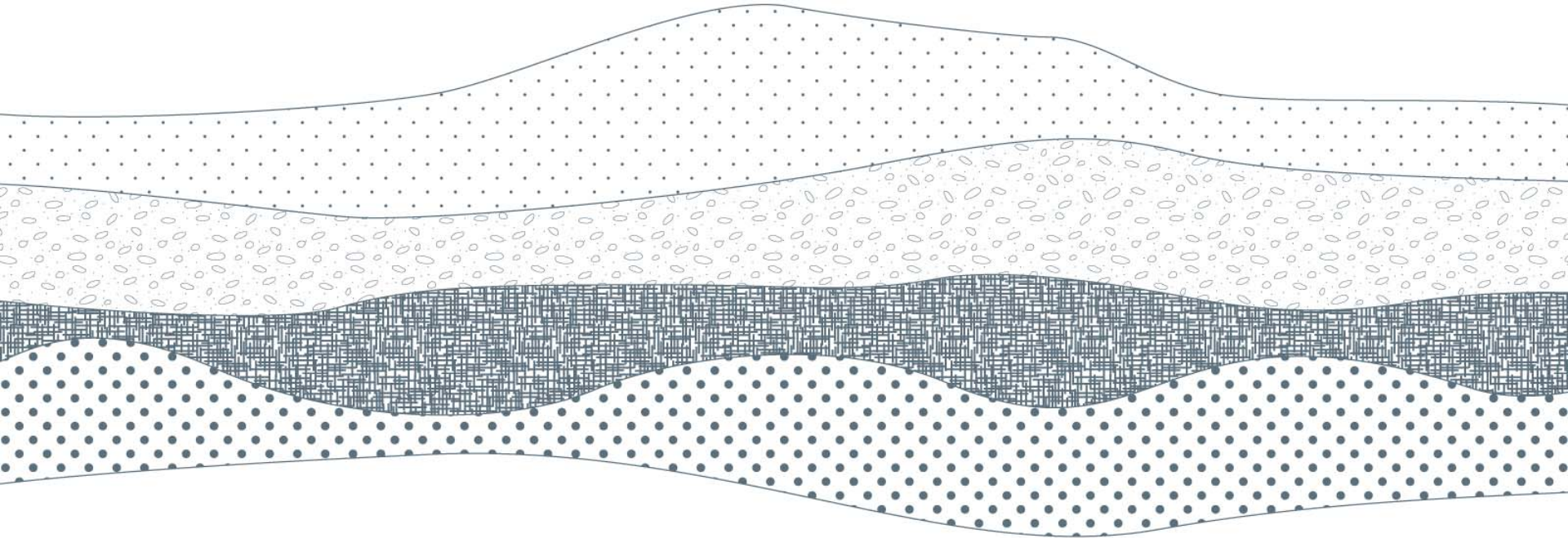




GLOBAL
CCS
INSTITUTE



NEED FOR COLLABORATION TO DEPLOY CCS GLOBALLY

Nick Otter, CEO Global CCS Institute

WEC CCS Forum, Abu Dhabi 21 January 2010

WWW.GLOBALCCSINSTITUTE.COM

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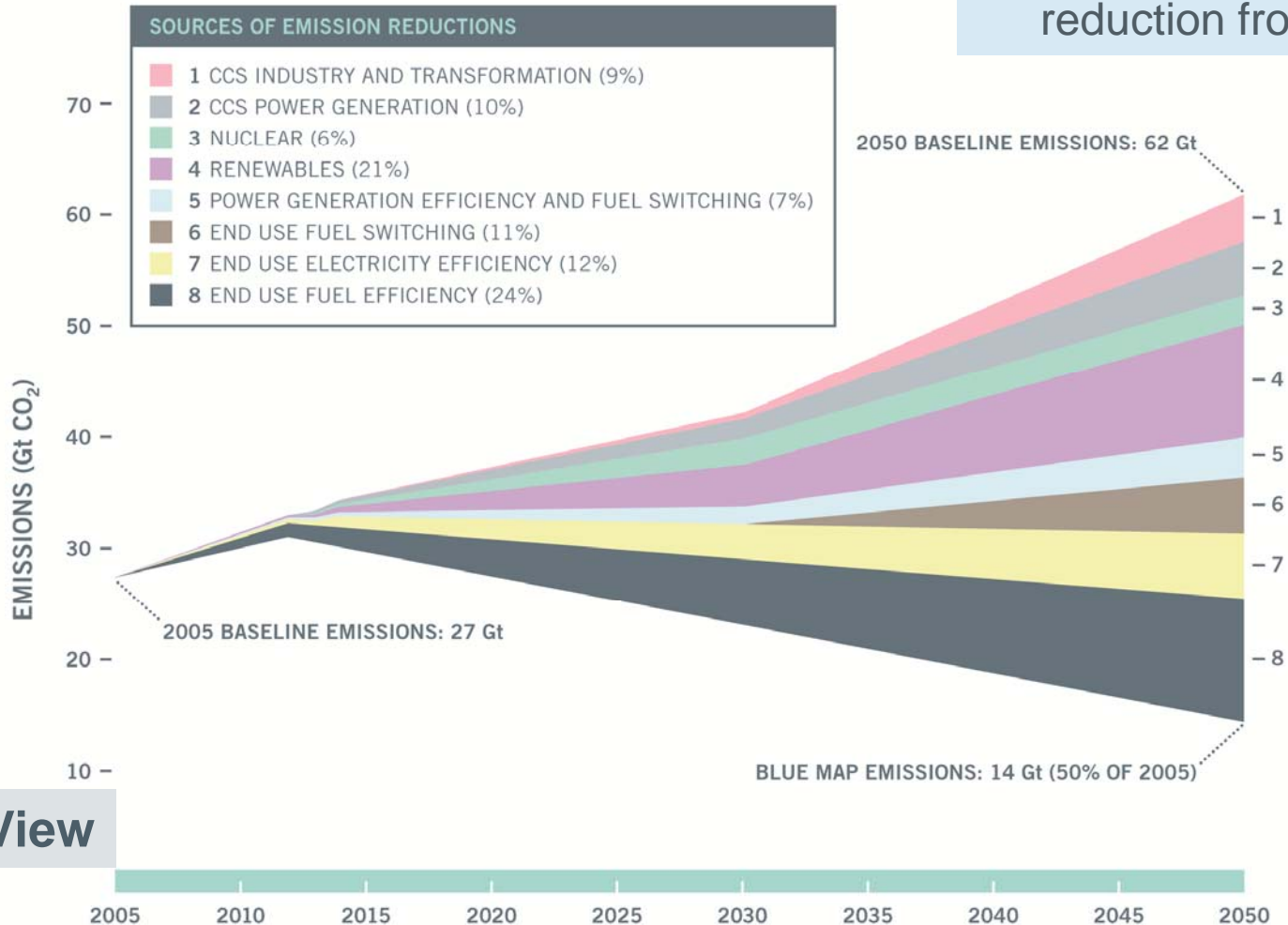
- CCS : a context reminder
- CCS : the need for collaboration
- CCS : the role/actions of the Global CCS Institute

