IEA CO_2 Transport and Storage Infrastructure Workshop
16-17 May 2017

UICP Congress Centre
16, Rue Jean Rey 75015 Paris, FRANCE

Agenda – Day 1 (Tuesday 16 May 2017)

10.00 – 10.30	**Registration** *(coffee/tea provided)*
10.30 – 11.00	**Welcome** *(Thomas Berly, IEA)* **Introductory remarks** *(Juho Lipponen, IEA)* **Setting the scene** *(Thomas Berly, IEA)*
11.00 – 12.00	**Session 1: CCS Perspectives and value** • Unlocking CCS potential: lessons from the past experience (*Sam McCulloch, IEA*) (*15 min*) • CCS build out rates (*Wilfried Maas, Shell on behalf of IEA GHG*) (*15 min*) • Need to prove the value of CCS to society (*Dominique Copin, Total*) (*15 min*) Questions: 15 min

12.00 – 13.15	**Session 2: General update on CCS development**
	
	• Overview of CCS projects (*Chris Consoli, GCCSI*) (*15 min*)
	
	• CCS Updates (*40 min*)
	  ○ CCS UK Perspective *(Amy Cutter, UK Government)*
	  ○ Norway's strategy for carbon capture and storage *(Stale Aakanes, Gassnova on behalf of the Norwegian Minstry of Petroleum and Energy)*
	  ○ CCUS at KASPARC *(Wolf Heidug, KAPSARC)*
	  ○ CO_2 storage capacity in Germany *(Franz May, BGR)*
	
	• Oil & Gas Climate Initiative (OGCI): More energy, lower emissions – catalysing practical action on climate change (*Wilfried Maas, Shell on behalf of OGCI*) (*20 min*)

13:15 – 14:00	***Light Lunch (at UICP – on location)***

14.00 – 15.15	**<u>Session 3:</u> CCS development from the CO_2 transport and storage perspective**
	• CCS projects – presentations (*40 min*)
	  ○ CCS projects learnings (*Wilfried Maas, Shell*) (*15 min*)
	  ○ Lessons and evidence derived from UK CCS Programmes (*Wilfried Maas, Shell on behalf of CCSA*) (*5 min*)
	  ○ US Regional Partnerships – characterisation of CO_2 storage resource potential: example of the MRCSP *(Neeraj Gupta, Battelle) (20 min)*
	• CO_2 storage R&D – current and future developments (Tim Dixon, *IEA GHG*) (*20min*)
	<u>Questions:</u> 15 min

15.15 – 16.30	**<u>Session 4:</u> Defining and classifying CO_2 storage resource** *Moderator: Bill Senior, BP* **<u>Presentations:</u> (*45 min*)** • CO_2 storage fundamentals (*Alf Garnett, University of Queensland*) (*15 min*) • ISO CO_2 Storage – ISO TC 265 (Tim Dixon, *IEA GHG*) (*15 min*) • Basin vs. Project-scale CO_2 capacities: similarities and differences (*Dominique Copin, Total*) (*15 min*) **<u>Discussions:</u> *way forward for large-scale capacity estimation (30 min)***
16:30 – 16:45	***Afternoon Break***
16:45 – 18.15	**<u>Session 5:</u> CO_2 storage cost and economics** *Moderator: Wilfried Mass, Shell* **<u>Presentations</u>: (*65 min*)** • CO_2 storage costs – definition, drivers and variability (*Alf Garnett, UQ*) (*20 min*) • CO_2 storage economics and benefits of brine production (*Emrah Durusut, Element Energy*) (*20 min*) • Developing CO_2 Stores and CO_2 storage cost analysis – the UK Appraisal Project (*Steve Murphy, Pale Blue Dot*) (*25 min*) **<u>Discussions:</u> *CO_2 storage cost estimation methodology (25 min)***
18:15 – 18.30	**Wrapping up Day 1**

Dinner

20.00 – 22.00	***Dinner @ Brasserie Le Suffren, 84 Avenue de Suffren, 75015 Paris***

Agenda – Day 2 (Wednesday 17 May 2017)

8.45 – 10.30	**<u>Session 6:</u> Developing large-scale CO_2 transport and storage (CTS) infrastructure: strategies and plans**
	Moderator: Ståle AAkanes, Gassnova
	
	<u>Presentations:</u> (*80 min*)
	
	• CO_2 Transport & storage development in China (*Jia Li, UK-China Guangdong CCUS Center*) *(20 min)*
	
	• CCS development in Europe (40 min)
	  ○ ZEP CCS developments in Europe (*Harriet Howe, ZEP*) (*15 min*)
	  ○ An example of possible CO_2 transport and storage: the Rotterdam nucleus (*Tom Mikunda, TNO) (15 min)*
	  ○ Early CO_2 storage in the Dutch North Sea *(Chris Gittins, TAQA)* (*10 min*)
	
	• CTS infrastructure – building strategies, planning and investing (*Thomas Berly, IEA*) (*20 min*)
	
	<u>Discussions:</u> *How to plan and coordinate CTS infrastructure development?* (*25 min*)

10.30 – 10.45	***Morning Break***
10.45 – 11.45	**<u>Session 7:</u> Assessing CO_2 storage for large-scale CO_2 transport and storage (CTS) development** *Moderator: Steve Murphy (Pale Blue Dot)* **<u>Presentation:</u> (*30 min*)** • De-risking CO_2 storage to develop large-scale CTS infrastructure development – what needs to happen? *(Alf Garnett, UQ)* **<u>Discussions:</u> *How to design and deliver CO_2 exploration and appraisal programs, role of government/industry and funding requirements.* (*30 min*)**
11:45 – 13:00	***Lunch (Carre Suffren's canteen)***
13.00 – 15.15	**<u>Session 8:</u> Developing the CO_2 transport and storage industry** *Moderator: Dominique Copin (Total)* **<u>Presentations:</u> (*100 min*)** • Enabling large-scale CTS deployment – lessons learnt from CCS projects (*30 min*) ○ What is needed to develop CO_2 storage site(s)? (*Alf Garnett, UQ*) (*15 min*)

	○ A full scale CCS chain by 2022 *(Ståle AAkanes, Gassnova*) (*15min*) • Near-term opportunities for large-scale CTS infrastructure deployment (*30 min*) ○ Re-use of existing O&G infrastructure for CO_2 storage: opportunities and challenges (*Steve Murphy, PBD*) (*15 min*) ○ Role of CO_2-EOR in CCS deployment: US Experience (*Neeraj Gupta, Battelle*) (*15 min*) • Business models and funding (*40 min*) ○ Enabling the deployment of industrial CCS clusters (*Emrah Durusut*, *Element Energy*) (*15 min*) ○ CO_2 transport and storage: review of business models (*Steve Murphy, PDB*) (*15 min*) ○ European funds for industrial CCS clusters (*Emrah Durusut*, *Element Energy*) (*10 min*) **<u>Discussions:</u> *Policies, funding and incentives, business cases and models development plan and structures* (*35 min*)**
15.15 – 16.00	**<u>Session 9:</u> Accelerating CTS infrastructure development through international collaboration** **<u>Presentations:</u> *(30min)*** • International Collaboration in CCS *(Juho Lipponen, IEA)* (*20 min*) • International CCS and the Global CCS Institute *(Chris Consoli, GSCCI) (10 min)* **<u>Discussions/Questions:</u> (*15min*)**
16:00 – 16.15	**Wrapping up the workshop (*15 min*)** • Summary of the workshop – key points and outcomes • Way forward and next steps • AOB
16.15	***End of the workshop***