

Carbon Sequestration leadership forum

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Highlights and Outcomes from CSLF Technical Group Meeting

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Highlights from Technical Group Meeting



Overall Message: Technical Group is making progress toward key CSLF goals. *Our methodology:*

- Developing a forward-looking vision and how to get there (*CSLF Technology Roadmap*)
- Facilitating knowledge sharing among CCUS technology developers and users (*Project Engagement Strategy*)
- Encouraging collaborative activities among CSLF members (*CSLF-recognized Projects*)
- Developing messages and recommendations in specific CCUS technology areas (*Task Forces*)

Highlights from Technical Group Meeting



2017 CSLF Technology Roadmap (TRM)

- TRM Working Group chaired by Australia
- Update started a year ago; approach taken “refreshes” existing TRM
- Finalized TRM will be deliverable at 2017 CSLF Ministerial Meeting
- TRM presentation to be given later on in this meeting

Highlights from Technical Group Meeting



Updates on CSLF Activities

- Updates from 4 Technical Group Task Forces
 - Off-Shore CO₂-EOR
 - Bioenergy with CCS (Bio-CCS and BECCS)
 - Improved Pore Space Utilisation
 - Industrial CCS

Highlights from Technical Group Meeting



Updates from Allied Organizations

- IEAGHG
- GCCSI
- ISO/TC265
- Preview of Mission Innovation Experts Group Workshop



Highlights from Technical Group Meeting

Invited presentations:

- Overview of CCS-related Activities in the UAE
- CO₂ Utilization in Industry: Overview, Prospects and Recommendations
- Non-EOR CO₂ Utilization: Brine Extraction and Storage
- Results from CSLF-recognized Project
 - Uthmaniyah CO₂-EOR Project
 - Illinois Industrial CCS Project
- Update on Carbon Storage Data Consortium

Highlights from Technical Group Meeting



Meeting Outcomes

- Draft TRM 2017 open for comments
- Three new projects recommended for CSLF recognition
- Timeline for two (three) Task forces to give its recommendations at 2017 CSLF Ministerial Meeting
- A working group to revisit the Technical Group Action Plan, include new and prioritize actions at the late Ministerial meeting in December 2017
- Revise the CSLF submission form template and engagement form to include the purpose of being a CSLF projects