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- CCS : a context reminder
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THE IMPORTANCE OF CCS

~20% of required CO₂ reduction from CCS

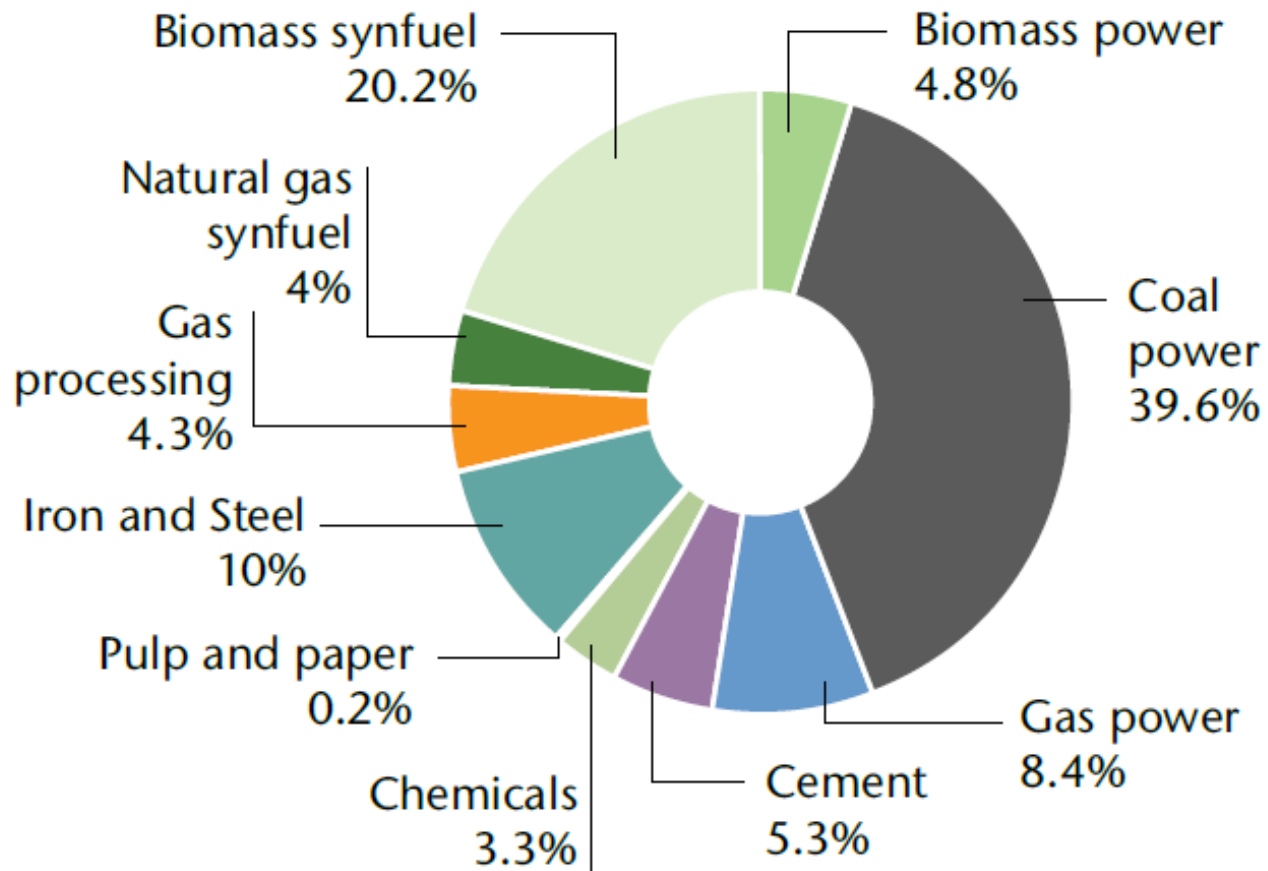


A 2008 View

¹ IEA BLUE MAP SCENARIO: THIS SCENARIO IS CONSISTENT WITH STABILISING CO₂ CONCENTRATIONS AT 450PPM, WITH AN ASSOCIATED GLOBAL RISE IN TEMPERATURE OF TWO TO THREE DEGREES CELSIUS, BUT ONLY IF THE REDUCTION IN ENERGY-RELATED CO₂ EMISSIONS IS COMBINED WITH DEEP CUTS OF GREENHOUSE GAS EMISSIONS FROM NON-ENERGY SOURCES. SOURCE: INTERNATIONAL ENERGY AGENCY 2008, ENERGY TECHNOLOGY PERSPECTIVES: SCENARIOS AND STRATEGIES TO 2050.

