



**Task Force on Technical Barriers and R&D
Opportunities for Offshore, Sub-Seabed Geologic
Storage of Carbon Dioxide**

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Technical Group Meeting
Riyadh, Kingdom of Saudi Arabia
November 2, 2015



Purpose of Task Force

Identify technical barriers and R&D needs/opportunities for offshore, sub-seabed storage of carbon dioxide.





Background

- **November 2013: Washington, DC Ministerial Meeting:**
 - University of Texas-Bureau of Economic Geology presented to Technical and Policy Groups on Advancing Global Offshore CCS.
 - Ministerial Communique included reference to offshore storage since diverse suite of options will be necessary for CCS deployment.



Timeline of the Task Force

- ✓ February 2014: Task Force Proposal developed and included on CSLF Seoul Meeting Website.
- ✓ March 25, 2014: Seoul, Korea Technical Group Meeting.
- ✓ April 30, 2014: Membership Established/Finalized.
- ✓ June 30, 2014: Outline of Report Drafted.
- ✓ October 28, 2014: Progress/Status report at CSLF Technical Group Meeting.
- ✓ June 2, 2015: First draft of report completed. Circulated to Task Force Members for comments and edits.
- ✓ July 17, 2015: Task Force Comments due.
- ✓ September 14, 2015: Final Report submitted.



Report Outline and Structure

High-Level Report Outline

1. Introduction
2. Status and barriers of existing and proposed offshore CO₂ storage and EOR Projects
3. Offshore CO₂ Storage and EOR Resource Assessments
4. CO₂ Transport for Offshore Storage
5. Risk Analysis for Offshore CO₂ Storage
6. Wellbore Management
7. Monitoring, Verification, and Assessment Tools for Offshore Storage
8. Summary of Regulatory Requirements for Offshore Storage
9. Summary and Recommendations

General Structure of Chapters

- Status/Overview
- Barriers/Technical Challenges
- R&D Opportunities
- Recommendations



Final Recommendations (1)

Topic	Status/Description	Recommendation
Knowledge-Sharing	Narrow set of past R&D activities, but growing interest – need to leverage opportunities early and often.	Increase knowledge sharing to define potential areas for international collaboration on offshore storage.
Storage Capacity Assessments	currently inadequate.	Pre-qualify storage locations, basin evaluation; knowledge sharing and int'l collaboration.
Transport Infrastructure	Limited and potentially expensive, but less exposure to issues around routing.	Optimization of current practices and infrastructure; take advantage of pilots and demos.



Final Recommendations (2)

Topic	Status/Description	Recommendation
Offshore CO2-EOR	Only one project - Lula in Brazil. Possible to catalyze storage opportunities and infrastructure.	Recent advances in subsea separation and processing could extend the current level of utilization of sea bottom equipment to also include the handling of CO2 streams. Explore opportunities to leverage existing infrastructure and field tests.
Understanding of CO2 Impacts on the Subsea Environment	Significant body of research exists, but complexity of impacts and the challenges to efficient monitoring, particularly natural variability to correctly identify and quantify non-natural change.	Leverage existing work. Understand buffering potential of sediments, and the impact of longer term exposures. Modeling: CO2 dispersion and influencing factors, marine systems.
Monitoring Technology Development	Technology exists but room for improvements. Cover large areas and lengthy periods.	Data processing and interpretation for CO2 storage. The quantification of CO2 within a reservoir still remains a challenge. Real-time data retrieval and navigation. Further development in integrated in situ sensors.



Team Members

- Total team members/contributors: 31
- 7 countries, 1 multilateral organization, 4 continents
- Government agencies, universities, research laboratories, industry, non-governmental organizations



Next Steps

- Work Group on Potential New Action Plan Activities identified Offshore EOR as a potential area (Next presentation)
- Can leverage work from this report and task force team for Offshore EOR
- Workshop on Offshore Storage proposed (University of Texas Bureau of Economic Geology and IEAGHG)