



An Australian Government Initiative

The Global Carbon Capture and Storage Institute

GCCSI

Progress and objectives

Nick Otter

CEO of the GCCSI

Foundation Members Meeting

Canberra

16 - 17 April 2009



Welcome
to the inaugural meeting of
the GCCSI

a milestone event

Objectives of meeting

- To apprise the status of the GCCSI
- To give visibility of the ideas and early work actions of the GCCSI
- To receive views on the initial work plan, primarily for the next year
- To seek guidance and advice on the forward 'trajectory' for the GCCSI, in particular for the two to five year time frame



- The importance of CCS, a reminder
- The current position of the GCCSI
- The immediate way forward for today and the GCCSI

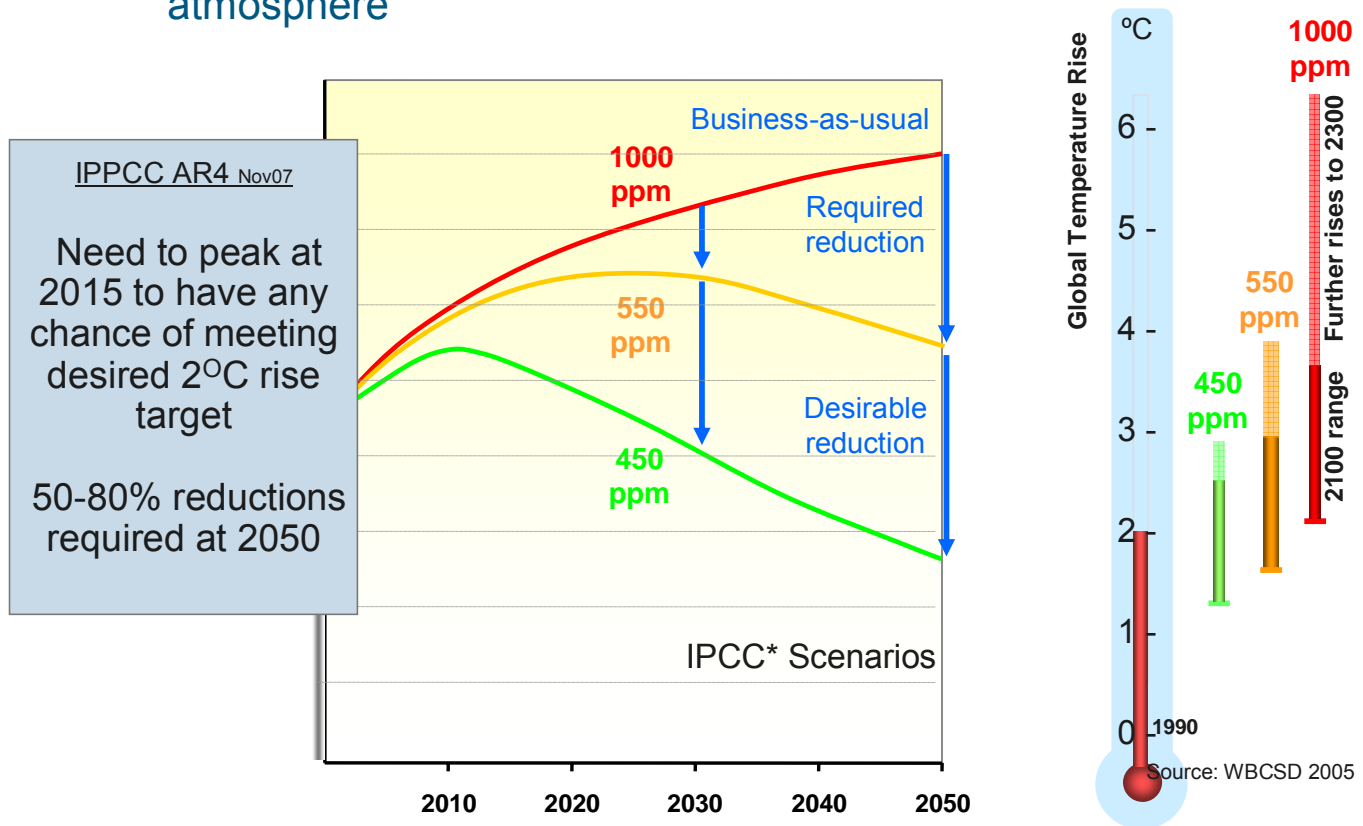


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The fundamental driver

Climate Change : Global CO₂ Projections

Goal: A long term moderate stable CO₂ concentration in the atmosphere

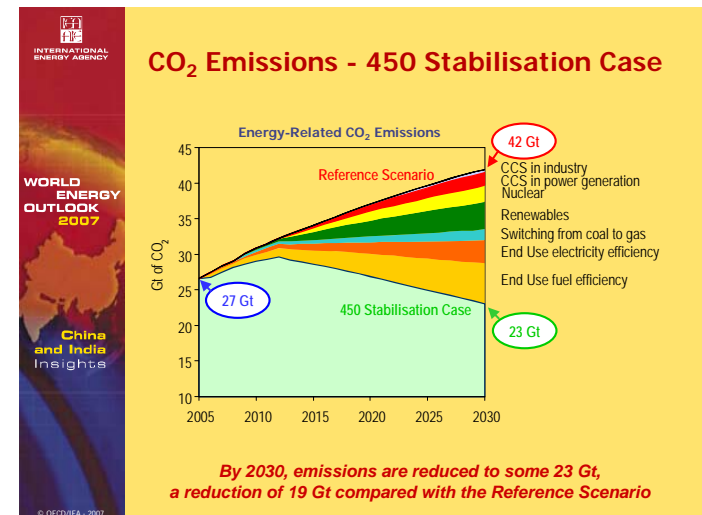


Importance of CCS

Clean Fossil Fuel : a critical element of a portfolio to achieve a sustainable future

- Importance of clean use of fossil fuels, especially coal
- Importance of accelerating the take-up of clean fossil fuels
- Importance of addressing issue worldwide

- critical transitional issue for a sustainable energy future
- an essential part of the portfolio

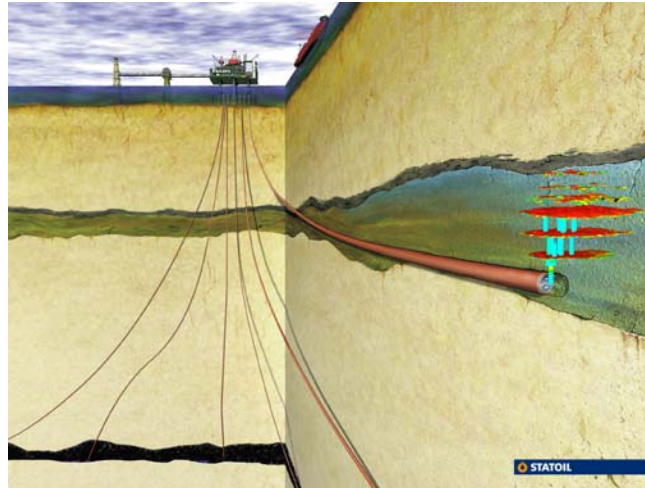


Need for demonstration at scale



CCS is already happening worldwide

- **Sleipner, Norway**
1 Mt/year since 1996
- **Permian Basin, US**
70+ projects, total of 500 Mt/stored
- **In Salah, Algeria**
1.1 Mt/y since 2004
- **Weyburn, Canada**
2 Mt/y since 2000



Now need to upscale, reduce costs and test the full CO₂ chain and the range of storage options

Basic rationale

