

ANNUAL REVIEW 2010









James Wolfensohn, Chair, International Advisory Panel – Global CCS Institute Members' Meeting, May 2010.

CCS is not a silver bullet in the fight against climate change, but it could play an integral role reducing emissions. Existing technologies are not sufficient to deliver on this scale, nor are any – such as renewable energy – able to alone achieve the dramatic emissions cuts we need. So CCS isn't optional – it's essential.

Two years after G8 leaders committed to broad deployment of CCS, that goal remains challenging, but is achievable. Governments and industry are working closer together, technology options are growing, and work on surmounting the barriers around policy and regulation is starting to pay off as we see an increased number of projects get off the ground.

Many elements of the CCS debate are worth taking up, but I must admit the one that I find most compelling is the notion of using knowledge to speed up the process. Developing a first - rate system for information exchange on CCS, its challenges and opportunities is a pressing task, one the Global CCS Institute is working on and which I very much look forward to exploring.



CONTENTS

About the Global CCS Institute	4
Message from the Chairman	6
CEO Report	7
Achievements and Future Direction	8
Corporate Activity	11
Membership	13
Enabling Strategies	16
Projects	19
Knowledge Management	22
Strategic Partnerships	24
Governance	30
The Global CCS Institute Members	33

ABOUT THE GLOBAL CCS INSTITUTE

The Global CCS Institute:

- Believes in a clean energy future.
- Advocates for the important role of low carbon technologies.
- Leads collaborative efforts of an international community intent on helping address the world's climate and energy security challenges.

WHO WE ARE

Announced by the Australian Government in September 2008, the Institute was formally launched in April 2009. It became a legal entity in June 2009 when it was incorporated under the Australian Corporations Act 2001 as a public company and began operating independently as of July 2009. The Institute is a not-for-profit entity, limited by guarantee, and owned by its Members, with the Australian Government initially committing AU\$100 million annual funding to the organisation for a four year period.

WHAT WE DO

The Institute works collaboratively to build and share the know-how and expertise necessary to ensure that carbon capture and storage (CCS) can make a significant impact on reducing the world's greenhouse gas emissions.

HOW WE DO IT

The Institute connects parties around the world to solve problems, address issues and learn from each other to accelerate the deployment of CCS projects by:

1. SHARING KNOWLEDGE

- Collecting information to create a central repository for CCS knowledge.
- Creating and sharing information to fill knowledge gaps and build capacity.

2. FACT-BASED ADVOCACY

- Informing and shaping domestic and international low carbon energy policies.
- Increasing the awareness of the benefits of CCS and the role it plays within a portfolio of low carbon technologies.

3. ASSISTING PROJECTS

- Tackling specific barriers, particularly amongst early movers.
- Bridging knowledge gaps between demonstration efforts.

VALUES

The Institute's people work within a set of core values to realise its objectives and deliver efficient and effective service to Members.

GLOBALLY COLLABORATIVE

Committed to enabling, providing and communicating ongoing opportunities to the CCS community.

VALUE DIVERSITY

Committed to harnessing the diversity of ideas, expertise and experience of stakeholders and employees to drive innovative outcomes.

CREATE AND SHARE NEW IDEAS

Committed to engaging with Members and other stakeholders to identify, create and share solutions.

OUTCOMES FOCUSED

Committed to maintaining a clear sense of purpose and focus on outcomes and to measure success through the delivery of results.

MESSAGE FROM THE CHAIRMAN

The Global CCS Institute's first year of operation has been a rewarding one. As you will see in this Annual Review, much has been done in pursuit of our goal of accelerating the development and deployment of CCS globally, including providing a baseline assessment of the status of CCS, defining an 'Ideal Portfolio' of CCS projects, developing a Strategic Framework for the Institute, providing direct project support, developing effective partnerships with other global organisations and building a collaborative international Membership.

The company was incorporated on 12 June 2009 and on that day we had no staff, no premises, no bank accounts, no systems and no governance structures. Since then a vast amount of effort has gone into putting in place a functioning organisation to provide the platform and capability to assist the development and deployment of CCS globally.



Our first year of operation has witnessed conditions that have presented harsher challenges for the progress of CCS. The Global Financial Crisis and outcome of the climate change negotiations in Copenhagen have increased the barriers to CCS deployment, especially financially. They have also taken some urgency out of the focus on CCS.