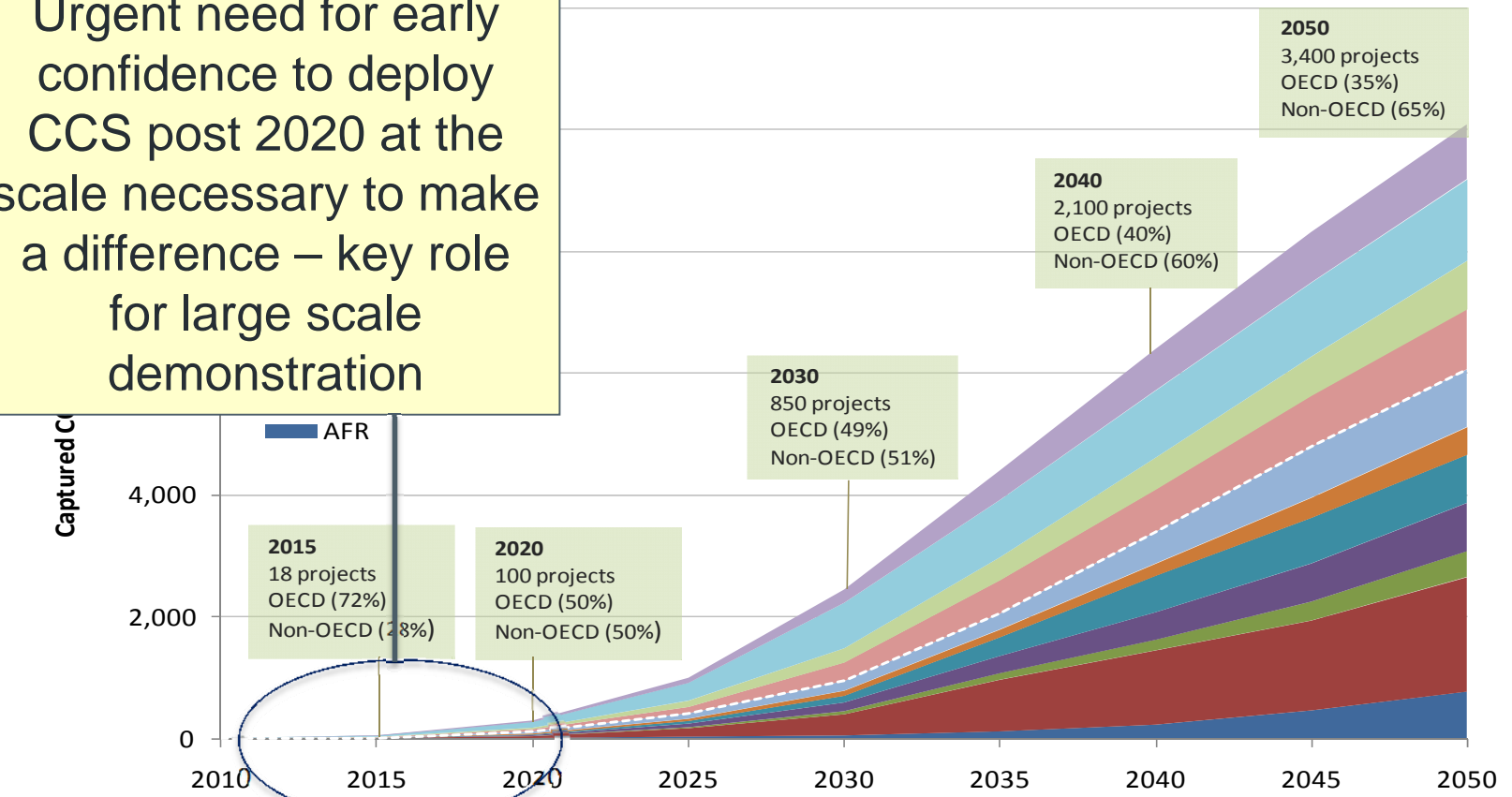
CCS IS NOT JUST ABOUT 'CLEAN COAL'

Sector contributions in 2050 (MtCO₂)



CCS: A ROADMAP TO 2050

Urgent need for early confidence to deploy CCS post 2020 at the scale necessary to make a difference – key role for large scale demonstration



Source: IEA, CCS Roadmap

A 2009 View : IEA

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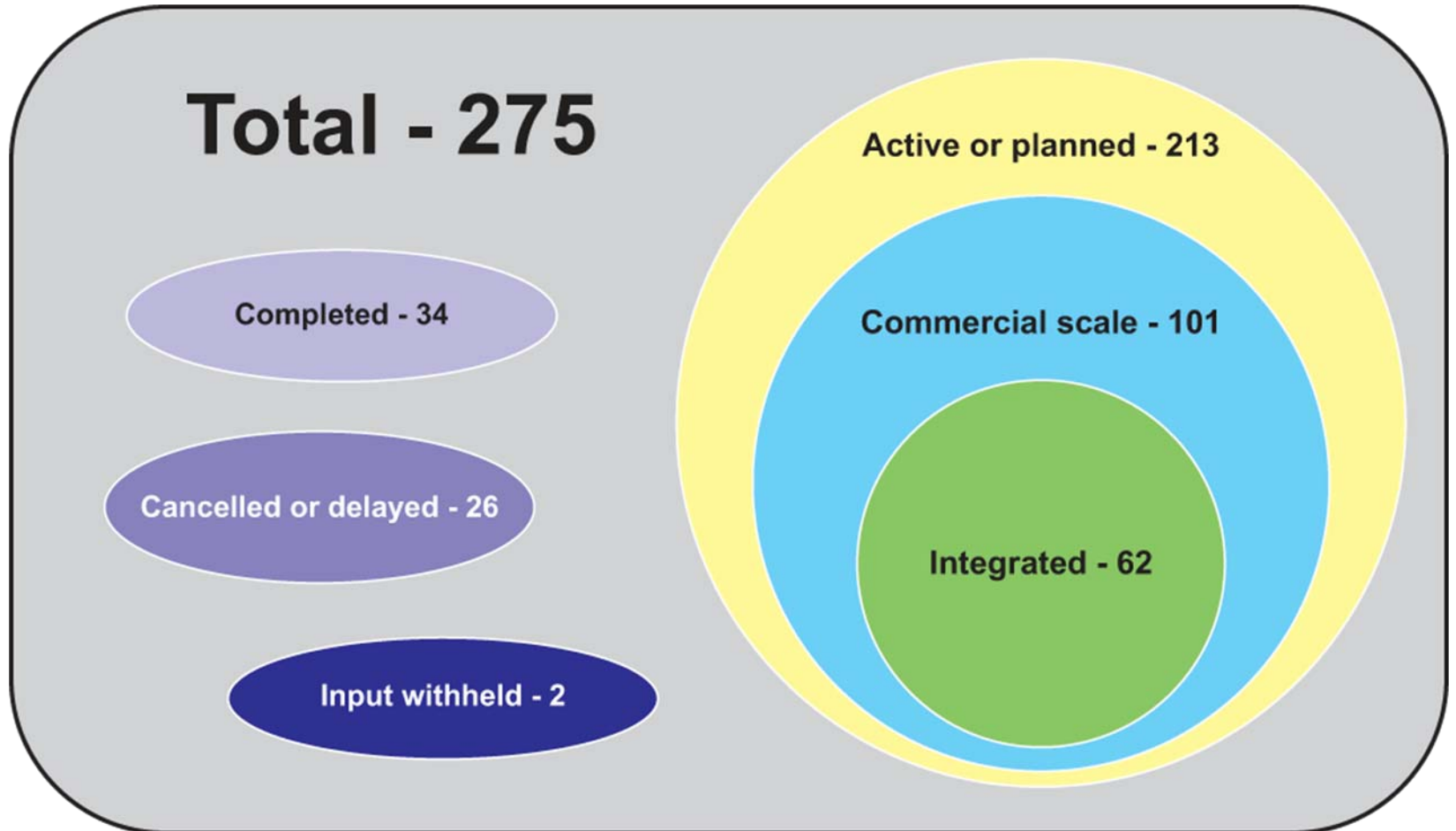
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COMPREHENSIVE AUDIT OF GLOBAL STATUS OF CCS

- Undertaken over June-September 2009
- Project status, costs, policy and regulation and R&D
- Realistic and contemporary view of opportunities and challenges to CCS
- Basis for an annual global 'stocktake' of CCS



