



11th IPHE Steering Committee Meeting

International Partnership for the Hydrogen Economy

The Global Carbon Capture and Storage Institute
GCCSI

Wednesday 6th May 2009

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What is the GCCSI?

On 19 September 2008, the Prime Minister of Australia, the Hon Kevin Rudd MP announced a strategic global initiative to form the Global Carbon Capture and Storage Institute (GCCSI).

With funding from the Australian Federal Government, the GCCSI's mandates is to accelerate the worldwide development and implementation of integrated carbon capture and storage (CCS) demonstration projects.

Located in Canberra, but with a true global focus, membership includes government and industry stakeholders, researchers, and non-government organisations from around the world.



Objectives of the GCCSI

- Accelerate 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, in line with G8 goals:
 - 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 commercial 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

Membership and support:

As of 1 May 2009

Foundation 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 Ltd.
Hydrogen Energy International Limited
INPEX Corporation
IHI Corporation
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
Senenergy Alternate Energy Ltd
Services Petroliers Schlumberger
Shell International Petroleum Company Ltd
Southern States Energy Board (US)
StatoilHydro ASA
Taisei Corporation
Toshiba Corporation
Total S.A.
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)
Commonwealth Scientific and Industrial Research Organisation (CSIRO)
Electric Power Research Institute (EPRI)
The Clinton Foundation
Główny Instytut Górnictwa (Poland)
Japan Coal Energy Center (JCOAL)
National Low Emissions Coal Research 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

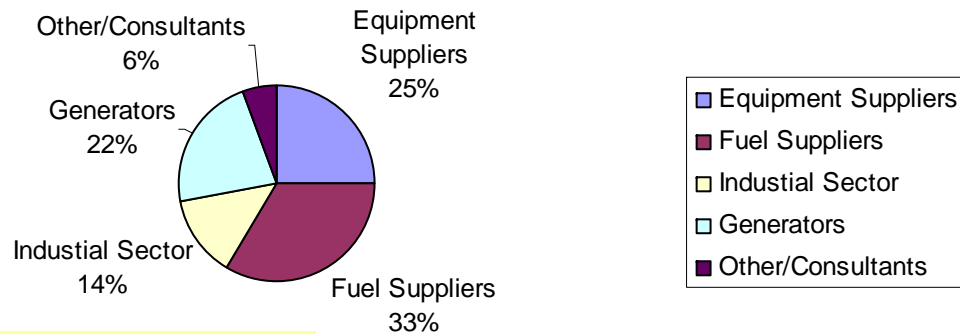
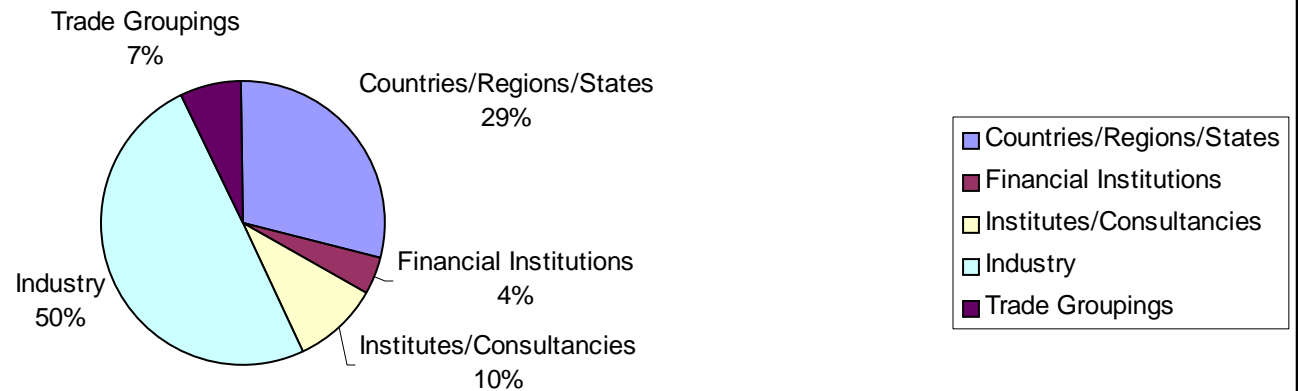
Collaborating Participants

