Use of UNFC-2009 for Classifying Injection Projects - Update

EGRC Second Session
5-8 April 2011
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UNFC 2009

✓ Introduction
✓ Task Force members
✓ Progress since last EGRC session
✓ The way forward
Introduction
- Reminder from EGRC session 1 in 2010

Programme of work for 2009-10 included an agreement to explore if and how the UNFC could be used in classifying recipient reservoirs or injection projects such as:

- **Hydro carbon gas injection**
  - Pressure support and increased oil recovery
  - Temporary gas storage

- **CO₂ injection**
  - Permanent storage, also referred to as sequestration
  - Long term storage
  - Increased recovery from a hydro carbon reservoir (EOR)
    - Large part of the CO2 is produced with the oil and re-circulated

- **Disposal/storage of other waste products/gases**
Injection project activities - the simple picture

We need to:

- Understand the geology and dynamic behaviour of the recipient reservoir
- Design a technical concept and evaluate the project feasibility
- Calculate the costs and evaluate the economic and social viability of the project
- Make decisions

These are all activities that we know from oil and gas extraction projects and that are well defined in the UNFC2009
Different challenges for different projects

- Permanent storage without re-production (such as CO₂ sequestration)
  - Simple solution could be to just turn the UNFC around as shown
- Injection and reproduction (temporary storage)
  - Reservoir needs to be classified as both a recipient and as a producer
  - Classified as two separate projects or one?
- Gas injection and reproduction from oil and gas reservoir containing indigenous gas
  - Difficult or impossible to differentiate between produced and reproduced gas and thus for instance what can be counted as reserves and not, in particular if ownership is different

- Different stake holders will have different needs
### UNFC2009 - Injection Projects?

<table>
<thead>
<tr>
<th>Injected</th>
<th>Class</th>
<th>Categories</th>
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<tr>
<td>Future storage by commercial projects/operations</td>
<td>Commercial Projects</td>
<td>1 1 1,2,3</td>
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<tr>
<td>Potential future storage by contingent projects/operations</td>
<td>Potentially Commercial Projects</td>
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<td></td>
<td>Non-Commercial Projects</td>
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<tr>
<td>Potential future storage by successful screening activities</td>
<td>Screening Projects</td>
<td>3 3 4</td>
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Recipient Reservoirs Task Force Members

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Progress since last EGRC session

• Main focus has been on looking in to some examples of other classifications that have been proposed by various groups and stake holders.

• Examples are:

  a) The Techno-Economic Resource-Reserve pyramid proposed by the Carbon Sequestration Leadership Forum (CSLF) (CSLF, 2007)
  
  b) The CO2CRC classification system for CCS (CO2CRC, 2008)


  d) A proposal from the United States Department of Energy (US DOE) for a Geologic Storage Framework (US DOE NETL)
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The Way Forward

The Task Force proposes to move forward through:

• Identifying the main stakeholder groups and clarifying what their needs and expectations are

• Investigate how for instance oil and gas companies classify and evaluate the maturity of their gas injection projects today

• Review the Underground Gas Storage Study prepared by the United Nations Economic Commission for Europe (UNECE) Working Party on Gas and consider relevant elements in this study

• Propose how to adapt the UNFC-2009 for use on injection projects
Thank you

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