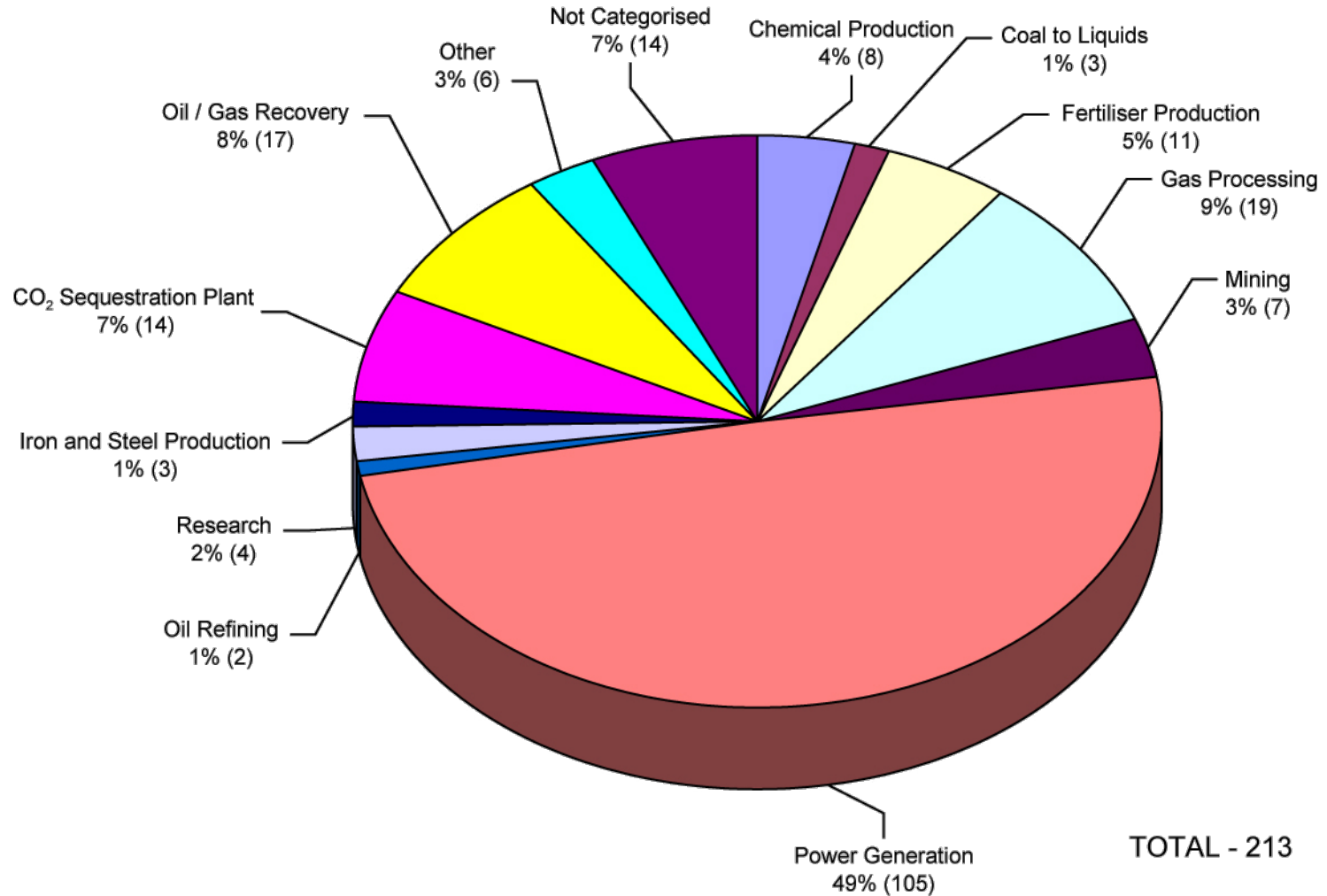
STATUS OF CCS PROJECTS WORLDWIDE



Prepared for the Global CCS Institute by WorleyParsons

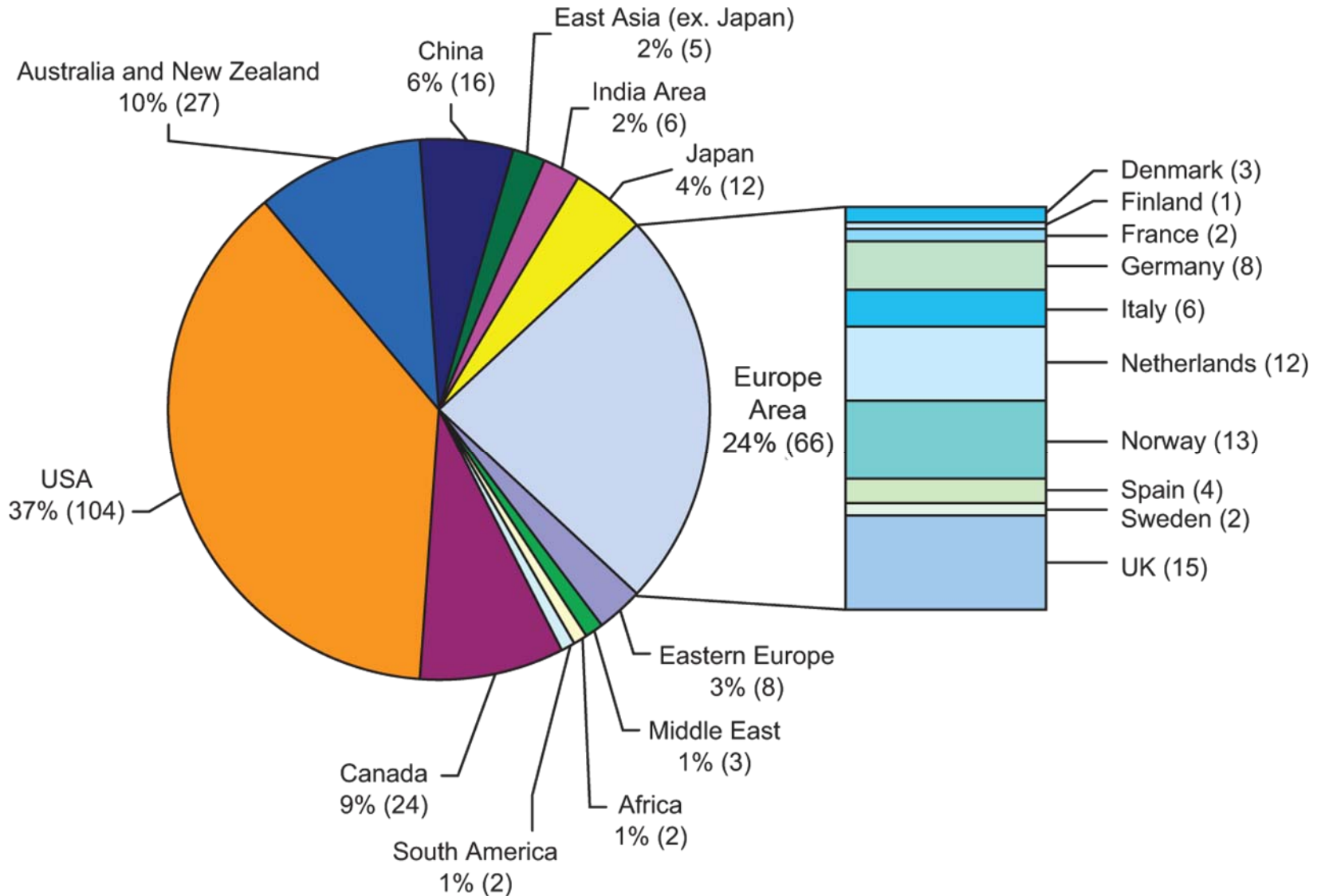
62 commercial scale integrated projects

ACTIVE OR PLANNED PROJECTS BY SECTOR

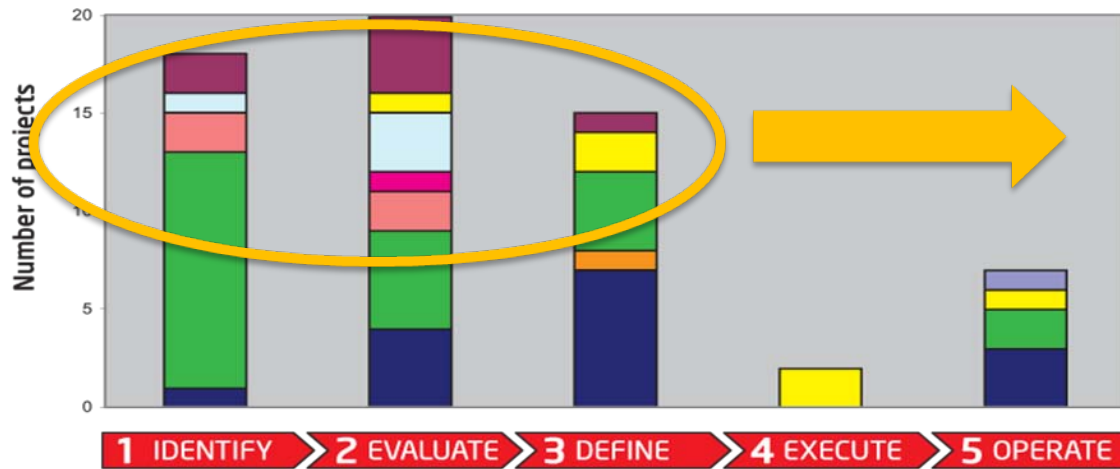


TOTAL - 213

TOTAL PROJECTS BY REGION



CCS 2009 'STOCK TAKE' PROJECTS: POSITION BY LIFECYCLE STAGE



