CSLF Task Force on Non-Enhanced Hydrocarbon (EHR) Utilization Options

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Chatou, France
Background

CSLF Conference of Ministers Key actions, “Exploring new utilization concepts beyond CO₂ enhanced oil recovery (CO₂-EOR) that have the potential to add commercial value”

CSLF TG Meeting in April 2018 – Discussion on CO₂ mineralization and utilization and revisit non-EOR options; re-constitute the task force.

CSLF TG Meeting in October 2018 – Formalized membership: US (Chair), Australia, Brazil, China, Canada, France, the Netherlands, Saudi Arabia, and the IEAGHG.
Previous CSLF Task Force

Timeline

• Beijing, P.R. China, September 2011: Utilization Options for CO\(_2\) Task Force was created.
• Perth, Australia, October 2012: Phase 1 Report completed. Options for further evaluation in Phase 2 discussed and selected.
• Washington, DC, October/November 2013, Phase 2 report completed.

Scope

• EHR, fuels and chemicals, building materials/aggregate, working fluid

Key Messages

• Number of CO\(_2\) utilization options available - mechanism for deployment and commercialization.

• EOR is the most near-term utilization option.

• Non-EOR CO\(_2\) utilization options are at varying degrees of commercial readiness and technical maturity.

• Early R&D or pilot-scale activities should focus on: addressing key techno-economic challenges; independent tests to verify the performance; and support of small, pilot-scale tests of first generation technologies and designs.

• More detailed technical, economic, and environmental analyses should be conducted.
Some efforts since then (not all-inclusive)...

• Carbon X-Prize – launched in September 2015, 10 finalists

• Oil and Gas Climate Initiative (OGCI) investments:
  • Solidia Technologies – CO₂ utilization in concrete (October 2017)
  • Econic – CO₂ into polyols (September 2018)

• Reports:
  • UK report (May 2017) by Imperial College and ECOFYS: Assessing the Potential of CO₂ Utilisation in the UK
  • Mission Innovation report (September 2017) on CCUS: Accelerating Breakthrough Innovation in Carbon Capture, Utilization, and Storage
  • US National Petroleum Council report on CCUS – due 2019

• Policies:
  • US: 45Q tax credit revision (2018). $35/ton for converting into fuels, chemicals, or other useful products (e.g., cement).
Proposed Action Plan for the Task Force

• Main Goal: Add value and not re-invent
• Status check on where we are today
  • Reports, projects, conferences, activities, projects and major players
  • Government initiatives
• Summarize and develop recommendations
# Proposed Task Force Activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Date</th>
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<tr>
<td><strong>Task 1. Reports</strong></td>
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<tr>
<td>1a. Develop a catalog/library of reports over the past five years on CO2 Utilization</td>
<td>TBD</td>
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<td>1b. Identify and summarize technical and policy barriers; potential market sizes/volumes; findings; and recommendations.</td>
<td>IEAGHG Studies???</td>
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<td><strong>Task 2. Government Activities</strong></td>
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<td>2a. Prepare and release template to CSLF delegates</td>
<td>Prior to next CSLF Meeting</td>
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<td>2b. CSLF delegate responses returned</td>
<td>Prior to next CSLF Meeting</td>
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<td>2c. Responses consolidated and summarized</td>
<td>Spring 2020 CSLF Meeting</td>
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<td><strong>Task 3. Identify major conferences and activities</strong></td>
<td>Complete</td>
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<td><strong>Task 4. Identify major CO₂ utilization demonstration or commercialization projects and key players</strong></td>
<td>Complete</td>
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<td><strong>Task 5. Prepare summary report and recommended next steps of task force or CSLF TG action</strong></td>
<td>Autumn 2020 CSLF Meeting</td>
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Utilization Project Summary (not all inclusive)

- Pilot: 40
- Construction: 3
- Commercial/Operational Pilots: 18
- Completed (Pilots/Demos/Commercial): 5
- Technology Areas:
  - Majority are in algae/biological, mineralization/building materials
  - Several chemicals and fuels
  - Test centers
Other Opportunities??

• Reviewers for IEAGHG Studies?
  • CO₂ Conversion Routes Reality Check
  • CO₂ as Alternative Feedstock – promising pathways and benefits

• Future workshop?