Outcomes from Technical Group Meeting



Al Reyadah CCUS Project proposed for CSLF Recognition



Outcomes from Technical Group Meeting

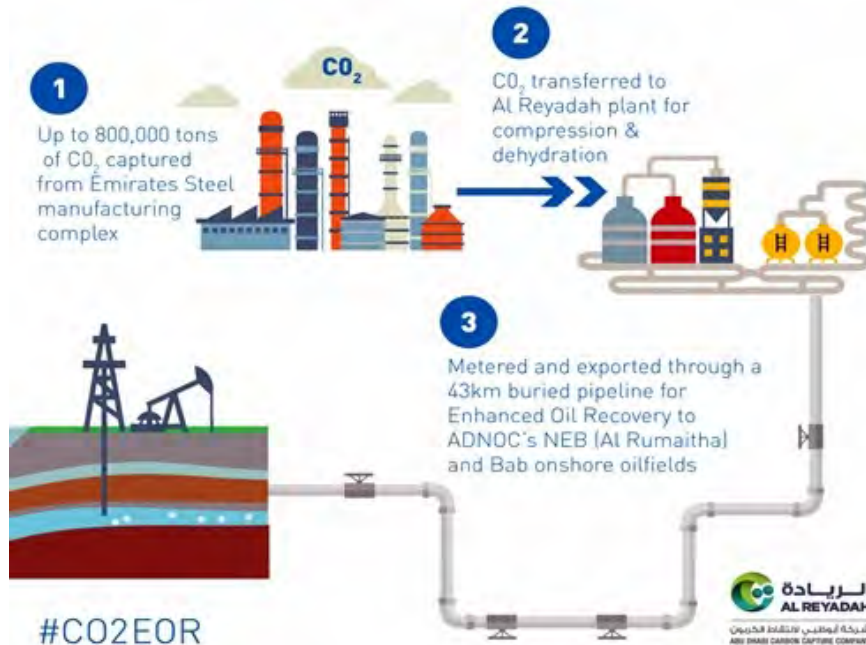


Al Reyadah CCUS Project proposed for CSLF Recognition

- Nominated by United Arab Emirates, Saudi Arabia, US, UK, China, Canada, South Africa, the Netherlands, Norway and Australia
- Main project sponsor is Abu Dhabi Carbon Capture Company
- Project located at Abu Dhabi, UAE
- Overall goal to build a commercially self-sustained Carbon Capture, Utilization and Storage (CCUS) facility

Outcomes from Technical Group Meeting

Al Reyadah CCUS Project Overview



Outcomes from Technical Group Meeting



Al Reyadah CCUS Project Features

- Part of UAE's strategy for reduced CO₂ emissions
- Commercially Self-Sustaining project with no Governmental Subsidies
- Timeline:
 - 2010-2016 from FEED to first CO₂ at Adnoc field
 - 2017-2024 CO₂ Utilization and EOR Recovery

Outcomes from Technical Group Meeting



The Technical Group recommends that the Policy Group provide CSLF recognition to the Al Reyadah CCUS Project

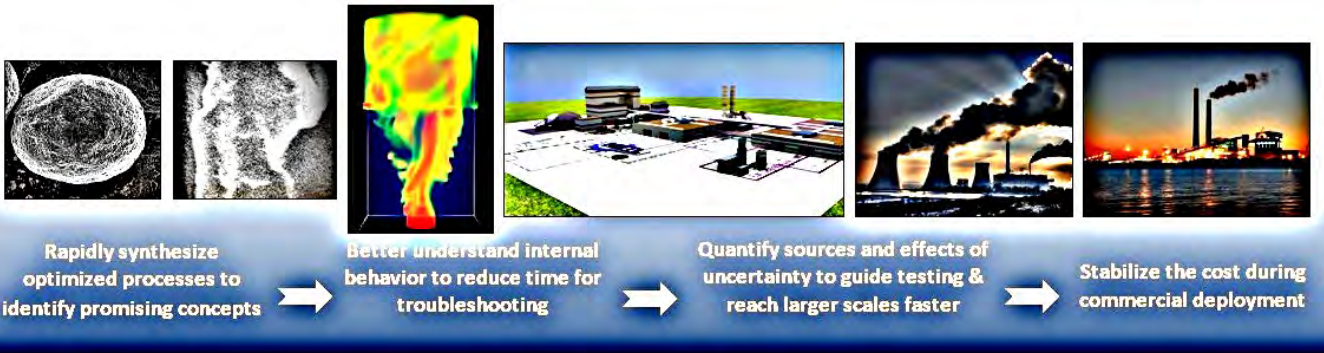
Outcomes from Technical Group Meeting



Carbon Capture Simulation Initiative / Carbon Capture Simulation for Industry Impact (CCSI/CCSI²) proposed for CSLF Recognition

- Nominated by the United States, Norway, France and China
- Project sponsor is U.S. Department of Energy's National Energy Technology Laboratory (NETL)
- Activities ongoing at two NETL locations and seven other research sites across the USA and collaboration around the world
- Overall goal is to develop and utilize an integrated suite of computational tools (the CCSI Toolset) to support and accelerate the development, scale-up and commercialization of CO₂ capture technology

Outcomes from Technical Group Meeting CCSI/CCSI² Overview



Multi-Scale Workflow of the CCSI Toolset



Outcomes from Technical Group Meeting

CCSI/CCSI² Features

The CCSI Toolset provides new capabilities critical to CCS technology development and scale up, including:

- **Rapid Computational Screening:** Enables promising concepts at all scales (molecular through system-level) to be comprehensively screened and evaluated.
- **Accelerated Design & Evaluation:** Reduces the time needed to design and troubleshoot new devices and processes by optimizing sub-system development.
- **Risk Management Support:** Supports quantitative predictions of device and process performance ranges during scale up.
- **Timeline**
 - **2011-2016** Developed, demonstrated, and deployed CCSI toolset.
 - **2016-2021** Partnership with CO₂ capture technology developers

Outcomes from Technical Group Meeting



The Technical Group
recommends that the Policy
Group provide CSLF recognition
to CCSI/CCSI²

Outcomes from Technical Group Meeting

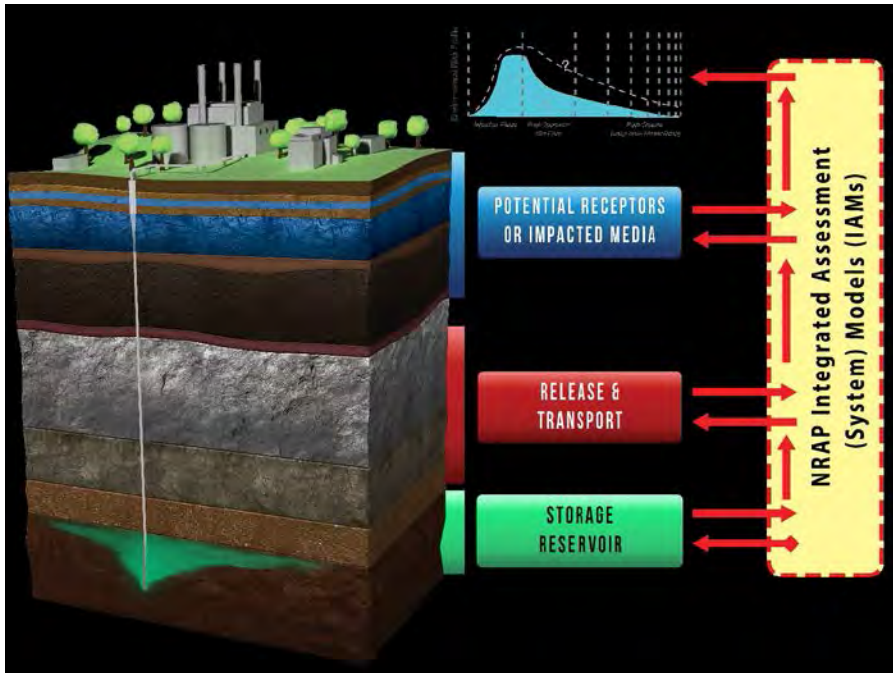


National Risk Assessment Partnership (NRAP) proposed for CSLF Recognition

- Nominated by the United States, Australia, France and China
- Project sponsor is U.S. Department of Energy's National Energy Technology Laboratory (NETL)
- Activities ongoing at three NETL locations and four other National Laboratories across the United States and collaboration with industry, regulatory and other types of stakeholders
- Overall goal is to develop methodologies and tools for quantifying risk and uncertainty to help decision making for geological storage

Outcomes from Technical Group Meeting

NRAP Overview





Outcomes from Technical Group Meeting

NRAP Features

- **Development of a methodology and computational platform** for quantifying risk profiles based on assessment models and uncertainly quantification.
- **Targeted investigations** at laboratory and field scale to calibrate component behavior and reduce uncertainties in predicted risk profiles.
- **Integration of risk-based monitoring and mitigation strategies** to reduce uncertainty and overall risk.
- **Field-scale tests** of specific processes to validate predicted behaviors of natural systems.
- **Development of methodologies and platforms** for risk management of carbon storage sites.
- **Timeline:**
 - **2011-2016** Developed science base and toolset
 - **2016-2021** Expand the technical tools and key concepts. Partner with field sites

Outcomes from Technical Group Meeting



The Technical Group recommends that the Policy Group provide CSLF recognition to the National Risk Assessment Partnership