



**Working Group on Evaluating Existing and New  
Ideas for Possible Future Technical Group Actions**

**Recommendations**

**CSLF PIRT Meeting  
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# Outline of presentation

- Background
- Process
- Results
- Recommendations



## Background

At the Technical Group meeting in Abu Dhabi, United Arab Emirates, May 1, 2017 it was decided to form a review group to:

- Appraise all unaddressed items in the Action Plan from 2015.
- Propose new topics for appraisal
- Review past task force reports with the aim to see if any updates are needed.
- 26 topics from previous and current action plans
  - 4 current
  - 11 from Action List 2015
  - 11 past task force topics to be reviewed for update (all included, not only last four years)



## Current Actions

- Offshore CO<sub>2</sub>-EOR (*Task Force chair: Norway*) **COMPLETED IN 2017**
- Improved Pore Space Utilisation (*Task Force co-chairs: Australia and United Kingdom*)
- Bio-energy with CCS (*Task Force chair: United States*)
- CCS and Industry (*Task Force chair: France*)



## Potential Actions from 2015

- Geo-steering and Pressure Management Techniques and Applications (*Note: Geo-Steering has been incorporated into Improved Pore Space Utilisation action.*)
- Advanced Manufacturing Techniques for CCS Technologies
- Dilute Stream / Direct Air Capture of CO<sub>2</sub>
- Global Residual Oil Zone (ROZ) Analysis and Potential for Combined CO<sub>2</sub> Storage and EOR
- Study / Report on Environmental Analysis Projects throughout the World
- Update on Non-EOR CO<sub>2</sub> Utilization Options
- Ship Transport of CO<sub>2</sub>
- Investigation into Inconsistencies in Definitions and Technology Classifications
- Global Scaling of CCS
- Compact CCS
- Capturing CO<sub>2</sub> from mobile application





## Completed Actions

- Identifying Gaps in CO<sub>2</sub> Capture and Storage (Nov. 2006)
- Identifying Gaps in Monitoring and Verification of Geologic CO<sub>2</sub> Storage (Nov. 2006)
- Review and Identification of Standards for CO<sub>2</sub> Storage Capacity Estimation (Aug. 2005, June 2007, April 2008)
- Examine Risk Assessment Standards and Procedures (Oct. 2009, May 2012)
- Technical Challenges for Conversion of CO<sub>2</sub>-EOR Projects to CO<sub>2</sub> Storage Projects (*Final Report in September 2013*)
- CCS Technology Opportunities and Gaps (*Final Report in October 2013*)
- CO<sub>2</sub> Utilization Options (*Final Report in October 2013*)
- Reviewing Best Practices and Standards for Geologic Storage and Monitoring of CO<sub>2</sub> (*Final Report in November 2014*)
- Review of CO<sub>2</sub> Storage Efficiency in Deep Saline Aquifers (*Final Report in June 2015*)
- Technical Barriers and R&D Opportunities for Offshore Sub-Seabed CO<sub>2</sub> Storage (*Final Report in September 2015*)
- Supporting Development of 2nd and 3rd Generation Carbon Capture Technologies (*Final Report in December 2015*)



## The Process – new activities

- 24 potential new topics on longlist
  - 11 from Action List 2015
  - 11 past task force topics to be reviewed for update (all included, not only last four years)
  - 2 new proposals
- Shortlist reduced to 12







## Recommendations

- CSLF Technical Group considers establishing task forces or to undertake appraisals, as resources will allow, on the following topics, in order of priority:

Topic	Possible lead	Contributors
1. Hydrogen as a tool to decarbonize industries	Norway	Netherlands, Saudi-Arabia, UK
2. Reviewing Best Practices and Standards for Geologic Monitoring and Storage of CO <sub>2</sub>		Australia, France, Norway, Saudi-Arabia,
3. Capture by mineralisation		France, Netherlands, Saudi-Arabia
4. Global scaling of CCS		France, Saudi-Arabia



## Comments

- CSLF Technical Group awaits the results of the Task Force on Pore space utilisation before a decision is made regarding a new Task Force on Geo-steering and pressure management techniques and applications to see how much has been incorporated into the Pose Space Utilization report.
- In addition, CSLF Technical Group considers if the topic Utilisation options of CO<sub>2</sub> should be added to the list of potential new task forces.