“we strongly support the recommendation that 20 large scale CCS demonstration projects need to be launched globally by 2010, with a view to supporting technology development and cost reduction for the beginning of broad deployment of CCS by 2020”

G8 Statement of June 2008

G8-IEA-CSLF



RESULTS FROM THE CALGARY WORKSHOP
NOVEMBER 27 & 28 2007

3RD WORKSHOP

**NEAR-TERM OPPORTUNITIES
FOR CARBON CAPTURE
& STORAGE**

- 
- The importance of CCS, a reminder

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Mandate and objectives

- Acceleration of the global adoption of safe, commercially and environmentally sustainable CCS
- Drive co-operation to deliver a diverse portfolio of 20+ fully integrated industrial scale demonstration projects by 2020:
 - Across a range of emitters
 - Across a range of technologies
 - Along the entire capture, transport and storage chain
- Work in concert with existing bodies to overcome barriers to broad industrial scale deployment of CCS
- Be responsible for effective sharing of non-proprietary knowledge of CCS among shareholders and interested parties

The GCCSI is a global action

History and background to date

- **19th September 2008:** Announcement by the Australian Prime Minister Kevin Rudd to form a Global Institute addressing the acceleration of the deployment of CCS worldwide.
- **24-25th November 2008:** Preparatory stakeholder workshop held in London to refine the initial planning work, following a series of preliminary meeting indicating of a high level of support worldwide...meeting attended by over 160 people from 40+ countries.
- **12th January 2009:** Interim management team established to implement the GCCSI...CEO, Nick Otter and Deputy CEO, Dale Seymour now replaced by Bob Pegler.
- **15-17th April 2009:** First meeting of the GCCSI in Canberra, Australia.