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

Founding Members: 82
Collaborating Participants: 4

Balance of the GCCSI participants

GCCSI co-operating organisations as of 16th April 2009

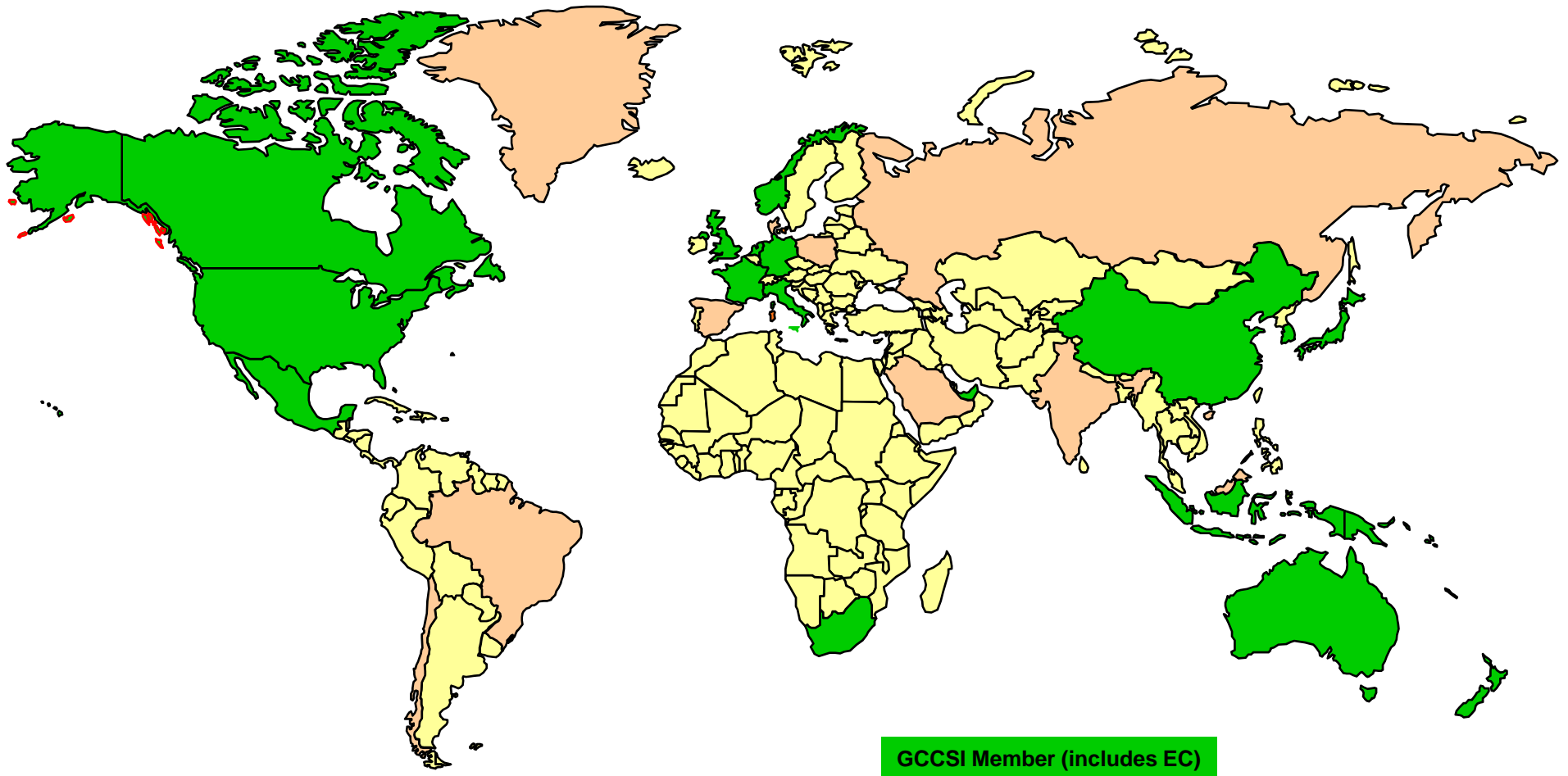


Company Breakdown as of 16th April 2009

The GCCSI is seeking a representative balance across geography and type of organisation.