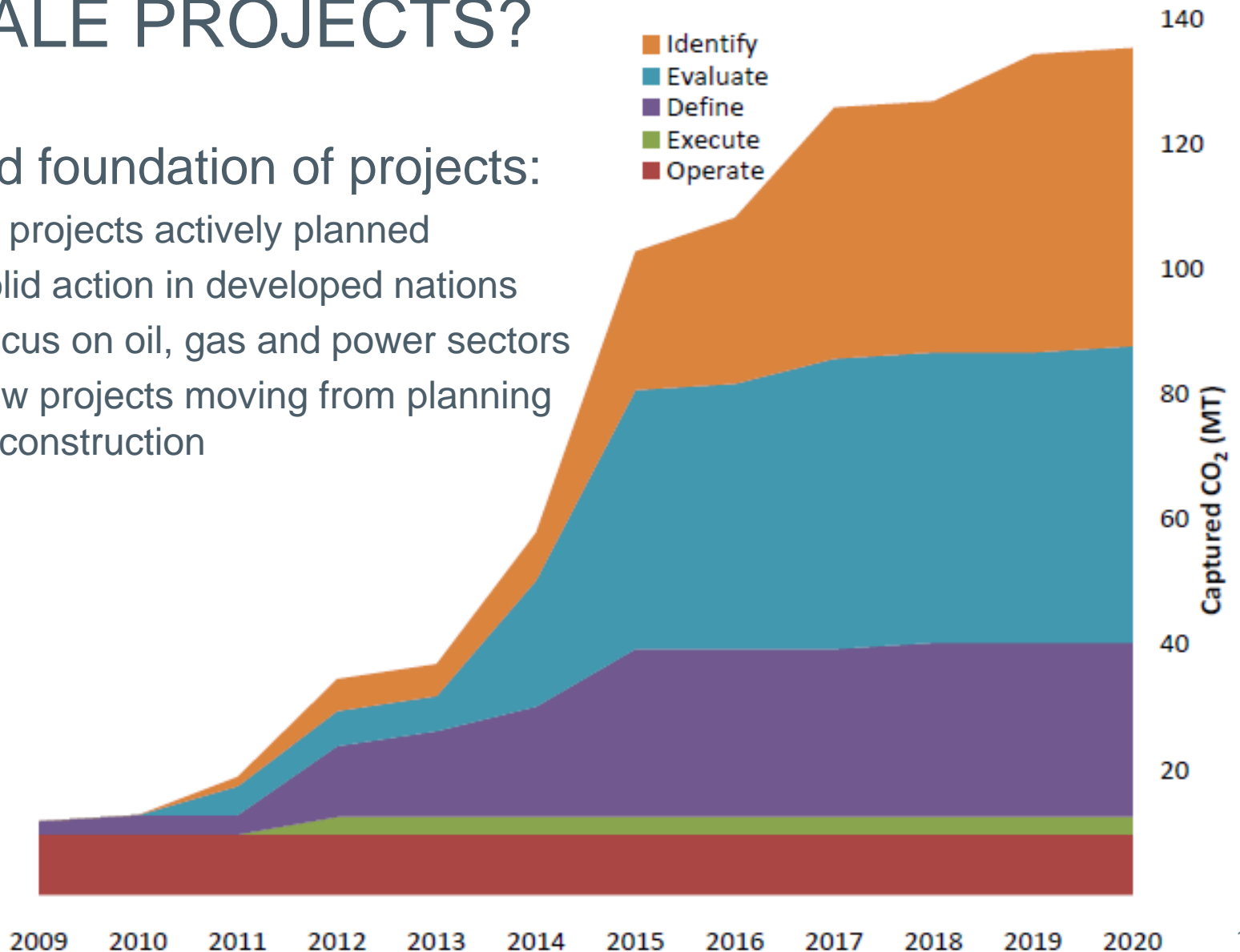
Region	1 IDENTIFY	2 EVALUATE	3 DEFINE	4 EXECUTE	5 OPERATE	Total
Africa					1	1
Australia and New Zealand	2	4	1			7
Canada		1	2	2	1	6
China	1	3				4
East Asia (ex. Japan)		1				1
Eastern Europe	2	2				4
Europe Area	12	5	4		2	23
Middle East			1			1
USA	1	4	7		3	15
TOTAL	18	20	15	2	7	62

Challenge is to get projects into implementation

WHAT IS THE REAL POSITION OF LARGE SCALE PROJECTS?

