

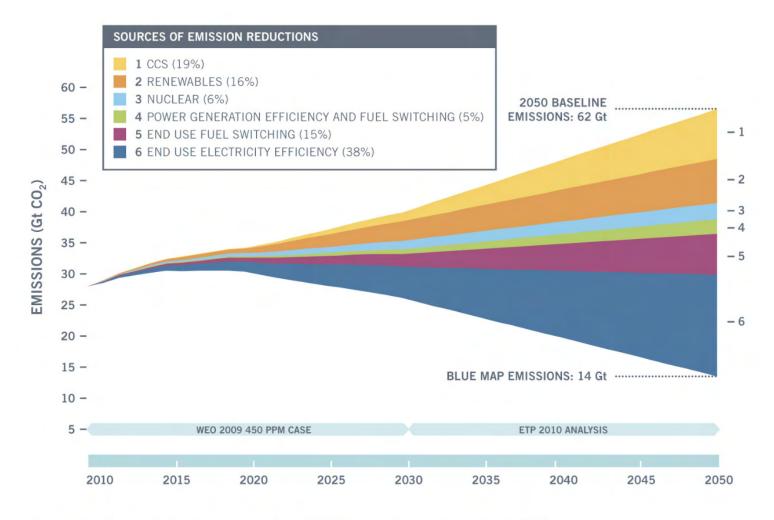
# Global progress towards CCS deployment – getting storage right is essential

## Angeline Kneppers, Senior Advisor Storage - Europe

## 13-14 April 2011

CO2 Capture and Storage - Response to Climate Change. Regional workshop for the Baltic Sea Region and C&E European Countries,

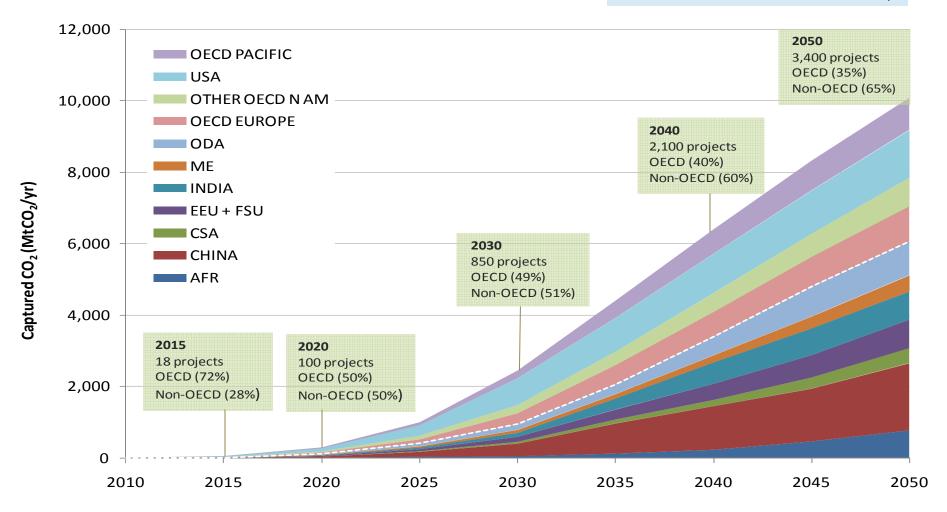
## THE IEA BLUE MAP SCENARIO GLOBALLY, CCS PROVIDES ~20 per cent OF CO<sub>2</sub> MITIGATION BY 2050



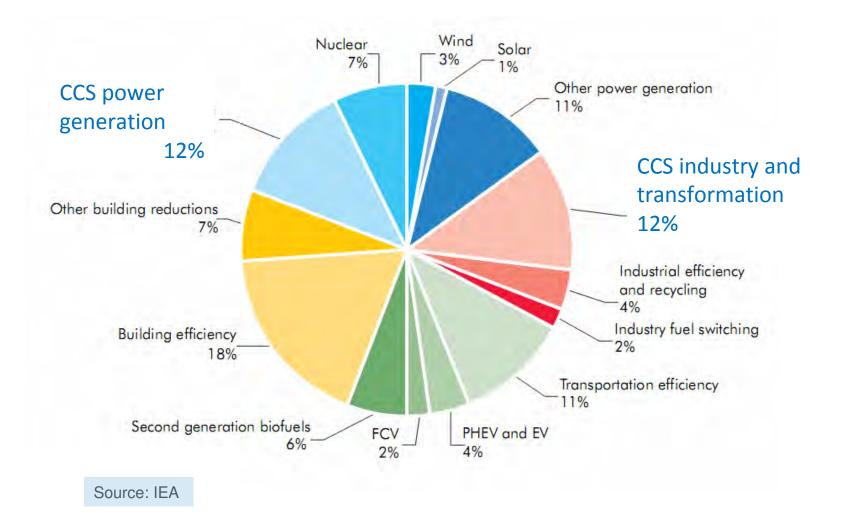
Source: IEA Energy Technology Perspectives (2010) Scenarios and Strategies to 2050.