Country membership:

As of 1 May 2009



GCCSI Member (includes EC)

Other countries engaged



Added value of the GCCSI

The GCCSI brings to the arena a much needed resource:

- Budget commitment of AUD\$100m pa from Australian Government
- Initially provide financial support but increasingly remove barriers to deployment of CCS
- Provide full time funded expertise to assist in demonstration CCS project implementation in all aspects of capture, transport and storage
- Underpin and expand the capability of other international organisations including the International Energy Agency (IEA) and Carbon Sequestration Leadership Forum (CSLF)

It is still early days for the GCCSI

Interim team of 25 established in February 2009 to:

- Set the 'trajectory' for the GCCSI into the future
- Define an initial work programme to underpin GCCSI activities in the longer term
- Continue to attract participating countries, companies and organisations and manage their engagement
- Prepare the way for the permanent team and establish a legal and physical entity
- Provide input into the important international activities of 2009, culminating in COP/MOP in December 2009



The GCCSI roles: Accelerating demonstration projects

- Roles will develop as the GCCSI moves forward
 - Initially the GCCSI will have modest internal resources, but appreciable 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 it builds its skills base the GCCSI takes on the role itself of identifying/initiating/facilitating proposals



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 prominent and complementary role for the GCCSI in the international CCS landscape – consistent with working towards the G8 recommendations
- Develop a consensus on the understanding of knowledge sharing



Immediate Work Programme - 1

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 carry out 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


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 Wolfensohn
- Technical Advisory Committee for peer review/advice

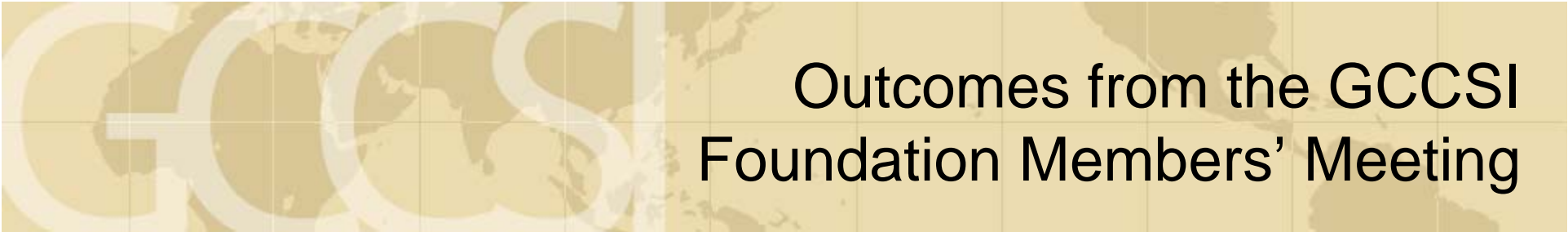
Organisational aspects

- 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



The GCCSI and the IPHE

- The synergy between the IPHE and GCCSI is a very neat fit
- Hydrogen production by steam reforming and a gas-shift reaction also leads to the formation of CO₂
- When large scale hydrogen production takes place, CCS will present itself as strong process option for producers
- The GCCSI is keen to factor industries and processes such as iron and steel making, cement, ammonia...and hydrogen production...as potential emitters that could benefit from CCS activities



Outcomes from the GCCSI Foundation Members' Meeting

- Held on 15 to 17 April 2009 and attended by 195 representatives of governments, corporations, NGOs and others
- Featured the official launch of the GCCSI by the Prime Minister of Australia, the Hon Kevin Rudd MP
- Work plan, international architecture, partnerships and alliances, and governance arrangements presented to meetings
- Meeting endorsed progress and proposals, adding constructive suggestions for refinement
- Promoted close interaction between GCCSI and Foundation Members, including possible staff exchanges and secondments to provide the GCCSI with a broader range of expertise



An Australian Government Initiative