Good foundation of projects:

- 55 projects actively planned
- Solid action in developed nations
- Focus on oil, gas and power sectors
- Few projects moving from planning to construction



GREATER NEED FOR COLLABORATION

- Large/commercial scale demonstration projects
 - Wide range of projects to give confidence
 - Integrated nature
 - Geographical spread
- Sharing of knowledge and information
- Actions to address issues/barriers common to range of projects
- Capacity and capability building
 - Along the CO₂ chain
 - Internationally
 - Regionally

Need to be smarter to make best use of resources

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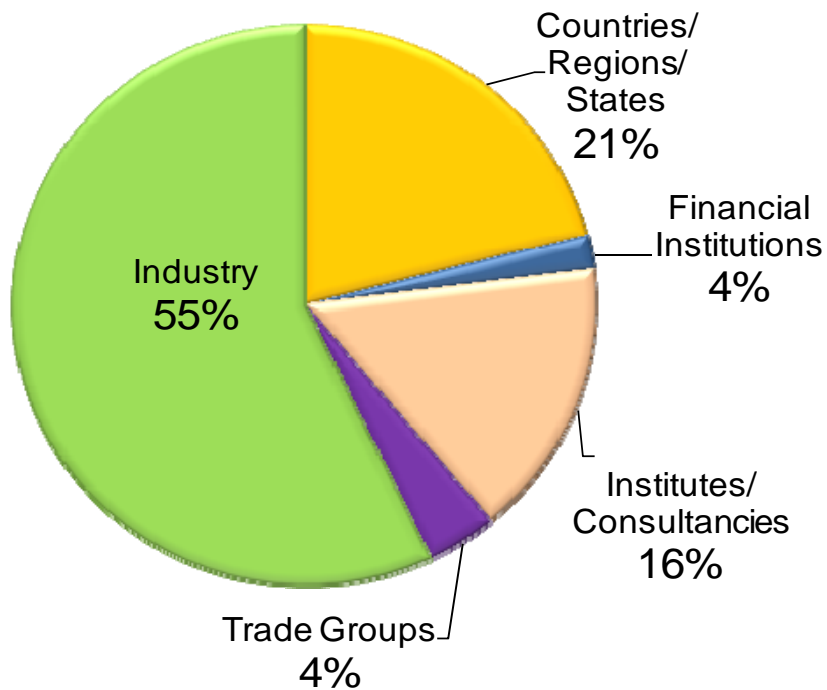
A BOLD NEW INITIATIVE

Global CCS Institute objectives

- Pivotal role in facilitating the development and deployment of commercial-scale CCS projects
- Initial aim of getting 20+ fully integrated industrial scale demonstration projects announced and operational prior to 2020
- Advice on the technologies across the CCS landscape
- Expert insight on the costs, benefits, operational and legislative requirements that set the conditions for commercial deployment
- Work collaboratively to build confidence in CCS and drive international momentum

BALANCE OF PARTICIPANTS

MEMBER ORGANISATIONS



The Global CCS Institute aims to maintain a balance in organisational, political and geographical representation – a true public private partnership.

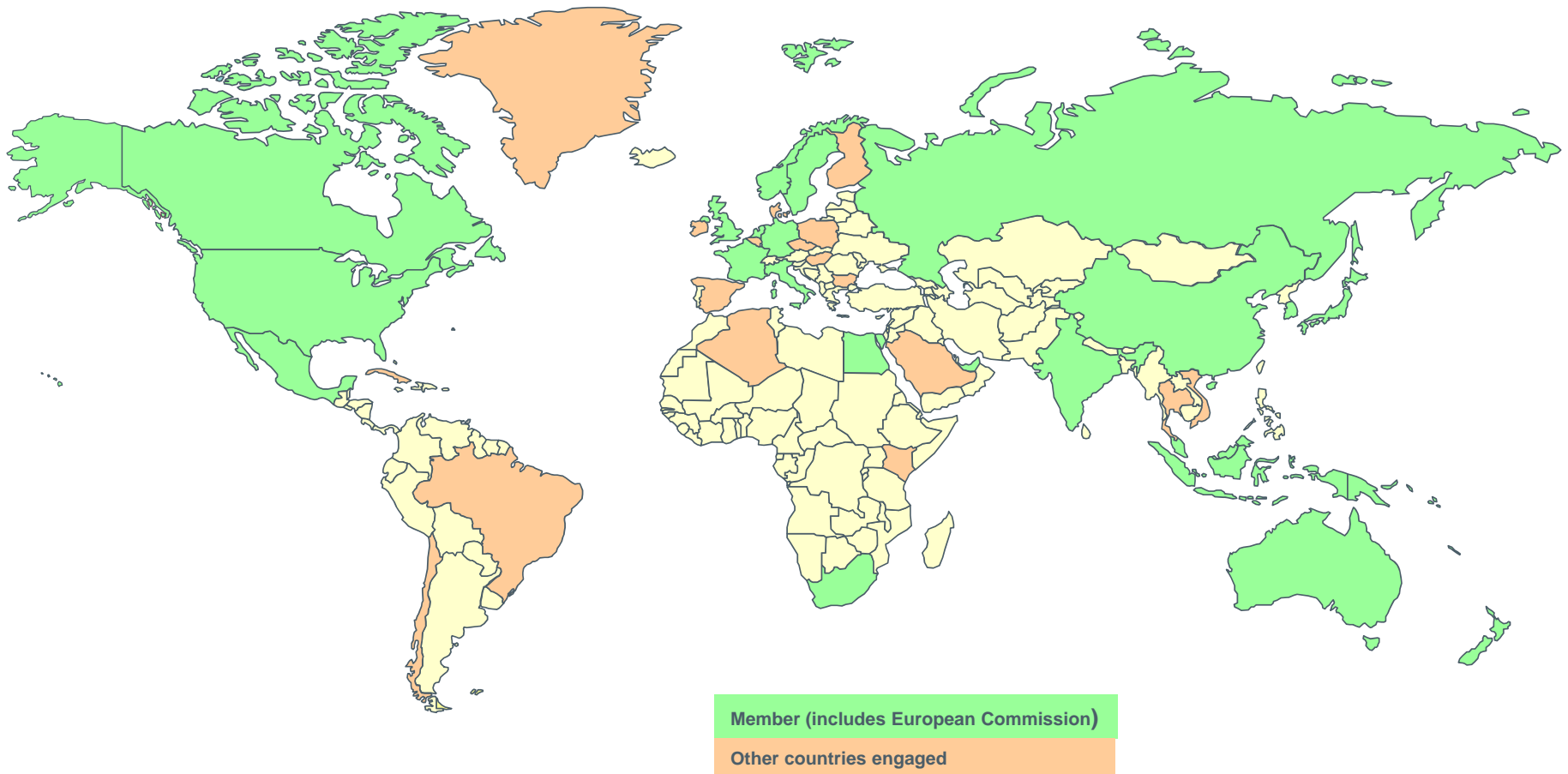
Participating Organisations as of 5 November 2009: 163