## **ACCELERATING PROJECT DEVELOPMENT**

An IEA view - Based on CCS Roadmap



## WITHIN OECD EUROPE, CCS PROVIDES ~24 per cent OF THE SOLUTION AND NOT JUST IN THE POWER SECTOR



## **OVERARCHING OBJECTIVE**

"To accelerate the broad deployment of commercial CCS"



## THE GLOBAL CCS INSTITUTE : A KNOWLEDGE SHARING ORGANISATION

To accelerate the development and deployment of CCS globally

so that CCS plays a significant role in reducing GHG emissions

## **1. ASSISTING PROJECTS**

- Bridging between demonstration efforts
- Developing project-specific solutions for early movers

### 2. SHARING KNOWLEDGE

• Sharing real experiences, filling knowledge gaps and building capabilities

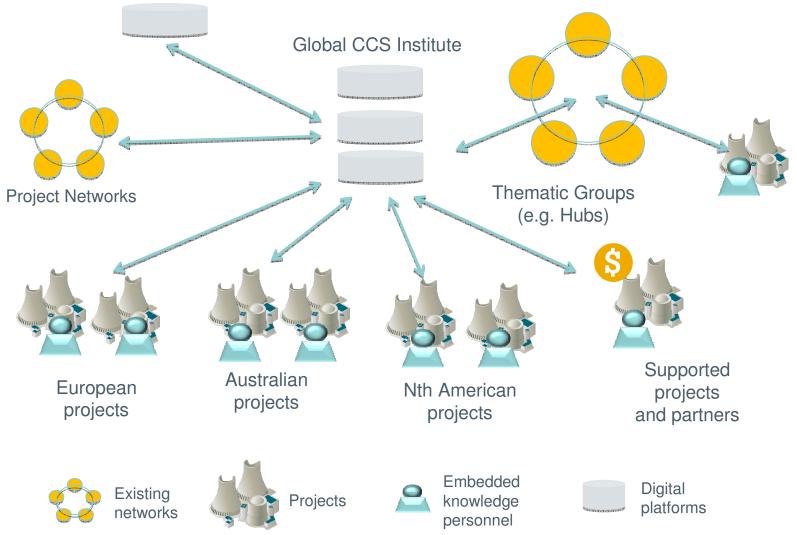
### 3. FACT-BASED ADVOCACY

- Increasing awareness of CCS
- Informing and influencing policy
- Advancing financing solutions and risk regimes

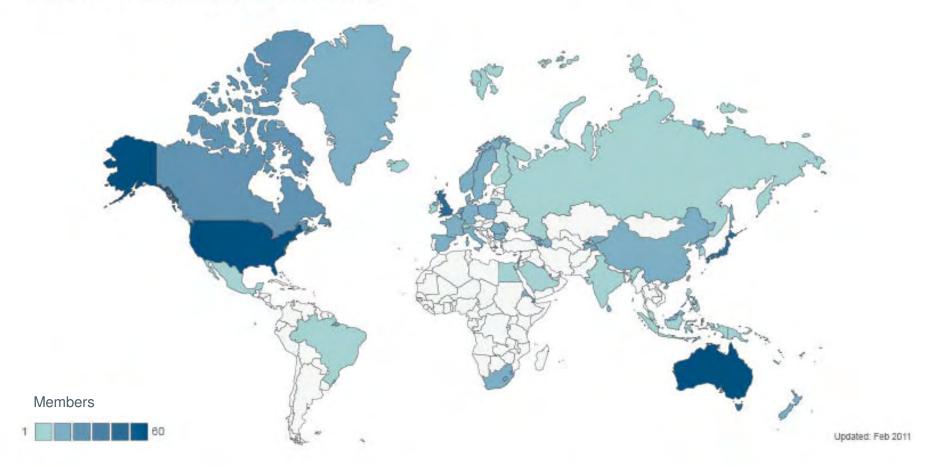
#### GLOBAL CCS INSTITUTE

## DRIVING KNOWLEDGE CREATION THROUGH FUNDING, RESOURCES AND CONNECTING EXISTING NETWORKS GLOBALLY

Other digital platforms (e.g. DoE)



#### GLOBAL CCS INSTITUTE MEMBERS



The Institute's Membership accounts for over 85 per cent of the world's carbon dioxide emissions from energy and industrial sources.

