

Carbon Sequestration leadership forum

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Task Force on Technical Challenges for Conversion of CO₂-EOR to CCS

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Proven Geological Media Suitable for CO₂ Storage

- In straight storage operations
 - In deep saline aquifers – very large storage capacity, widely distributed
 - In depleted hydrocarbon reservoirs – large storage capacity particularly in gas reservoirs; proven containment; better known
- In enhanced oil recovery operations – presents an economic upside; **untapped option!**



CO₂ Storage Potential in EOR in the United States

Type	Technical Oil Recovery (Bbbl)	CO ₂ Demand (Gt)	Economic Oil Recovery (Bbbl)	CO ₂ Demand (Mt)
Miscible CO ₂ -EOR	119.1	38.1	67.0	19.8
Near-miscible CO ₂ -EOR	1.2	0.8	0.2	0.1
Residual Oil Zone	16.3	6.5	??	??
Total	136.6	45.4	67.2+	19.9+



Origin of the Task Force

- At the CSLF Ministerial Meeting in Beijing, China, in September 2011, the CSLF Charter was amended to include CO₂ Utilization Technologies (the “U” in CCUS)
- On the Storage side, CO₂ utilization means
 - In enhanced oil recovery – **proven technology!**
 - In enhanced gas recovery – untested technology
 - In shale gas and oil production – unproven technology
 - In geothermal energy production – unproven technology



Existing CO₂-EOR Projects

- **112 miscible CO₂-EOR projects in the United States**
- **5 miscible CO₂-EOR projects in Canada**
- **1 miscible acid gas –EOR project in Canada (70% CO₂ and 30% H₂S)**
- **2 miscible CO₂-EOR projects in Brazil**
- **6 immiscible CO₂-EOR projects in the United States**
- **1 immiscible CO₂-EOR project in Brazil**
- **5 immiscible CO₂-EOR projects in Trinidad**
- **1 immiscible CO₂-EOR project in Turkey**

Only one CO₂-EOR operation is a recognized CCS operation!



Task Force Mandate

- New Technical Group activity identified in the Five Year (2011-2016) Action Plan at the Beijing 2011 CSLF meeting
- Task Force initiated at the Beijing 2011 CSLF meeting
- Task Force mandate:
 - “Review, compile and report on technical challenges that may constitute a barrier to the broad use of CO₂ for EOR and to the conversion of CO₂-EOR operations to CCS operations”
 - Economic and policy barriers are outside the scope of the Task Force



Task Force Timeline

- **Finalize Task Force membership at the CSLF TG meeting in Bergen, June 2012**
- **Identify subjects and produce table of contents by the CSLF meeting in Perth, October 2012**
- **Produce first draft of the report by the CSLF TG meeting in spring of 2013**
- **Circulate report to CSLF TG members for review by August 2013**
- **Submission for approval of the final report at the CSLF meeting in the fall of 2013**



Task Force Membership

- **Canada (Chair)**
- **China**
- **Norway**
- **Mexico**
- **Saudi Arabia**
- **United States**

**If other CSLF members would like to join, this is the time to do it,
but they have to bring real experts to the Task Force!**