In these challenging times there is no doubt however, that the needs and reasons that led to the establishment of the Institute remain as clear as ever.

It is pleasing to note that over the past year the number of CCS projects being developed around the world has increased, demonstrating the resolve of both governments and industry to address the energy security challenges in front of them.

These conditions provide an opportunity for the Institute to advance CCS: an opportunity to aid the development of energy policy and regulation for CCS, to assist project proponents in the deployment of CCS and to help communities improve their understanding of CCS. We seek to do this by the creation, collation and organisation of knowledge and making that knowledge available to our Members and the broader community.

The Institute has now put in place the principles and protocols for a knowledge sharing program that will capture experiences around the real challenges being faced by CCS project proponents, regulators, financiers and others and share that knowledge in a way that allows it to be used to facilitate existing and new projects. Our second year promises to be an exciting one.

I would like to take this opportunity to thank my fellow Board members and the staff of the Global CCS Institute for their hard work and enthusiasm in this first, rewarding year of operation.

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Russell Higgins AO, Board Chair Global CCS Institute

Russell Higgins AO

CEO REPORT

The world today has to embark on perhaps the greatest energy revolution it has ever seen if its climate and energy security challenges are to be overcome. This will be aided by the accelerated deployment of CCS, the ultimate motivation behind the Australian Government establishing the Global CCS Institute.

At the Institute, we believe that understanding the challenges facing CCS projects and then using this knowledge and expertise to help 'unstick' those projects is fundamental to creating an immediate and lasting contribution to the deployment of this technology.

This first year, the Institute has made good progress towards its strategic goals. We established a Strategic Framework for our activities, creating clarity about the purpose of



the organisation, what we want to achieve and the steps we should take to reach our goals. We put in place the necessary foundations, expertise, policies and governance required to deliver services to our Members. And, most importantly we commenced the delivery of real assistance to our Members through the analysis of the status of projects, direct project support and through understanding the necessary conditions for commercial-scale deployment.

During 2009–10 the Institute:

- developed a baseline report on the deployment status of the world's CCS projects;
- developed a model for the 'Ideal Portfolio' of CCS demonstration projects;
- established a Project Support Program to help demonstration projects overcome key barriers;
- established the basis for an online CCS knowledge platform;
- collaborated in the development of CCS recommendations to the Muskoka 2010 G8/G20 Summit;
- secured membership and an advisory capacity to the Major Economies Forum, newly established Carbon Capture Use and Storage Action Group; and
- established a collaborative definition for CCS Ready and recommended practices for policy makers.

MY THANKS

At the Institute, every issue, work plan and strategy has, and will continue to be built around the need for collaboration. It is what binds the Institute together with Members, and it is essential to achieving the industry's goals. Our Members, Board, International Advisory Panel, Technical Advisory Committee and employees make a unique contribution through their commitment to our work and vision. We also thank our funder the Australian Government at all levels, for providing the essential financial support to make the extraordinary happen.

Nick Otter, CEO Global CCS Institute

Nick Otter

ACHIEVEMENTS AND FUTURE DIRECTION

MAJOR ACHIEVEMENTS

Key 12 month goals

2009–10 goals	Result	Page Reference
Establish a Strategic Framework	• Strategic Framework approved by the Board and presented to Members (May 2010).	10
Put in place the necessary corporate policies, infrastructure and capabilities	• Well-defined policies and procedures established to support organisation's commitment to good corporate governance.	11
	 Regional presence established in key markets of Europe and North America. 	
	• Employee numbers grow to 52 (September 2010).	
	• Established a governance framework including appointment of the Board, Audit and Risk Committee and internal and external auditors.	
Build a collaborative international Membership base	• Recruitment of 263 Members (September 2010) representing Government, industry and the NGO community – growth of over 400 per cent.	13
Analyse and assess the Status of CCS	• Released the most comprehensive global assessment of the status of CCS, especially large-scale projects (October 2009).	19
Establish and implement a program for direct project support	 Project Support Program launched (December 2009). 	21
	• Over 50 applications received.	
	• Discussions have commenced with short-listed applicants.	
Determine principles and protocols for CCS knowledge sharing	 Commonality of principles for knowledge sharing developed through engagement with regional networks. 	22
	• Creation of a set of digital platforms providing a leading capability to share knowledge.	
Form Strategic Partnerships to leverage international expertise	• Created Strategic Partnerships with leading global organisations allowing progress during Institute's formative years.	24