Membership and support: As of 16th April 2009

Founding Members

The Government of Australia
The Emirate of Abu Dhabi
The Government of Canada
European Commission
The Government of France
The Government of Germany
The Government of Indonesia
The Government of Italy
The Government of Japan
The Government of the Republic of Korea
The Government of Mexico
The Government of Netherlands
The Government of New Zealand
The Government of Norway
The Government of Papua New Guinea
The Government of South Africa
The Government of United Kingdom
The Government of United States of America

The State Government of New South Wales
The State Government of Queensland
The State Government of South Australia
The State Government of Victoria
The State Government of Western Australia

Asian Development Bank
Japan Bank for International Cooperation

Alstom Power Ltd
AMEC Plc
Anglo American Services (UK) Limited
ARUP Pty Ltd
BHP Billiton
BP Australia Pty Ltd
Chevron Australia Pty Ltd
Chiyoda Corporation
Doosan Babcock Energy Limited
The Dow Chemical Company
ENEL
Exxon Mobil Australia Pty Ltd
General Electric International Inc
Greenhouse Gas Storage Solutions (GGSS)
Hitachi Corporation
Hydrogen Energy International Limited
INPEX Corporation
Ishikawajima-Harima Heavy Industries Corp
Nippon Steel Engineering Co. Ltd
Macquarie Capital Advisers Ltd
Mitsubishi Corporation
Mitsui & Co Ltd
Parsons Brinckerhoff Australia Pty Ltd
Peabody Pacific Pty Ltd
PricewaterhouseCoopers

Rio Tinto Ltd
RWE Power AG
Santos Limited
Senergy Alternate Energy Ltd
Services Petroliers Schlumberger
Shell International Petroleum Company Ltd
Southern States Energy Board (US)
StatoilHydro ASA
Taisei Construction Corporation
Toshiba Corporation
Total E&P
TRUenergy Development Pty Ltd
Woodside Energy Ltd
Worley Parsons Services Pty Ltd
Xstrata Coal Pty Ltd
ZEEP Australia Pty Ltd

Australian Coal Association
Carbon Capture and Storage Association
Cooperative Research Centre for Greenhouse Gas Technologies (CO2CRC)
Electric Power Research Institute (EPRI)
Commonwealth Scientific and Industrial Research Organisation (CSIRO)
The Clinton Foundation
Główny Instytut Górnictwa (Poland)
Japanese Coal Energy Center (JCOAL)
National Low Emissions Coal Research and Development Ltd (Australia)
Research Institute of Innovative Technology for the Earth (RITE, Japan)
South African National Energy Research Institute (SANERI)
The Climate Group
Underground Coal Gasification Association
University College of London
World Coal Institute

Collaborating Participants

International Energy Agency
The World Bank
The Government of the Peoples Republic of China
China Huaneng Group