## **OVERARCHING OBJECTIVE**

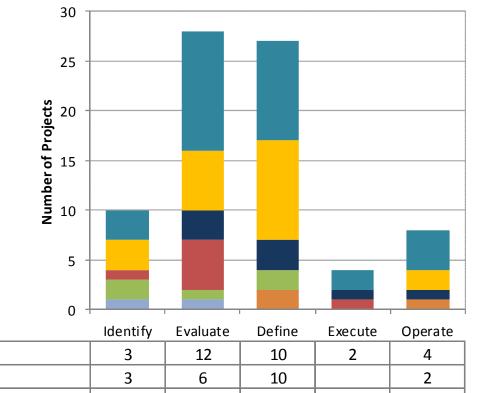
"To accelerate the broad deployment of commercial CCS"

Large-scale Integrated Project update

## 234 ACTIVE AND PLANNED PROJECTS: BY SECTOR AND LIFECYCLE STAGE

Number of projects	0	20 4	0 60	80	100	120
Power generation						
Transport and/or storage						
Enhanced oil or gas recovery						
Gas processing						
Fertiliser production						
Chemical production						
Synthetic natural gas (SNG)						
Coal-to-liquids						
Oil refining						
Iron and steel production						
Cement production						
Alumina production						
Pulp and paper						
Hydrogen production						
Various/not specified						
	Identit	fv				
	Evalua Define	ate				
	Execu	ite				
	Opera	te				

## LSIPS BY ASSET LIFECYCLE



USA	3	12	10	2	4	
Europe	3	6	10		2	
Canada		3	3	1	1	
Australia and New Zealand	1	5		1		
China	2	1	2			
Middle East and Africa			2		1	
Asia (excl. China)	1	1				
Total 2010	10	28	27	4	8	77
Total 2009	19	20	15	2	8	64

## PUBLIC FUNDING COMMITMENTS TO CCS BY COUNTRY

			2.6					
1.0			1					
3.1								
	0.3							
10.0								
		3.1 0.3	0.3	4.0 3.1 0.3	4.0 3.1 0.3	4.0 3.1 0.3	4.0 3.1 0.3	4.0 3.1 0.3

## CHANGE IN LSIP PROJECT STATUS FROM 2009 TO 2010

Number of projects	0	5	10	15	20	25	30	35
Identify	_							
Evaluate								
Define								
Execute								
Operate								
		Newly iden Status unch Cancelled/o Progressed Reassessed	hanged letayed to					

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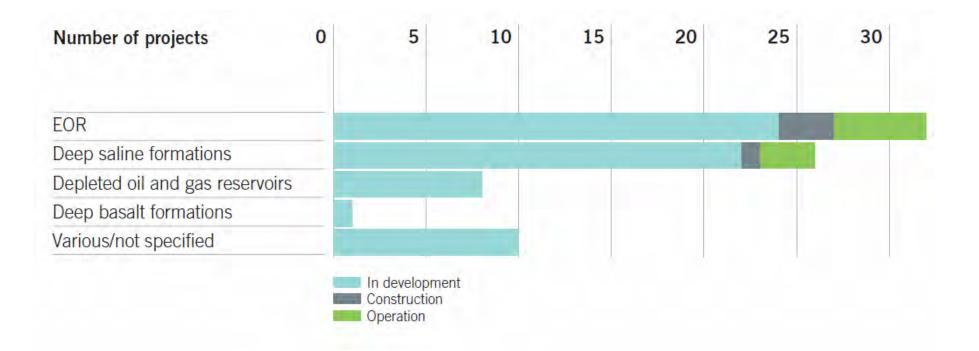
## SCOPE – INDUSTRIAL SCALE\* INTEGRATED CCS PROJECTS

- ALL SOURCE, TRANSPORT AND GEOLOGICAL STORAGE COMBINATIONS
- FOCUS ON PROJECTS PLANNED FOR OPERATION BEFORE 2020
- DEVELOPMENT PERIOD FROM CONCEPT TO INTEGRATED OPERATION

	Gas Processing	Deep Aquifers			
	Gasification and Chemicals				
	Depleted Oil & Gas Fields				
T	Steel and Cement				
	Bio-Energy	Enhanced Oil &Gas Recovery			

\* G8 scale criteria > 1Mtpa CO2 stored (>0.5 Mtpa CO2 stored for gas-fired power)

## LSIPS BY STORAGE TYPE



## GLOBAL STATUS: LESSONS LEARNED - STORAGE

CCS is primarily a policy/commercial issue, not a technical issue

> More work required on policy and regulatory regimes

- Onshore storage faces significant public acceptance issues and this is often underestimated:
- More work required on public participation and acceptance
- Storage characterisation takes time and money but should be a priority
- CCS projects require to start with storage site characterisation.

angeline.kneppers@globalccsinstitute.com

## www.globalccsinstitute.com