8

FUTURE ACTIVITIES

Major goals for 2010–11

- Develop an authoritative knowledge base across the priority issues facing CCS and disseminate lessons contained within.
- Complete a more detailed analysis of the most mature of the large-scale, commercial, integrated projects.
- Complete the first round of the Project Support Program.
- Establish a process and the capability to engage with project proponents to identify and address specific issues through knowledge sharing across the Institute's Membership base.
- Rapidly increase the use and functionality of the digital knowledge sharing platform.
- Ensure all industry sectors and relevant Governments crucial to the acceleration of CCS are well represented as part of the Institute's Membership base.
- Complete the recruitment of key positions and core skill sets and embed within key global markets.

STRATEGIC FRAMEWORK

In pursuit of its objectives, the Institute has adopted a Strategic Framework to guide its activities in 2010-11 and beyond. The framework lays out the Institute's activities into five workstreams.

- *Enabling strategies* will help to address the major barriers to large-scale demonstration projects and global deployment of CCS.
- *Projects strategy* will ensure the Institute's resources are most effectively used to provide direct support and solutions to projects in the demonstration phase.
- *Knowledge sharing* will utilise a consistent set of principles, protocols and dissemination mechanisms to foster effective global sharing of information across the industry.
- *Regional profiles and global services* will provide a set of regional 'lenses' to ensure the Institute's activities are aligned with local needs.
- *Member Services* will ensure the development of an international community of stakeholders with awareness, access and input to the Institute's work.



Foundation Members' Meeting, Canberra (April 2009).

GLOBAL CCS INSTITUTE STRATEGIC FRAMEWORK				
REGIONAL PROFILES AND GLOBAL SERVICES				
ENABLING STRATEGIES		PROJECTS STRATEGY		
Policy/Regulatory				
Financial/Commercial		Strategic Analysis of Projects		
Public Engagement		Project Support Program		
Technical		Thematic Focus Groups		
Capacity Building				
	Knowledge Sharing			
	MEMBERS			
	Services Model			
	Mombor Chartor			
	Weinber Charter			
	Corporate Services			

The Strategic Framework was approved by the Board (April 2010) and was presented at the Members' Meeting, Pittsburgh (May 2010).

The Institute has begun developing its work programs for each element of the Strategic Framework with considerable progress already made for its Project Support Program (as part of the Projects Strategy) and its two priority enabling strategies: (i) financial and commercial; and (ii) policy, legal and regulatory.

CORPORATE ACTIVITY

The Institute was initially developed within the Australian Government's Department of Resources. Energy and Tourism, Following the establishment of the Institute as a legal entity, the organisation developed and implemented policies, infrastructure and capabilities to allow it to effectively deliver its strategic and operational objectives. This work is ongoing as the organisation increases its own understanding of issues, and finalises work programs that dictate the nature and extent of corporate support required across the various markets in which it is seeking to operate.



Claude Mandil, member of the International Advisory Panel, at the Members' Meeting, Pittsburgh (May 2010).

POLICIES AND PROCEDURES

So that the organisation and its employees can meet legal and regulatory requirements, maintain adequate risk management and continuously and consistently improve these functions, the Institute has established a set of essential policies and procedures. This work was completed to ensure that the design of documented policies and procedures would meet both immediate and future requirements, and to particularly cater for the expected globalisation of the organisation.

Achievements

- Well-defined policies are in place within the Human Resources, Finance, and Information Technology disciplines allowing the establishment and operation of effective internal control systems.
- Employee training and induction programs have been conducted to ensure relevant personnel are aware of their individual and corporate responsibilities.

INFRASTRUCTURE

The Institute has embedded itself in regions that will actively engage and influence change within industry, government and the research community. Regional engagement is critical to allow the Institute to drive a more sustained involvement with Members and partner organisations, and to allow the development of regionally-appropriate business solutions for the accelerated and successful deployment of CCS.

Achievements

1

- Established a presence in three major markets essential to the successful deployment of CCS:
 - Head Office in Canberra, Australia;
 - European Regional Office in Paris, France; and
 - North American Regional Representatives based in Washington DC, USA and Ottawa, Canada.

