

GLOBAL CCS INSTITUTE Bob Pegler, General Manager – Europe PROJECT STATUS, May 2011

THE IEA BLUE MAP SCENARIO GLOBALLY, CCS PROVIDES ~20 per cent OF CO_2 MITIGATION BY 2050



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

ACCELERATING PROJECT DEVELOPMENT

An IEA view - Based on CCS Roadmap



THE INSTITUTE IS A KNOWLEDGE SHARING ORGANISATION

OVERARCHING OBJECTIVE

"To accelerate the broad deployment of commercial CCS"



GLOBAL CCS INSTITUTE

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

INSTITUTE SUPPORTED PROJECTS



3 in North America, 2 in Europe, 2 in Australia. Commitment ~ AU\$23 million

WE DRIVE KNOWLEDGE THROUGH FUNDING, RESOURCES AND CONNECTING EXISTING NETWORKS

Other digital platforms (e.g. DoE)



RECENTLY RELEASED PRODUCTS

CCS Regulatory Test Toolkit (February 2011):

Ensuring best practice regulations and permitting processes.

Tenaska Trailblazer reports (January 2011):

- Project development history;
- CO₂ technology selection process; and
- Public engagement.

Tenaska Nelson 6 reports (January 2011):

Project development history.

All reports supported by the Global CCS Institute.

OVERARCHING OBJECTIVE

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Large-scale Integrated Project update

234 ACTIVE AND PLANNED PROJECTS: BY SECTOR AND LIFECYCLE STAGE

Number of projects	0	20	40	60	80	100	120
Power generation							
Transport and/or storage							
Enhanced oil or gas recovery							
Gas processing							
Fertiliser production	Ē						
Chemical production	- 1						
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							
		Identify Evaluate Define Execute Operate					

77 LSIPS BY INDUSTRY SECTOR, STORAGE TYPE AND LOCATION



LSIPS BY SECTOR

CO ₂ stored (Mtpa)	0	10	20	30	40	50	60	70	80	90	
Power generation	_										42
Gas processing											11
Synthetic natural gas (SNG)											5
Coal-to-liquids											3 z
Fertiliser production											3 m
Oil refining											2 Der 0
Ethanol plant											1 p
Cement production											1 je
Pulp and paper											1 cts
Hydrogen production											1
Iron and steel production											1
Various											6
		In develo	oment								
		Construc	tion								

Operation

LISPS BY ASSET LIFECYCLE



	Identify	Evaluate	Define	Execute	Operate	
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

US\$bn	0	1	2	3	4	5	6	7	8	9	10	11	12
United States		6.1						2.6					
Australia		0.9	4.0										
European Union		1.3	3.1										
Canada		3.0			0.3								
United Kingdom		1.6	1	0.0						1			
Norway		1.3											
South Korea		0.8											
Japan		0.4											
Netherlands		0.2											

Allocated Unallocated

UK CCS Electricity Levy (pre UK Budget)

GLOBAL STATUS: LESSONS LEARNED

- CCS is primarily a policy/commercial issue, not a technical issue
 - Projects getting stuck at Financial Close:
 - Lack of value proposition (even EOR is not sufficient)
 - Costs of CCS
 - Lack of value for CO₂

> More work therefore required on policy and regulatory regimes

- Developers have better alternatives (given current value proposition and incentives)
- Onshore storage faces significant public acceptance issues and this is often underestimated
- Storage characterisation takes time and money

EUROPEAN SNAPSHOT

- Robust number of projects interesting emergent projects from NER300;
- The United Kingdom and the Netherlands are the most active;

But

- Clear political support is limited to a small number of countries;
- Onshore storage faces significant public acceptance issues;
- Renewed interest in gas (without CCS) for electricity generation;
- Limited effort on industrial CCS but unexpected strong response in NER300 (4 projects);
- Transbounday CO2 movement liability, limitations and leverage;

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