



IEA Greenhouse Gas R&D Programme

Update Report from IEAGHG

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IEAGHG**

***CSLF Technical Group, London
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Greenhouse Gas R&D TCP



Part of the IEA ETN since 1991



32 Members from 15 countries plus OPEC, EU and CIAB

What We Are:



Members set strategic direction and technical programme



Independent Technical Organisation

- We don't define policy
- We are not advocates

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



- **Flagship activities:**
- **Technical Studies** >300 reports published on all aspects of CCS
- **International Research Networks**
 - Risk Assessment/Management
 - Monitoring
 - Modelling
 - Environmental Research
 - Social Research
 - Oxy-combustion
 - Post-combustion Capture
 - Solid Looping
- **GHGT conferences**

IEAGHG



- Other activities include:
- International CCS Summer Schools - 2015 - Perth, Australia; 2016 – July, Regina, Canada
- 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, UT and others



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Update on CSLF and IEAGHG Collaboration

Arrangement between CSLF Technical Group and IEAGHG

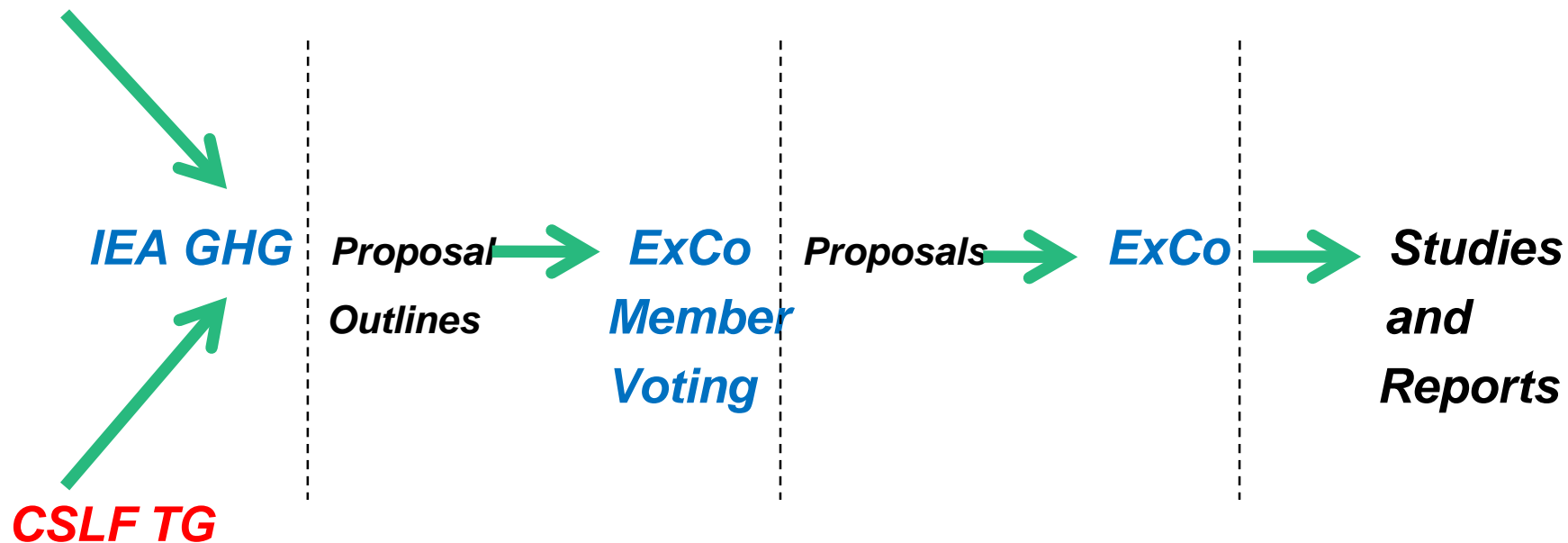


- ***How CSLF TG/PIRT and IEAGHG will interact for mutual benefit through increased co-operation***
 - Mutual representation of each at CSLF TG and IEAGHG ExCo (no voting)
 - Liaison with PIRT co-chairs to discuss potential activities or projects – two way process
 - Activities would require approval by ExCo or TG
 - Due reference to org providing the resource
- ***Agreed by IEAGHG ExCo Oct 2007 and CSLF Technical Group Jan 2008***



IEA GHG – Study generation

IEAGHG ExCo members





CSLF-proposed studies

- ‘Development of Storage Coefficients for CO₂ Storage in Deep Saline Formations’. IEAGHG Report 2009/13. Presentation at CSLF TG Mar 2010
- ‘Geological Storage of CO₂ in Basalts’, IEAGHG Report 2011/TR2. Presentation at CSLF TG Sep 2011
- Potential Implications of Gas Production from Shales and Coal for CO₂ Geological Storage. ARI. Report published 2013. IEAGHG Report 2013/10. Presentation at CSLF TG Nov 2013
- ‘LCA of CCUS – Benchmarking’. Proposed to 46th ExCo. Developed as round-table/workshop: 11-12 Nov 2015 London. CSLF on Steering Committee. Report “Workshop on LCA in CCUS”, IEAGHG 2016/03, March 2016. **Presented to CSLF TG June 2016.**
- International Workshop on Offshore Geological CO₂ Storage, 2016-TR2, July 2016. **Presented at CSLF TG June 2016**
- Additional new study ideas invited from CSLF TG/PIRT
- **Outline required by 16 January 2017**