Founding Members: 81
Collaborating Participants: 4

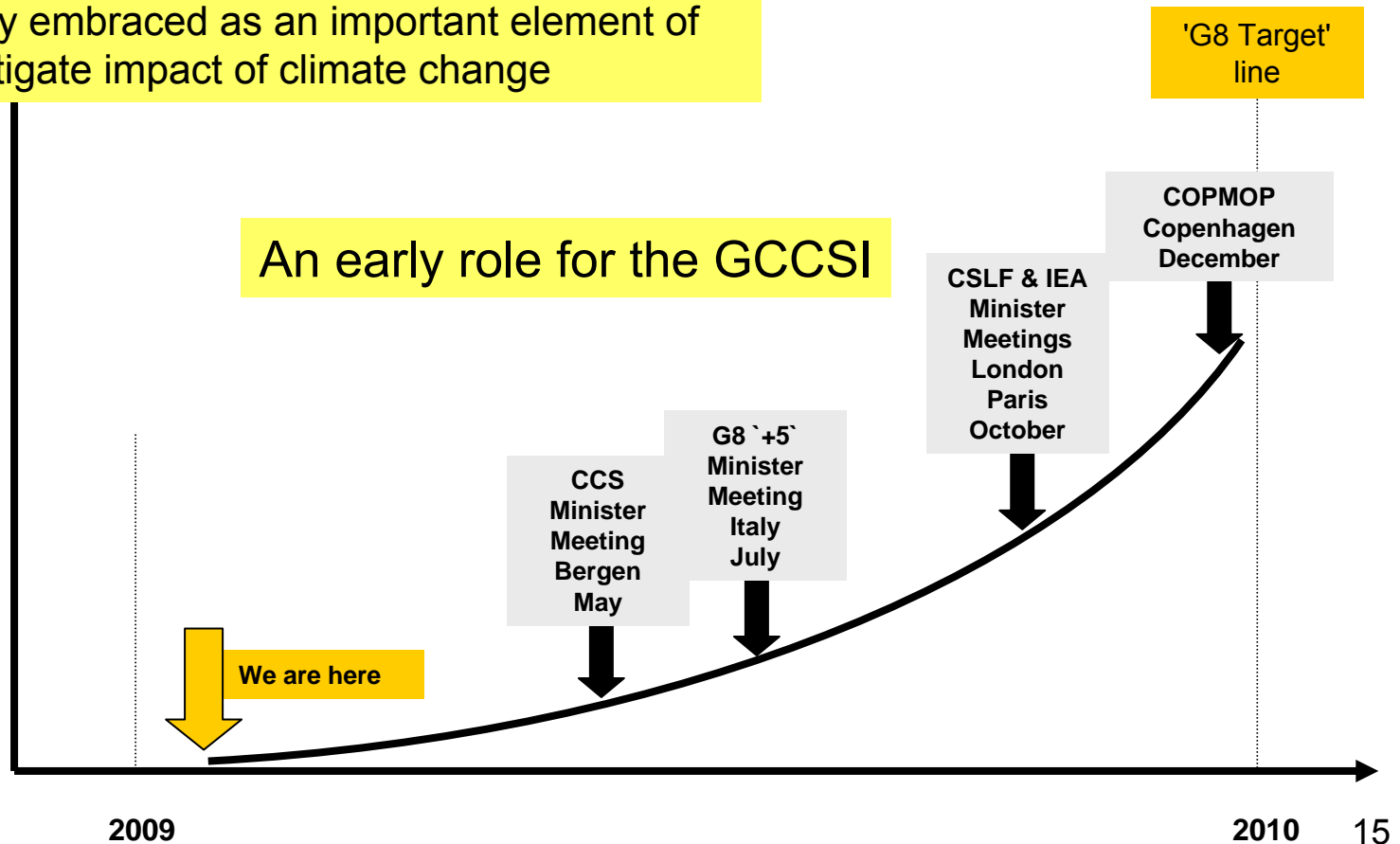
It is still early days for the GCCSI.

Interim team of 25 established on 2nd February 2009 to:

- Set the 'trajectory' for the GCCSI into the future
- Define an initial work programme to establish the basis for the activity of the GCCSI in the context of a longer term time frame
- Continue to attract participating countries, companies and organisations and manage their engagement
- Prepare the way for the permanent team through the establishment of a legal and physical entity
- Provide input into the important international actions of 2009

2009: An extremely important year

Key inputs and positions required to ensure that CCS is fully embraced as an important element of tools to mitigate impact of climate change



Added value of the GCCSI

The GCCSI brings to the arena a much needed resource

- Budget commitment of \$100m AUD pa from Australian Government
- Initially provide financial support but increasingly through resource to address removal of barriers to deployment of CCS
- Provide full time funded expertise to assist in demonstration CCS project implementation embracing full CO₂ value chain
- Underpin and expand the capability within other international actions including those of the International Energy Agency (IEA) and Carbon Sequestration Leadership Forum (CSLF)