Formal Legal Members: 111

CURRENT MEMBERSHIP

111 Legal Members

163 total membership/collaborating partners



THE INTERNATIONAL STATUS

WORLD LEADERS TAKE A GLOBAL VIEW



9th July 2009 - Global CCS Institute formally launched at the G8 /MEF Summit in Italy

PRIMARY WORK THEMES

- Drive development of CCS projects
- Support CCS uptake globally
- Build CCS capability

THE WORK PLAN

CAPACITY AND CAPABILITY BUILDING

Capacity and capability building actions

- Capacity building is a key activity to facilitate CCS deployment, both independently and in partnership with other capacity building organisations
- Focus will be on building capability around project and commercial issues, regulatory and legal frameworks, technical and financial issues

Committed to supporting countries involvement in CCS

- In partnership with governments and stakeholders
- In conjunction with CSLF plus Asian Development Bank, World Bank with additional support from UK, Canada and Norway

Engagement approach

- Fund specific project initiatives
- Partnering with R&D and industry bodies

THE WORK PLAN

FORGING PARTNERSHIPS, ENCOURAGING COLLABORATION

Strategic alliances

- Establishing close collaborative partnerships with IEA, IEA GHG, CSLF, World Bank, ADB, Clinton Foundation and The Climate Group
- Develop partnerships with other stakeholders to foster a co-ordinated approach

Knowledge sharing across international boundaries

- Development of an inclusive framework to build a global best practice

Community and public awareness action

- Support to international CCS Social Science Network over three years
 - Assessment of public awareness to date
 - Analysis of local and global factors
 - Assessment of approaches, materials and efforts to engage effectively
- Development of material to inform at all levels

THE WORK PLAN

LEADING THE WAY WITH VITAL PROJECTS

The Strategic Analysis of the Global Status of CCS

A comprehensive audit (the 'stocktake') of the world's current CCS projects to determine:

- Project status
- The costs involved
- The impact of the global financial crisis
- Policy and regulatory frameworks
- Research and development efforts
- Commercial and non-commercial gaps in the global deployment of CCS

Portfolio of CCS Projects

- A key portfolio will include a variety of CCS projects, spanning different technologies and geographic regions, to deliver a comprehensive global approach.
- A Rationale for Support

CCS Ready

- A base line study to establish a clear definition of what it means to be 'CCS Ready'

CCS PROJECT STRATEGY: TWO KEY ELEMENTS

1. 'Advanced' projects

- Individual project consortia/proponents
 - in/outwith current stock take assessment
 - build on established strategic partnerships
- Assisting with removal of barriers/blockages
 - 'Specifics on specific projects'
 - Common to 'several specific projects'

2. 'Early stage' and 'gap/new' projects

- Kick starting/generating more
 - Utilise ADB/World Bank initiatives

CCS PROJECT STRATEGY: FOCUS OF FUNDING AND RESOURCES

**Early stage and
new projects**

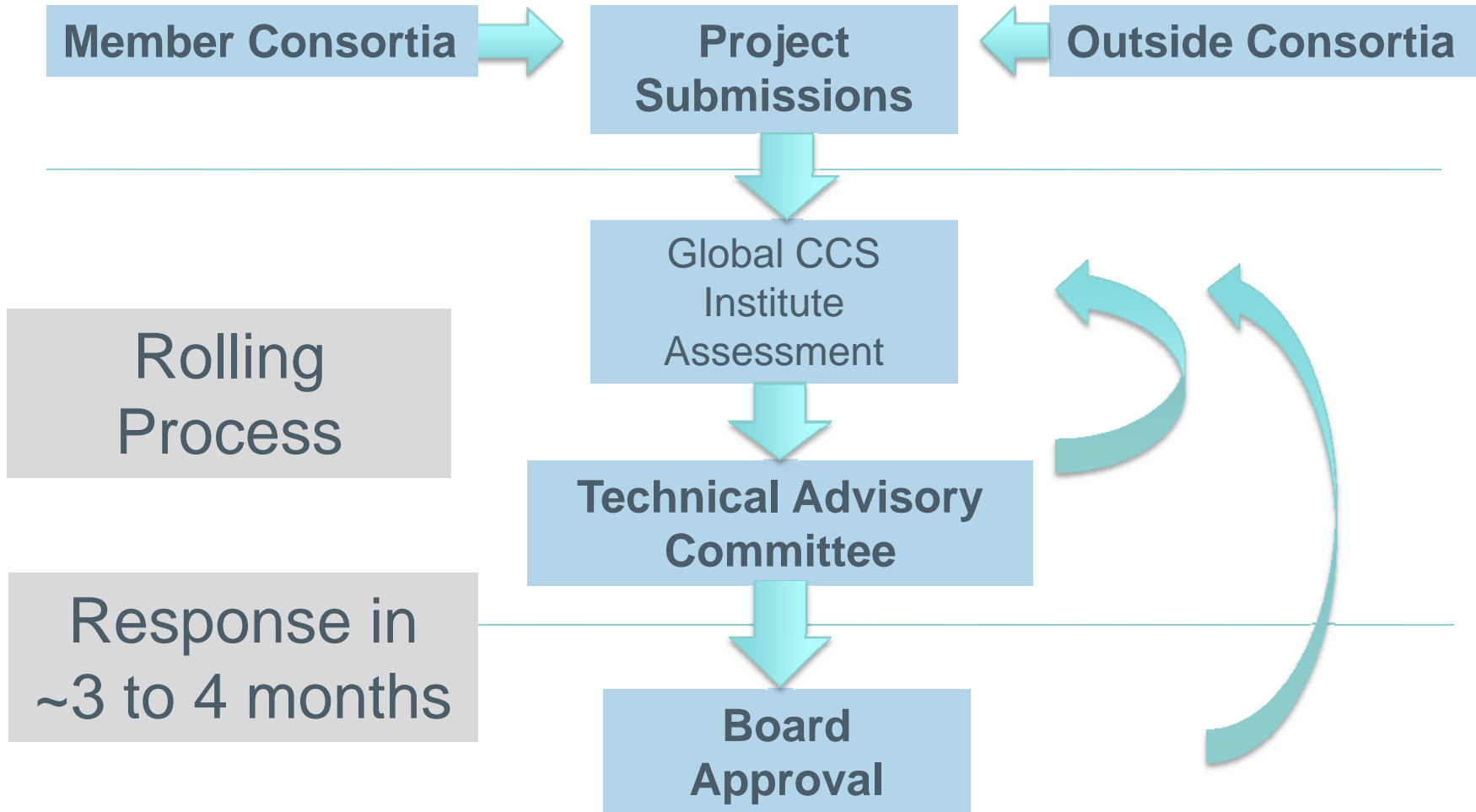
**Advanced
projects**

CCS PROJECT STRATEGY: FUNDING SUPPORT

Principles that will inform the application process:

- Knowledge Sharing – mandatory
- Overcoming Barriers – all have challenges
- Diversification – limited duplication desirable
- Timeliness – speed
- Project ‘Pipeline’ – encourage and develop

CCS PROJECT STRATEGY: APPLICATION PROCESS



CCS PROJECT STRATEGY:

APPLICATION PROCESS : INITIAL TRANCHE RESPONSE

- Over 50 applications for support
- Targeting specific barriers on specific projects
- Initial concepts and new projects
- Approximately 500m A\$ requested
- Budget level ~50mA\$/year for 3 years

Project support strategy addressing an urgent need

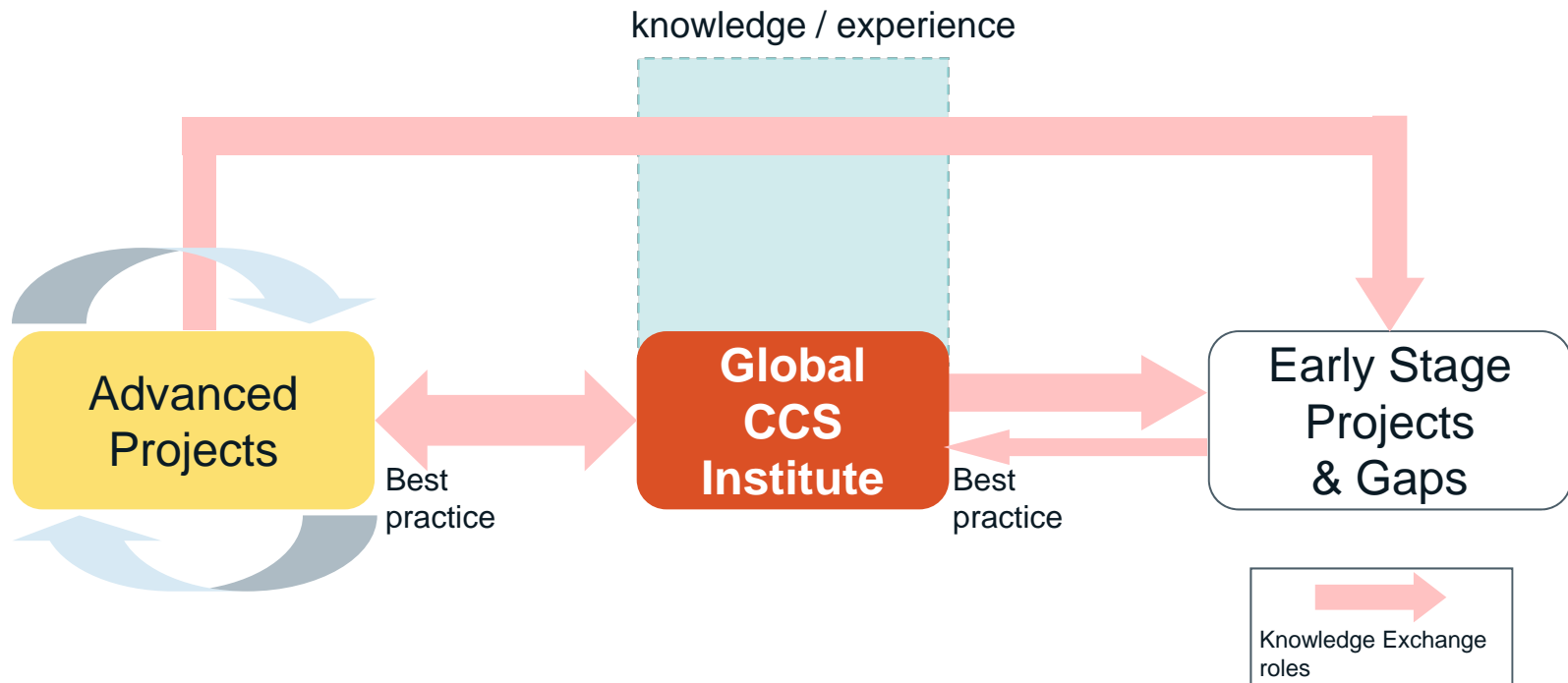
IDEAL PORTFOLIO OF CCS PROJECTS

	Industry and Capture	Transport	Storage
26 projects overall	Power Generation	Point to point pipeline onshore 1	Structured deep saline aquifers 1
	Pre-combustion 4	Point to point pipeline offshore 1	Unstructured deep saline aquifers 1
	Oxy-combustion 6	Backbone pipeline – cluster 1	Depleted oil field 1
	Post-combustion 7	Long distance ship – port-to-offshore site or port-to-port 1	Depleted gas field 1
	Iron & Steel 3	Cross-border pipeline 1	Oil field for EOR 1
	Cement 3		Gas field for EGR 1
Other Industries 3			
		Including 5 solutions	Including 6 configurations
	Minimum of 26 projects	+ Diversification principles to populate projects beyond this number	

Different combinations needed for confidence

KNOWLEDGE SHARING

- Work with all projects to gain and thence transfer knowledge
- Greatest value add will be to help implement 'advanced' projects and to accelerate deployment of 'early stage and gap' projects



THOUGHTS ON MIDDLE EAST AND NORTH AFRICA

- Global CCS Institute involvement
 - Egypt membership
 - MASDAR a member of the Global CCS Institute
 - ❑ MASDAR CCS Project
 - ❑ Hydrogen Power Abu Dhabi project
- EOR –CO₂ aspects and interests
 - ❑ Symposium scheduled for Algeria with International Energy Forum in June 2010
 - ❑ Follow up to Beijing CO₂-EOR meeting on 28 September 2009
- Potential of CO₂ storage
 - ❑ Reservoirs in Middle East and North Africa

SUMMARY

- Importance of CCS as a key element in the portfolio
- Politically agreed CO₂ reductions demand rapid deployment of CCS
- Acceleration actions need to be established to address urgency where early large/commercial projects will be key
- Greater engagement needed on a global and regional basis
- Sharing of knowledge gained, especially from early projects a critical element
- Smarter interactions needed between players and CCS proponents

Unprecedented need for effective collaboration worldwide



www.globalccsinstitute.com