



IEA Greenhouse Gas R&D Programme

Update Report on Activities to ISO TC 265

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*Oslo, Norway
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IEA Greenhouse Gas R&D Programme (IEAGHG)



- A collaborative international research programme founded in 1991
- Aim: To provide information on the role that technology can play in reducing greenhouse gas emissions from use of fossil fuels.
- Focus is on Carbon Dioxide Capture and Storage (CCS)
- Producing information that is:
 - ✓ Objective, trustworthy, independent
 - ✓ Policy relevant but NOT policy prescriptive
 - ✓ Reviewed by external Expert Reviewers



ieaghg



Partner Organisations:



IEAGHG



- Flagship activities:
- Technical Studies >250 reports published on all aspects of CCS
- International Research Networks
 - Risk Assessment
 - Monitoring
 - Modelling
 - Environmental Impacts
 - Oxy-combustion
 - Post-combustion Capture
 - Solid Looping Capture
 - Social Research
 - Costs
- GHGT conferences

IEAGHG



- Other activities include:
- International CCS Summer Schools -
 - 2015 - Perth Australia, 7-11 Dec
 - 2016 - Regina Canada, tbd
- Peer reviews, eg US DOE, US EPA; CO2CRC
- Active in international regulatory developments – UNFCCC, London Convention, ISO TC265
- Collaborations with IEA, CSLF, CCSA, EU ZEP and others

Reports published



Title	Contractor	Report number	Publication date
Monitoring Network and Modelling Network – Combined Meeting	N/A	2015-01	March 2015
CCS Cluster Projects Review and Opportunities	COFREE	2015-03	April 2015
Criteria of Fault Geomechanical Stability During Pressure Build-up	Norges Geotekniske Inst.	2015-04	April 2015
Review of Offshore Monitoring for CCS Projects	BGS, NOC, PML, Uni S'hampton	2015-02	July 2015
CCS Deployment in the Context of Regional Developments in Meeting Long-Term Climate Change Objectives	Carbon Counts	2015-TR3	July 2015

Reports pending



Title	Contractor	Publication date
Impact of CO ₂ Impurity on CO ₂ Compression and Transportation	Newcastle University (UK)	2015
Oxy Gas Turbine Power Plants	Foster Wheeler (Italy)	2015
CO ₂ -EOR Emissions Accounting	Carbon Counts (UK)	2015
Hydrogen Production with CO ₂ Capture	Foster Wheeler (Italy)	2015

Studies underway



Title	Contractor	Draft Report date
Cost components for storage of CO ₂ in association with enhanced oil recovery	TNO (NL)	September 2014
Evaluation of CO ₂ Adsorption Process in Natural Gas Production	SINTEF (Norway)	February 2015
Evaluation of Various Process Control Strategy for Normal and Flexible Operation of PCC	Imperial College (UK)	January 2015
Understanding the Cost of Retrofitting CO ₂ Capture in Oil Refineries	Consortium led by SINTEF, cofunded by CLIMIT	2016
Techno-economic evaluation of CO ₂ capture for Pulp and Paper	VTT and AF Engineering (Finland)	May 2016
Value of Flexibility in CCS Power Plants	Imperial College (UK)	March 2016
Fault Permeability	GNS	October 2015
CCS and the Carbon Bubble	SGI/Imperial	November 2015



IEAGHG 2015 meetings

- Process Industry CCS Workshop, Lisbon, Portugal, 10-11 Mar 2015
- Monitoring Network. LBNL, California. 10-12 June 2015
- Social Research Network. University of Cambridge and Tyndall Centre, UK. 6 July 2015
- High Temperature Solid Looping Network. Milan, Italy. 1-3 Sep 2015
- PCCC3, Regina, Canada, 8-11 Sep 2015
- Combined meeting of Risk Management Network and Environmental Research Network. National Oceanography Centre, UK. 30 Sep – 2 Oct 15
- 5th Oxyfuel Combustion Network Meeting, Wuhan, China, 27-30 Oct 2015
- LCA workshop. Fall 2015 tbc
- Information on <http://www.ieaghg.org/index.php?/networks.html>

IJGGC Special Issue No. 40



- Updates IPCC SR on CCS
- 17 technical papers on CCS progress
- Take away message:
“Considerable progress made in all areas in the last ten years”
- <http://www.sciencedirect.com/science/journal/17505836/40>
- Papers free to download until 31st Dec 2015

IJGGC Special Issue No. 40



- PCC (2 papers)
- Oxyfuel
- Emerging capture processes
- Pre-combustion Capture
- Storage efficiency in deep saline aquifers
- Migration and pressure in deep saline aquifers
- Capillary trapping
- Convective dissolution of CO₂ in saline aquifers
- Geochemical fate and effects of impurities
- Risk assessment and management
- Monitoring and verification
- Environmental impacts of leakage
- Costs of CCS
- Biomass and CCS
- Legal and regulatory developments
- Public communications

IJGGC Special Issue No. 40



Practical experience in post-combustion CO₂ capture using reactive solvents in large pilot and demonstration plants

R. Idem, T. Sopap, H. Shi et al.

Recent progress and new developments in post-combustion carbon-capture technology with amine based solvents

Z. (Henry) Llang, W. Rongwong, H. Liu et al.

Oxyfuel combustion for CO₂ capture in power plants

R. Stanger, T. Wall, R. Spörl et al.

Emerging CO₂ capture systems

J.C. Abanades, B. Arias, A. Lyngfelt et al.

Pre-combustion CO₂ capture

D. Jansen, M. Gazzari, G. Manzolini et al.

Review of CO₂ storage efficiency in deep saline aquifers

S. Bachu

CO₂ migration and pressure evolution in deep saline aquifers

J.T. Birkholzer, C.M. Oldenburg, Q. Zhou

Capillary trapping for geologic carbon dioxide storage - From pore scale physics to field scale implications

S. Krevor, M.J. Blunt, S.M. Benson et al.

Convective dissolution of CO₂ in saline aquifers: Progress in modeling and experiments

H. Emami-Meybodi, H. Hassanzadeh, C.P. Green, J. Ennis-King

Subsurface geochemical fate and effects of impurities contained in a CO₂ stream injected into a deepsaline aquifer: What is known

S. Talman

Recent advances in risk assessment and risk management of geologic CO₂ storage

R.J. Pawar, G.S. Bromhal, J.W. Carey et al.

The state of the art in monitoring and verification-Ten years on

C. Jenkins, A. Chadwick, S.D. Hovorka

Developments since 2005 in understanding potential environmental impacts of CO₂ leakage from geological storage

D.G. Jones, S.E. Beaubien, J.C. Blackford et al.

The cost of CO₂ capture and storage

E.S. Rubin, J.E. Davison, H.J. Herzog

Biomass and carbon dioxide capture and storage: A review

J. Kemper

Legal and Regulatory Developments on CCS

T. Dixon, S.T. McCoy, L. Havercroft

Developments in public communications on CCS

P. Ashworth, S. Wade, D. Reiner, X. Liang



GHGT-13

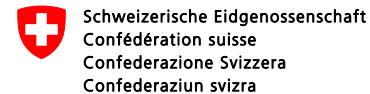


- Lausanne, Switzerland, 14-18 Nov 2016

Timeline

- Call for abstracts opened 1st September 2015
- Deadline for submission 10th February 2016
- Registration opens 6th April 2016
- Draft technical programme 1st June 2016
- Early bird registration closes 13th July 2016

www.ghgt.info



Swiss Confederation

Swiss Federal Office of Energy SFOE



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