## Hydrogen, some topics to be addressed

- **Hydrogen production and use**
  - Status technologies, costs
  - Present and future role, demand and use
- **Hydrogen with CCS**
  - Status: examples, technologies, costs
  - Cost reductions and needs for improved technology
- **Synergy with renewables**
- **Life cycle costs and carbon footprint, comparison to hydrogen from renewables**
- **Hydrogen value chain**



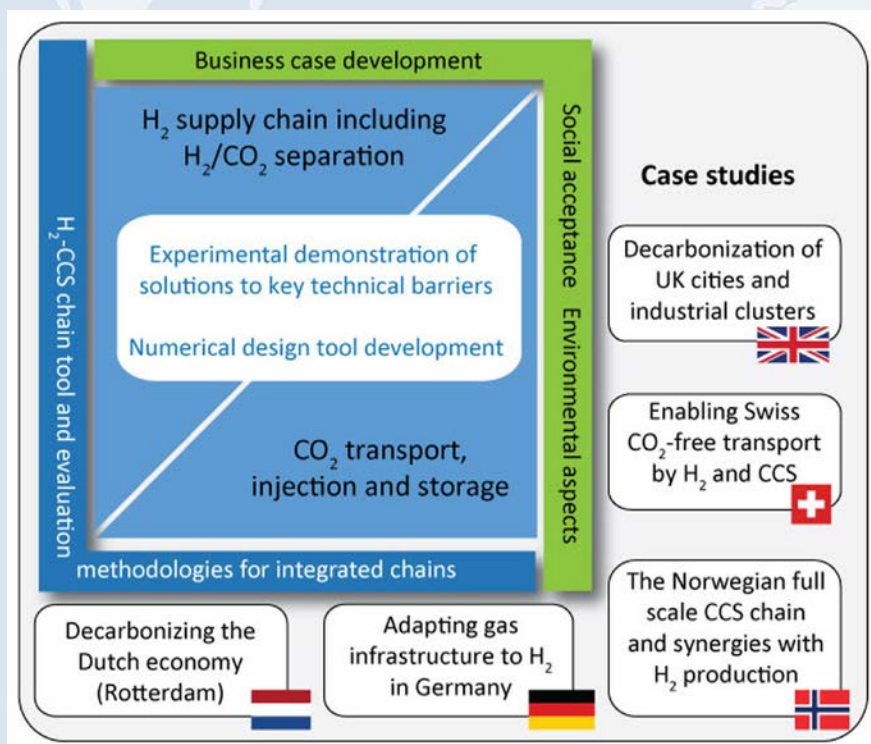
## Several activities/programmes (please supplement)

- Europe: ACT Elegancy (Norway, UK, Germany, Netherlands, Germany)
- US H<sub>2</sub>@scale (much fuel cells but also H<sub>2</sub> from reforming w/CCS)
- Japan: Working Group on CO<sub>2</sub>-Free Hydrogen Report
- Energy companies (Statoil/Nuon/Vattenfall/Gasunie)
- Numerous reports and papers, including technical reports from IEAGHG, IEA and Hydrogen Council
- **Map what these are doing before task force starts?**
- **Workshop, in cooperation with others??**





## Elegancy – Enabling a low-carbon economy via hydrogen and CCS – an ACT project



The ELEGANCY project will provide three benefits:

- The decarbonization of heating and transport based on an existing fuel and infrastructure,
  - A commercial model for industrial CCS,
  - The opportunity to broaden public awareness of CCS.
- Project duration: 31 August 2017– 31 August 2020
  - Total budget: about 15 MEUR
  - Funding: Norwegian, Dutch, German, UK and Swiss national funding agencies, the European Commission and industry
  - Number of partners: 22
  - Coordinator: SINTEF Energy Research





Thank you for the attention!