- Head Office premises in Canberra completed (December 2009), allowing the Institute to adequately accommodate up to 60 employees.
- Information Technology systems put in place to enable standard business operations.

CAPABILITIES

A key task of the Human Resources team was to identify and recruit the right mix of skills, experience and talent to meet the capability required to deliver on Institute objectives. This occurred in a period during which the organisation was rapidly working to understand its key issues, and define an approach to delivering solutions for its Members.

The Human Resources team has worked closely with the Leadership Team, and senior management to define existing and future skills requirements, advertise opportunities, and fill positions from a global field of candidates.

It is recognised that the Membership base holds a broad set of relevant skills and experience that can contribute to the Institute goals, and the Institute will continue to work with Members to pursue options for secondments to the benefit of both parties.

Achievements

- Growth of employee numbers from 18 to 52 employees since inception.
- Recruitment of candidates with internationally relevant experience for various positions.
- Establishment of a secondment model, utilising skills and talent from the Institute's Membership base for a number of key positions.
- Appointment of four Regional Representatives in both North America and Europe to enable effective delivery of objectives in those regions.

2010-11 GOALS

- Embed teams in appropriate global regions and with suitable skills.
- Upgrade Information Technology systems to enable business operations to function effectively on a global level.
- Complete recruitment of key positions and core skill sets required to deliver the Strategic Framework.



Nick Otter, CEO, at the Members' Meeting, Pittsburgh (May 2010).

MEMBERSHIP

The Institute is a Member-based organisation and boasts a diverse Membership profile that sets the foundation of an international community rich in knowledge and expertise. It recognises that through its Membership, it is placed in a unique position to most effectively support and facilitate the deployment of commercial-scale CCS projects.

In turn, the Institute presents Members with a valuable opportunity to be an integral part of a collaborative, informed and influential international community at the forefront of CCS advocacy, policy development and knowledge sharing.

Member Services is a key component of the Institute's Strategic Framework and is underpinned by a principle based on active Member engagement. This ensures Members have an ongoing awareness of, and input into the Institute's work program.

Achievements

An international community is created

Following its launch in April 2009, the Institute received unprecedented support from governments, corporations, industry bodies and research organisations from key markets around the globe.

Through this support, the Institute created an international community that continues to grow in size and strength as organisational effort is dedicated to actively raise the profile of CCS.

A diverse Membership profile

The Institute has built a diversified Membership profile that represents a healthy cross-section of international stakeholders. Members are governments and organisations that support and demonstrate a legitimate interest in the Institute's commitment to accelerating the commercial deployment of CCS. The diversity in Member profiles ensures the Institute's endeavours and services provided reflect the varied and evolving nature of the challenges faced by the industry.

When the Institute was formally launched in April 2009, it did so with strong and widespread international support starting with 15 governments and more than 40 major companies and industry groups signing on as Foundation Members. As of 1 July 2009, it began operating as an independent legal entity and Membership had more than doubled to 133. Just over 12 months on, the Institute's Membership has almost doubled yet again to a total of 263 as of 13 September 2010.

MEMBERSHIP BREAKDOWN



ACTIVE MEMBER ENGAGEMENT

Since its inception, the Institute has delivered and participated in an extensive calendar of Member engagement activities, both formal and informal. This includes Member Meetings held in Canberra (April 2009), Paris (November 2009) and Pittsburgh (May 2010) and a series of working groups designed for Members to contribute their expertise in helping the Institute address key barriers to deployment.

The Institute's two Regional Offices based in the USA and Europe allow it to achieve a higher level of engagement with Members.

2010-11 GOALS

- Finalise and issue a Members' Charter defining the collective commitments by the Institute and its Members.
- Engage in targeted Membership recruitment as part of continuing to build a diverse, international CCS community representing all stakeholders' interests.
- Explore and develop funding models with Members to achieve a diversified investor portfolio for the Institute.
- Continue to create and deliver Member engagement activities both virtual and faceto-face.

MEMBERSHIP GROWTH



"The Institute supports our international objectives on climate change by accelerating the use of CCS. Being a Member enables us to share the outputs of our own domestic CCS program and learn from others. The Institute's analysis of the global status of CCS projects was very useful as part of the IEA's report to the G8 on progress towards meeting the objective for the launch of 20 large-scale CCS projects by 2010. The report clearly illustrated that more progress is needed and stimulated political discussion".

