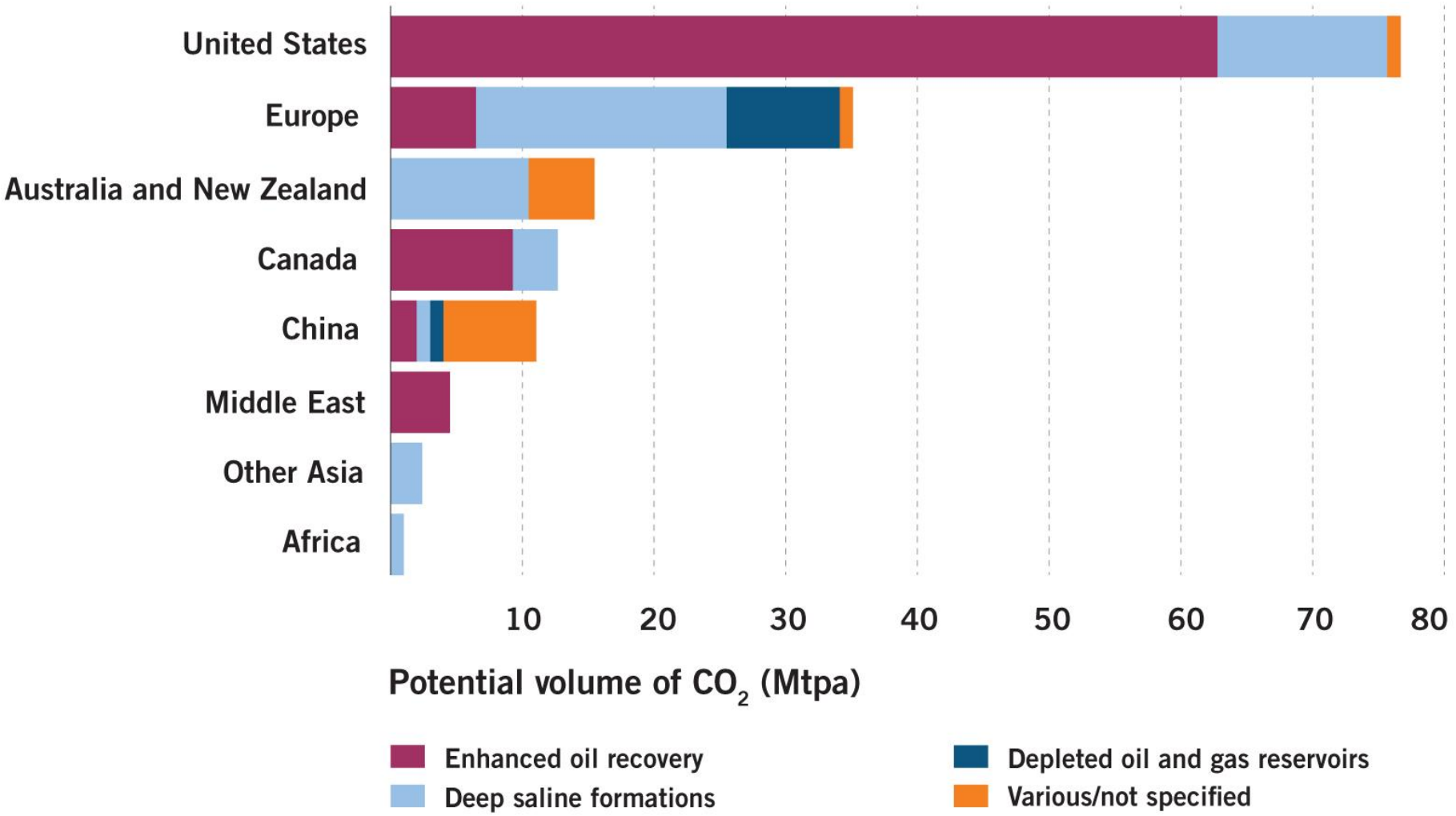
OBSERVATIONS

- Comprehensive, dedicated CCS legislation has been adopted in many jurisdictions (in EU especially; in some US states and Canadian provinces).
- Legislation is focused on emissions reduction objective (as opposed to the enhanced production through EOR).
- Legislation reflects the perceived ‘idiosyncrasies’ of full-scale storage (e.g. standards for site permitting, MMV, and long-term liability and post-closure stewardship funding) as well as institutional responsibilities.

OBSERVATIONS CONTINUED

- Elements of established EOR regimes are similar to those being developed for CCS – although clear distinctions remain.
- Storage in EOR is incidental to oil production and exact quantities stored not traditionally measured or verified.
- Some storage legislation/regulation anticipates role for EOR and the potential transition (US and EU) but significant issues remain to be addressed.

REGIONAL BIAS TOWARDS STORAGE SELECTION



EUROPEAN UNION

- EU Storage Directive establishes a comprehensive legal and regulatory framework, which:
  - removes CO_2 storage from waste legislation;
  - requires captured CO_2 to be permanently stored;
  - establishes a regulatory regime for long-term liability and stewardship; and
  - pipeline access and capacity expansion rules designed to ensure access, while protecting service to existing shippers.
- Accepts principle of combining CCS storage with EOR, but requires storage to be under the Directive.
- CO_2 stored at an Enhanced Hydrocarbon Recovery (e.g. EOR) facility that is permitted under the CCS Directive counts as abated for EU Emission Trading System.

ALBERTA

Facilities that emit more than 100,000 tonnes of GHGs a year are required to reduce emissions intensity by 12 per cent, as of July 1, 2007.

- Compliance methods
  - Make improvements to their operations
  - Purchase Alberta-based offset credits
  - Contribute to the Climate Change and Emissions Management Fund
  - Purchase or use Emission Performance Credits
- Quantification Protocols developed by facility type
  - EOR Protocols last updated 2008

Alberta conducting CCS Regulatory Framework Assessment

- Includes CO_2-EOR Issues
- Report expected Fall 2012

CHINA

- China is actively pursuing CCUS RD&D for EOR and Enhanced Coal Bed Methane.
- Governments and NGOs collaborating with China on CCUS technology and framework development.
- *Guidelines for Carbon Dioxide Capture, Utilization, and Storage (CCUS)* released in 2011 containing recommendations for regulating CCUS.

SUMMARY

- There are commercial and operational differences between CO_2-EOR and permanent storage.
- There are also gaps between existing CO_2-EOR legal and regulatory frameworks and the frameworks that are developed or are being developed for permanent storage.
- California is not alone. Other jurisdictions and organizations are in the process of analyzing the gaps.
- A general consensus has not yet been reached on how to integrate CO_2-EOR and CCS.
- Near-term flexibility may be important to achieve objectives.

www.globalccsinstitute.com