Reports published



	Contractor	Report number	Publication date
Can CO2 Capture and Storage Unlock 'Unburnable Carbon'?	SGL/Imperial College London	2016-05	May 2016
PCC Process Control	Imperial College London & PSE Ltd	2016-06	September 2016
Risk Management Network and Environmental Research Network Combined Meeting	N/A - Meeting	2016-08	June 2016
4th CCS Cost Network Meeting	N/A - Meeting	2016-09	August 2016
International Workshop on Offshore Geological CO2 Storage (CSLF)	N/A - Meeting	2016-TR2	July 2016
Review of GHG Accounting Rules for CCS	Carbon Counts Company Ltd	2016-TR3	May 2016
Review of Project Permits Under the London Protocol - As Assessment of the Proposed P18-4 CO2 Storage Sites	TNO	2016-TR4	June 2016
Performance and Cost of Retrofitting CCS in the Pulp and Paper Industry (reference papers)	VTT / ÅF Engineering / IEAGHG	2016-TR5	July 2016

Reports in progress to be published



Title	Contractor	Publication date
CO ₂ -EOR Emissions Accounting	Carbon Counts (UK)	Oct 2016
Hydrogen Production with CO ₂ Capture – Techno-economic assessment	AMEC/Foster Wheeler (Italy)	Nov 2016
Cost components for storage of CO ₂ in association with enhanced oil recovery	TNO (NL)	Oct 2016
CO ₂ Capture in Natural Gas Production by Adsorption	SINTEF (Norway)	Nov 2016
Fault Permeability	GNS (New Zealand)	Oct 2016

Studies underway



Title	Contractor	Draft Report date
Techno-economic evaluation of CO ₂ Capture for Pulp and Paper	VTT and AF Engineering (Finland)	Oct 2016
Criteria for Depleted Oil and Gas Fields to be Considered for CO ₂ Storage	BGS and BEG	Nov 2016
Value of Flexibility in CCS Power Plants	Imperial College (UK)	Dec 2016
Hydrogen Production with CO ₂ Capture – Techno-economic assessment of methanol and urea	AMEC/Foster Wheeler (Italy)	Nov 2016
CCS deployment in the context of regional developments in meeting long-term climate change objectives	Carbon Counts	Nov 2016
Understanding the Cost of Retrofitting CO ₂ Capture in Oil Refineries	Consortium led by SINTEF, cofounded by CLIMIT (Norway)	2017
Regional Variation of Capture Costs	AMEC	Oct 2016

Studies underway



Title	Contractor	Draft Report date
Leakage into the Overburden	BGS (UK)	Nov 2016
CO ₂ Storage Efficiency – Stage 2	EERC (USA)	Nov 2016
Evaluating the Commercial and Economic Arrangements to Enable the Deployment of Industry CCS Clusters	Element Energy (UK)	Feb 2017
Techno-Economic Evaluation of CO ₂ Capture in LNG Process	tbc	April 2017

Studies awaiting start



Title	Expected start	Proposal number
Further Assessment of Emerging CO ₂ Capture Technologies and their Potential to Reduce Costs	Screening phase first. Estimate Q4 2016	48-03
Understanding the Cost of Reducing Water Usage in Coal and Gas Fired Power Plants with CCS	Phased, after data from Regional Variation in Capture Costs. Estimate Q1 2017	48-12
Refineries and Electricity Production	Q4 2016	48-04
Opportunities for CO ₂ recycle and use	Q4 2016	48-11

Research Networks and other events



2016

- **Monitoring Network** and **Modelling Network** combined meeting. BGS, Edinburgh, UK, 5-9 July
- **Panels on Offshore CCS** and on **Monitoring Network**, at US DOE Storage Meeting, Pittsburgh, 16 August
- **COP-22 Marrakech. CCS Opportunities in Africa.** 8 Nov. Official UNFCCC Side-event. With UT, CCSA, CO2GeoNet. Speakers from BHP/SaskPower, S.Africa, Nigeria, Ghana, UT, IEAGHG

2017

- **Monitoring Network.** Battelle. Michigan. w/o 12 June 2017

GHGT-13



- Lausanne, Switzerland, 14-18 Nov 2016
- Deadline for abstracts 10th February 2016
 - 1035 abstracts, 39 countries
- **Technical programme now online**
 - 338 Oral presentations, over 600 Poster presentations
- Registration opened 6th April 2016
- Early bird registration closed 13th July 2016

www.ghgt.info



ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Swiss Federal Office of Energy SFOE



International Energy Agency



Regular briefing on CCS status:
ROAD permit assessment;
Offshore workshop



Input to WFFF



Technical reports to CSLF
Technical Group
5 IEAGHG presentations to June 2016 meeting



ISO Technical Committee on CCS, TC-265
4 draft standards, 2 technical reports – **IEAGHG input**



United Nations Framework Convention on Climate Change

CCS Side Events at COP20, COP21, **COP-22**