Jeremy Martin

Office of Carbon Capture and Storage Department of Energy and Climate Change The Government of United Kingdom



"The Institute is carving new ground by bringing together the key stakeholders across the whole CCS chain. A spectrum of interests must be addressed to mobilise public and private investment in projects with CCS. By operating globally and across sectors, the Institute is promoting a wider and worthwhile dialogue that can drive the kinds of policies and risk mitigation needed to build first of a kind projects at the scale needed".

Andy Patterson Principal CCS Alliance "There is compelling evidence that CCS can play a vital role in mitigating CO₂ emissions. Rapid progress needs to be made to ensure that the full potential of CCS is realised in the coming months and years. The Institute plays a key role as a champion for CCS, raising awareness, driving progress, and encouraging global collaboration by engaging both policy makers and industry".

Dr Graeme Sweeney Executive Vice President, CO₂ Shell





ENABLING STRATEGIES

The Institute has identified five key enablers that have been put in place to support the near-term delivery of demonstration projects and the longer-term commercial deployment of CCS.

POLICY, LEGAL AND REGULATORY

FINANCIAL AND COMMERCIAL

PUBLIC ENGAGEMENT

TECHNICAL

CAPACITY BUILDING

In 2009–10 while the Institute was building its internal capacity, the bulk of its work was delivered through Strategic Partnerships within the international CCS community (see page 24–29). Progress has also been made over the past year to attract appropriate skills and experience to the Institute, and to inject relevant expertise from its Membership base to allow the organisation to move forward with developing work programs around each of these enablers.

POLICY, LEGAL AND REGULATORY

The rapid development of the CCS industry demands that CCS be deployed using policy approaches that support social and economic development, and positive environmental outcomes.

The Institute has developed a work program that will enable it to continue to build on its authoritative policy, legislative and regulatory knowledge base, distil policy and regulatory lessons and undertake fact-based advocacy in support of the deployment of CCS reflecting the wider public benefit as well as the interests of the CCS industry.

2010-11 GOALS

- Provide information on CCS as a mitigation option to inform international climate change debate and agreements.
- Support ministerial-level policy dialogues including active participation in the Major Economies Forum Carbon Capture Use and Storage Action Group to which the Institute has secured membership.
- Highlight issues associated with enhanced hydrocarbon recovery with CCS.
- Provide information to assist with the development of effective CCS ready policies.
- Analyse issues associated with long term liability and permitting.
- Determine methods to assist developing nations to estimate feasibility and create a conducive environment for CCS deployment.

FINANCIAL AND COMMERCIAL

Large-scale, commercial, integrated CCS projects pose a number of complex funding, financial and commercial challenges for policy makers, financiers and project proponents.

The Institute has developed a work program that will contribute internationally to greater understanding of the financial and commercial barriers encountered by CCS project proponents by providing a single, objective source of knowledge in this area.

2010-11 GOALS

- Funding and programs
 - develop and maintain a global database on the status of funding commitments and allocations to projects; and
 - document existing government funding programs in the demonstration phase.
- Cost estimates and benchmarks
 - detailed analysis of project economics across technologies; and
 - establish cost benchmarks for projects.
- Commercial structures
 - study into financial and commercial structures for early mover projects; and
 - report outlining lessons from analogous industries.

PUBLIC ENGAGEMENT

Globally, there are very low levels of public awareness regarding CCS, creating a challenge for Members to work collaboratively with host storage communities.

The Institute is actively consulting with Members and CCS communications experts to prepare a strategy and accompanying work program to identify key public engagement issues facing the industry. This will ensure broad understanding of the drivers behind issues, and deliver focused activities to practically address the resulting barriers. The work program will be formalised by the end of 2010. Activities will:

- deliver a global communications campaign to raise awareness about CCS in key regions to help deliver a higher base of knowledge in project neighbourhoods; and
- target stakeholder engagement support for interested projects. The Institute will listen to project decision makers to understand their operating contexts and environments, helping to identify current and potential public engagement issues and build understanding about how they link with technical risk.

TECHNICAL

CCS technologies must be safe, efficient and cost-effective. Research efforts and demonstration projects must be evaluated to identify the technologies that meet these criteria and are most effective in reducing GHG emissions.