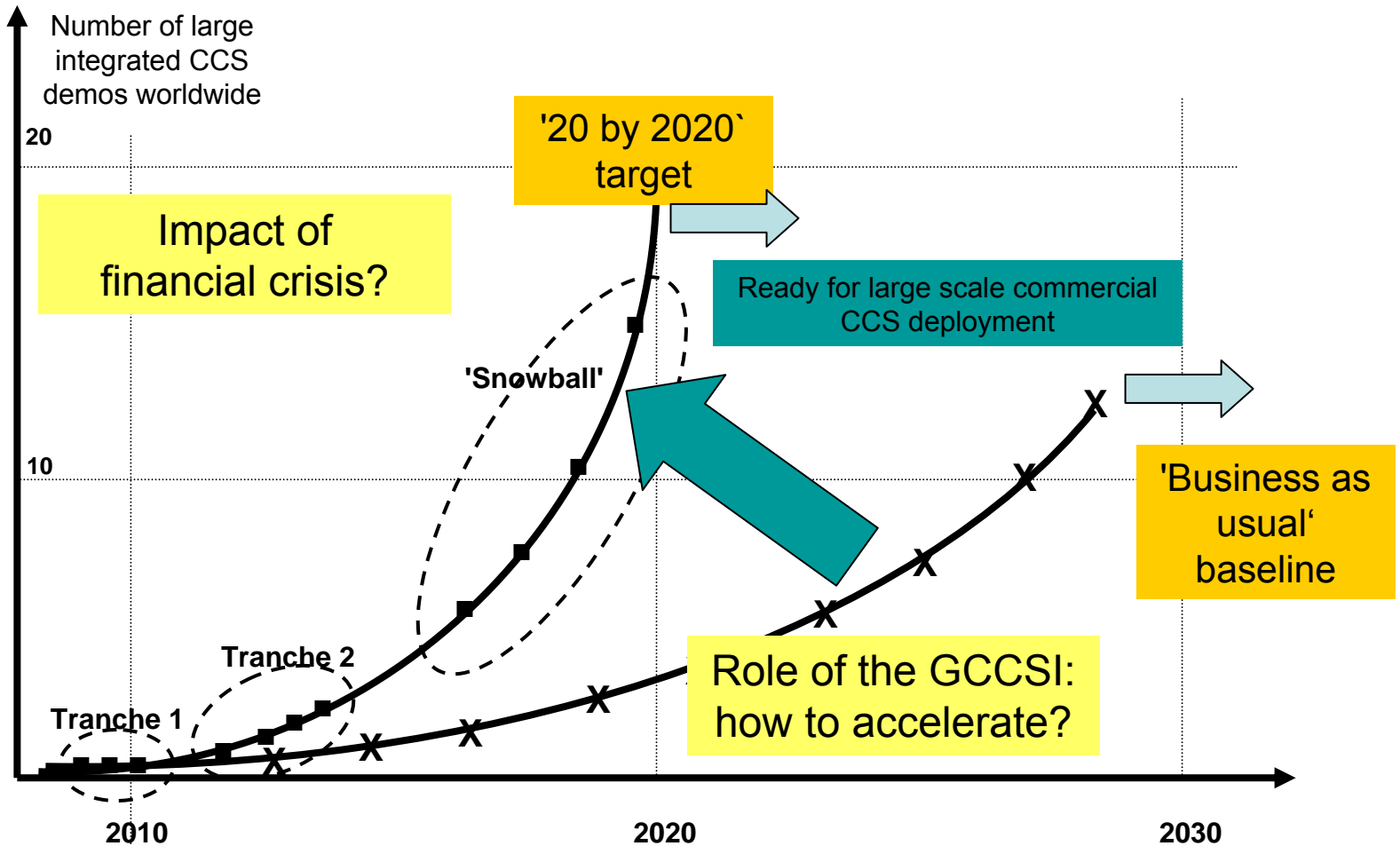
Primary work themes

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

Initial key activities:

- Establish the baseline for CCS as of March 2009, in particular an analysis of the 'real' status of CCS demonstration projects
- Establish strategic partnerships with organisations with common aims
- Define a commonly accepted position for the GCCSI in the international CCS landscape – consistent with the G8 recommendations
- Develop a consensus on the understanding of knowledge sharing

Initial focus of the GCCSI



Demonstration project related actions

- Strategic Analysis of the Global Status of CCS
- Global Projects Portfolio and Rationale for Support
- Global Projects: Methodology and process for identification; tracking and monitoring action; creation and encouragement of consortia; facilitation actions and removal of barriers
- Strategic Partnerships: Early mover projects

Immediate Work Programme - 2

Knowledge Sharing and Community Acceptance

- Understanding and guidance on 'Knowledge Sharing'
- Community Outreach and Public Awareness action

Baseline and Supporting Actions

- Definition of 'CCS Ready'
 - preparing the pathway to 'zero emission' deployment
- Global CO₂ Storage Atlas
- Capacity building in Emerging Markets Economies
 - link with CSLF and others as appropriate

Partnerships and alliances

International Partnerships

- IEA: CCS and Route Map development, Working Party on Fossil Fuels (WFFF), Coal Industry Advisory Board (CIAB) and Implementing Agreements on GHG R&D Programme and Clean Coal Centre
- Carbon Sequestration Leadership Forum (CSLF): Technical route map development and identification of technical priorities, capacity building and advice on policy aspects

CCS Demonstration

Strategic consortia and organisations driving early demonstration anywhere in the world with commonality of aim

- Clinton Foundation
- Climate Group etc.