Although not a direct funder of research and development, the Institute fully recognises the need for the enhancement of existing CCS technologies. It therefore wishes to encourage the investment in innovation and its targeting of critical issues. To this end, the Institute is developing a strategy and work program that will seek to engage with project proponents, industry leaders and research organisations to explore issues, share lessons learned, and provide a bottom-up perspective for commissioning research in the technology development space. The work program will be formalised by the end of 2010.

Activities will:

- explore currently available technologies through engaging with initial commercialscale demonstration projects to identify where the gaps and priorities should lie in order to facilitate commercial deployment; and
- support the development of new technologies and their integration throughout the full CO₂ chain to reduce CCS costs and enable subsequent widespread deployment.

CAPACITY BUILDING

Constructing, operating and regulating first-of-akind projects in any country is challenging. The scale and rapid ramp-up demanded of CCS over the coming years and subsequent decades only makes this a greater challenge. Generating the right environment for a project to be deployed requires addressing many different barriers and developing the appropriate kind of in-country expertise.

The aim of the Institute's capacity building enabler is to collaboratively and sustainably support countries deploy CCS projects, by undertaking activities that will strengthen the knowledge, abilities, skills and behaviour of individuals, groups, organisations and governments. The focus of the work program will be on developing economies and will be formalised by the end of 2010.

Activities will:

- offer an integrated capacity development program in priority countries;
- support capacity development activities through partner organisations; and
- develop knowledge sharing products that can be utilised by all stakeholders.



Dale Seymour, Senior Vice President – Strategy, presents at the 'Global Technology Roadmap for CCS in Industry' Sectoral Workshops, Abu Dhabi (June 2010).

PROJECTS

Analyse and assess the status of CCS

The Institute's engagement with large-scale, integrated CCS projects is core to accelerating a portfolio of demonstration projects and has been supported by its very early goal of developing a comprehensive view of the pipeline of projects, their progress and barriers.

To achieve this goal, the Institute has committed itself to the development and maintenance of a Project Database to:

- track the status of all CCS projects that are either operating, under development, or on-hold/cancelled;
- facilitate the production of an annual report on the advancement of CCS projects; and
- develop reports on common barriers and drivers, and how they may change over time.

In parallel, the Institute will maintain an evolving view of the 'Ideal Portfolio' of CCS projects. This Ideal Portfolio is aimed at identifying gaps in the current global project portfolio which require significant development.

Together, the Project Database and Ideal Portfolio activities will allow the Institute to:

- keep the global CCS community informed of project progress;
- identify common barriers and common criteria for success;
- focus Institute activities through the project support and enabler workstreams; and
- position the Institute as the leading authority on the status and dynamics of the global CCS project portfolio.

Achievements

The Strategic Analysis of the Global Status of CCS

Released in October 2009, this series of five reports analysed data from a comprehensive survey of the status of CCS technology, technical, policy, regulatory, economic, geographical and research/development capability. This work provided an assessment of the status of CCS, the gaps and barriers to the deployment of large-scale CCS projects and strategies and recommendations to address these issues.

The data from the survey now resides within the Institute's Project Database, which, coupled with annual survey updates and regular reporting, represents the world's only comprehensive overview of the status of CCS projects.

An Ideal Portfolio of CCS Projects and Rationale for Supporting Projects

Released in November 2009, this report characterised an 'Ideal Portfolio' of projects that have the greatest potential to significantly contribute to large-scale, commercial CCS deployment by 2020. By comparing the Ideal Portfolio with the Project Database, the Institute has and will continue to identify gaps in the emerging global portfolio of projects, allowing it to take action through its enabler work streams and the Project Support Program.

CCS: Progress and Next Steps

This report was presented to the G8 meeting in Muskoka, Canada in June 2010. It was jointly developed by the Institute, the International Energy Agency (IEA) and the Carbon Sequestration Leadership Forum (CSLF) and is underpinned by data provided by the Institute. The same data also provided guidelines for the Major Economies Forum's CCS Action Group in formulating its priorities and strategies.