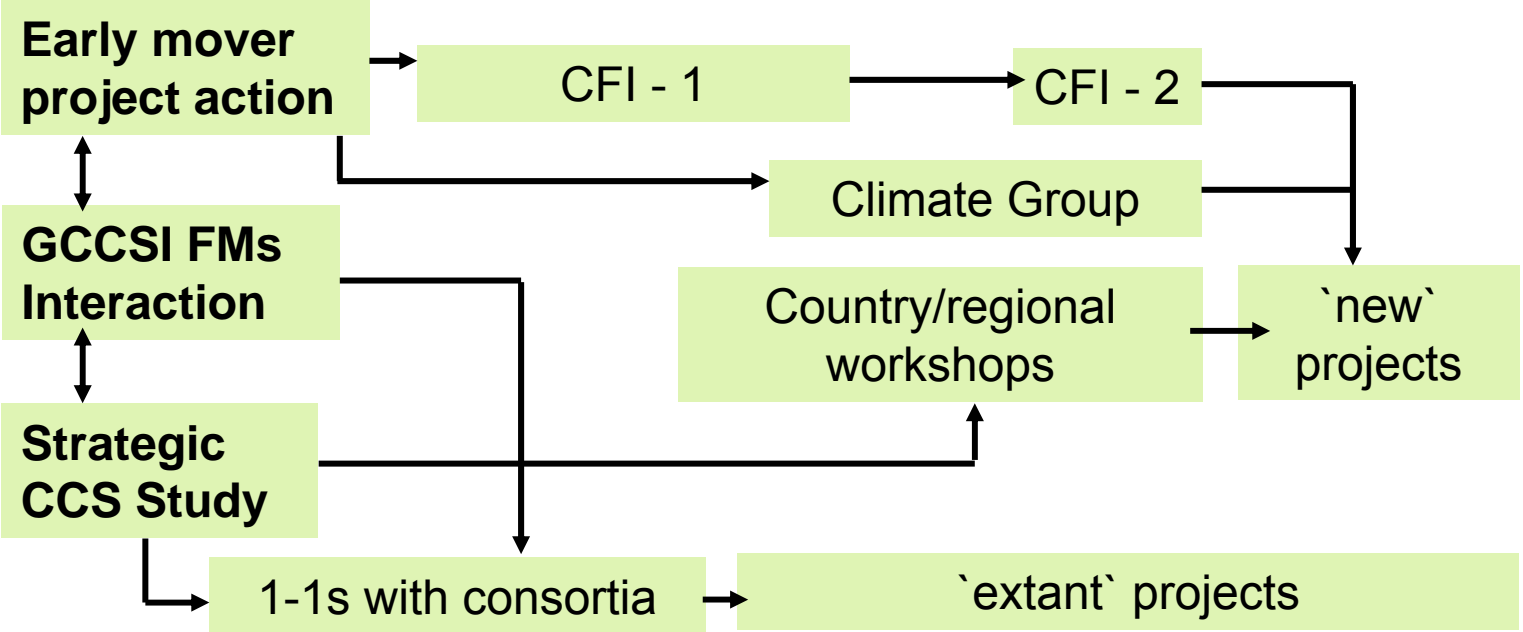
R&D Alliances

The GCCSI will not do R&D but will establish links with R&D community to ensure flow of appropriate information and to initiate actions to address blockages to specific CCS projects and deployment

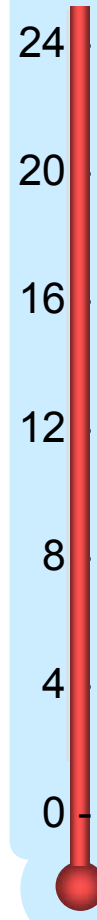
- Alliances with global ring of world class CCS R&D institutes

Immediate Work Programme: Accelerating demonstration projects

Supporting and capacity building action



N° of Projects



22

2009

2010

The GCCSI roles:

Accelerating demonstration projects

- Roles will develop as the GCCSI moves forward
 - Initially the GCCSI will have little internal resource bar its funding
 - Resource will be established in line with 'business build'
- Range of roles anticipated
 - 'portfolio monitor': identify portfolio and track project developments
 - 'trusted advisor': use information coming out of early study work to provide advice
 - 'activist advisor': proactive role initially working in concert with organisations with the same set of objectives
 - 'consortium builder': as set of skills get established the GCCSI takes on the role itself of identifying/initiating/facilitating proposals



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Organisation and internationalisation

Legal Entity

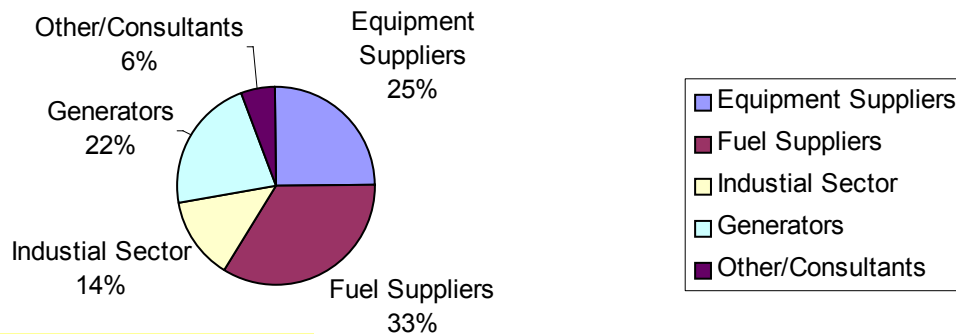
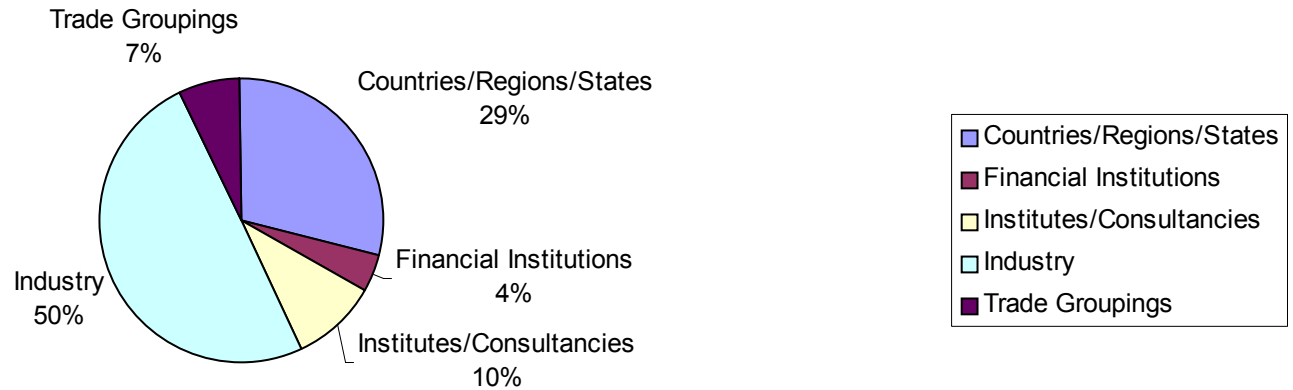
- Non profit company limited by guarantee: target date of 1st July 2009
- Skill based board of directors
- International Advisory Panel of senior international advisors
 - Chair/James Wolfensen
- Technical Advisory Committee for peer review/advice

Organisational aspects

- Australia/Canberra hub: 40-50 individuals plus corporate function
- Linkages/actions worldwide: `hub and spoke` model, could include:
 - Europe
 - North America
 - Asia
- 'Business build' underway
 - Focus on countries active in the GCCSI plus those of strategic orientation
 - Focus on 'where the projects are', the aim is to have co-incidence

Balance of the GCCSI participants

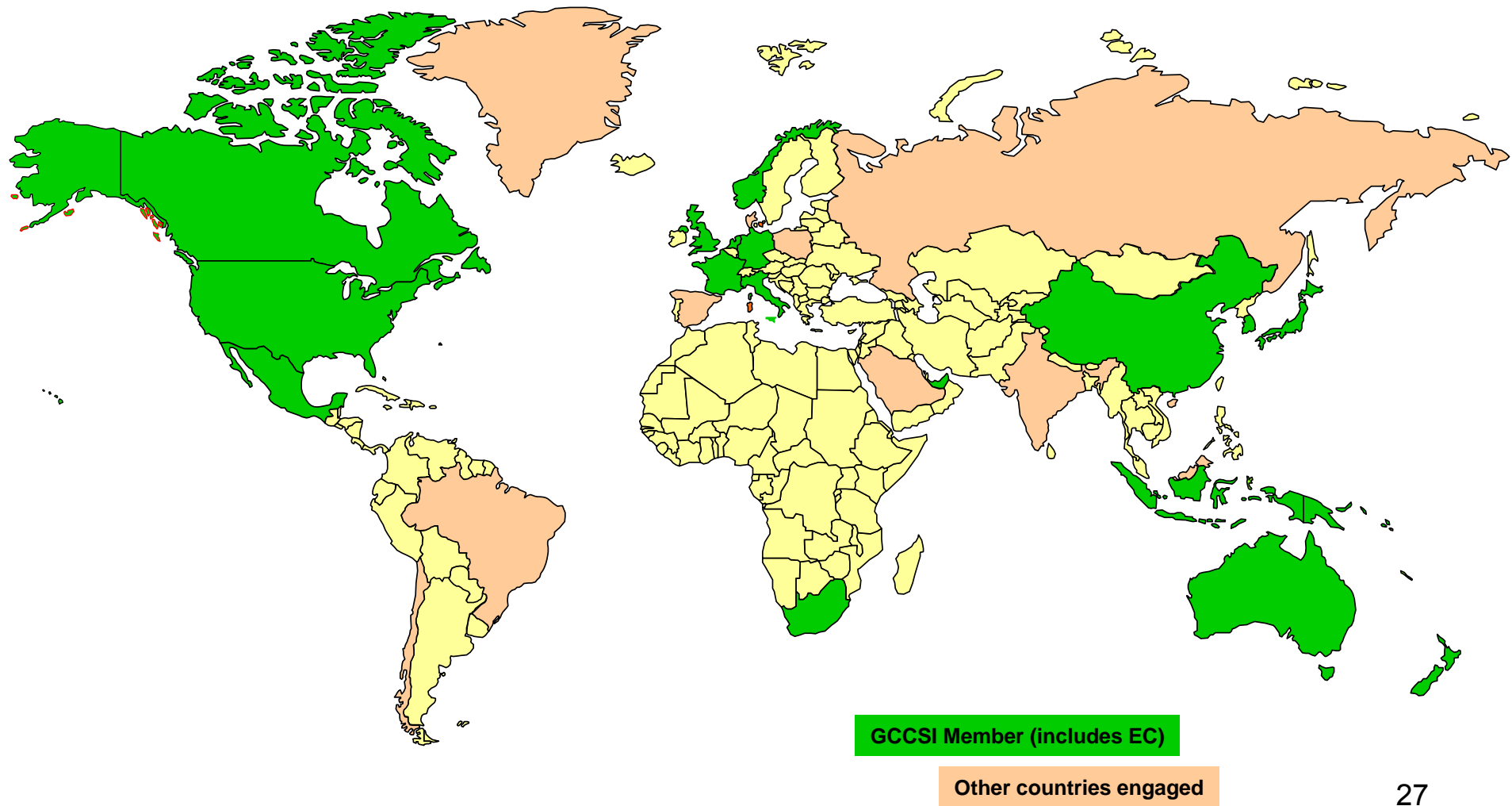
GCCSI co-operating organisations as of 16th April 2009



Company Breakdown as of 16th April 2009

- Seeking a representative balance across geography and type of organisation

Country membership: As of 16th April 2009



Holistic approach needed by all players to address:

- Early large scale demonstration...knowledge sharing and 'learning by doing'
- Development of legal and regulatory frameworks
- Provision of short term financial incentives and longer term fiscal framework
- Understanding and development of infrastructure requirements
- Continued technology research and development
- Public awareness and acceptance...

...to change some minds



Canberra, February 2009

Objectives of meeting

- To apprise the status of the GCCSI
- To give visibility of the ideas and early work actions of the GCCSI...**more detail coming up**
- To receive views on the initial work plan, primarily for the next year...**afternoon session on 'Securing Global Projects'**
- To seek guidance and advice on the forward `trajectory` for the GCCSI, in particular for the two to five year time frame
...**tomorrow morning session on organisational/governance issues plus longer term actions**



An Australian Government Initiative