GOALS

- Progressively launch a publicly accessible, web-based version of the Project Database.
- Update the Project Database annually, following a comprehensive survey of global projects.
- Conduct an annual review of the database including a detailed analysis of the most mature of the large-scale, integrated projects in order to capture and reflect the dynamics of the rapidly evolving CCS environment.
- Develop internal capacity so that Institute personnel can increasingly undertake the review, analysis, and reporting on projects in-house.



The Status of CCS Projects Interim Report 2010 – Released July 2010



In Salah Gas and CO₂ Capture and Storage Project, Algeria.

PROJECTS Direct Project Support

By June 2010, the Institute reported in an 'Interim' report that 80 large-scale, integrated projects were being developed around the world and at various stages of development planning.

Institute data also indicates that over US\$26 billion has been flagged globally by governments to support the development of CCS projects. Despite this, the application of a set of criteria to determine whether a project can be considered as 'launched' indicates that most projects have significant work ahead to address specific barriers to deployment.

A key goal for the Institute for 2009–10 was to directly engage with large-scale, integrated projects to address the barriers to deployment and leverage key knowledge sharing products for wider dissemination amongst the industry.

Achievements

Project Support Program

- Initiated in December 2009, the program allocated approximately AU\$50 million annually to provide targeted financial and knowledge-based support to Member activities to address key barriers to the delivery of large-scale, integrated projects.
- Designed to gain access to best practices and lessons learned, the program will facilitate transfer of knowledge amongst Institute Members and the wider CCS community.
- For project proponents, the Project Support Program will provide the financial support required to conduct targeted studies which address barriers to CCS project development. For the Institute, providing this support allows it to both establish relationships with key projects, and gain access to the knowledge and expertise generated.
- Over 50 applications from CCS project proponents representing a range of industries that covers a significant portion

of the Ideal Portfolio were received. While applications were received from across the world, several key geographies and industries were unrepresented (little was received from the iron, steel and cement industries, and from the Asia region).

• A robust assessment process was followed to short-list applicants and the selection was also made with a view of the Ideal Portfolio, in order to ensure that the captured learnings span the range of required applications and geographies. Contract announcements will be made later in 2010.

The Institute has also commenced actively engaging with many CCS projects globally. This engagement, through site visits, Member Meetings and other CCS events, interaction with locally engaged staff and through information gathering exercises has enabled the Institute to begin the development of a greater understanding of individual project needs and a perspective of the broad regional and industry barriers to deployment for CCS projects.

2010-11 GOALS

- Completion of the first round of the Project Support Program.
- Development of mechanisms to share knowledge generated by supported projects.
- Establishment of Focus Groups of project proponents to address project-specific issues.
- Review of the Project Support Program to improve efficiency and increase flexibility.

KNOWLEDGE MANAGEMENT

Despite ongoing research and demonstration projects currently operating, CCS is still an emerging technology. A key factor in its global uptake will be the ability to utilise the knowledge now being developed to accelerate new and existing projects.

This knowledge extends beyond science and engineering. Accelerating the uptake of CCS technology requires the Institute to direct potential players to the increasing work being done on awareness and education, regulation, monitoring and verification, and policy and legal issues.

The Institute will ensure this information is available across its Membership base in all regions, and much information will be available to the wider public.

Sharing knowledge on this scale requires:

- a comprehensive and accessible digital platform that not only includes the Institute's increasingly extensive knowledge base, but also content from other sources;
- structured opportunities for personal interaction and exchange; and
- agreement among participants to share appropriate knowledge, enabled through effective incentives, governance and controls.

The Institute has delivered solutions on all these fronts.

Achievements

- Development of an approach to delivering a structured knowledge sharing program that would meet the varied requirements of Institute Members, CCS implementation projects and the broader set of stakeholders, including the general public.
- Engagement with governments and regional networks to establish commonality of programs and principles to facilitate knowledge exchange.
- Extensive liaison with IP operatives in the CSS community to establish, and where possible expand, areas of knowledge sharing.
- Implementation of a sophisticated set of the digital platforms that will arm the Institute and its Members with leading capabilities to share knowledge and build on the relationships developed in previous face-to-face meetings.

2010-2011 GOALS

- Through the digital platform, provide the 'go to', low carbon economy knowledge sharing marketplace that connects existing knowledge sharing groups and acts as the 'global glue' between regional networks.
- Improve the culture, governance structures and organisational models among Members and partners to drive knowledge sharing through digital and face-to-face interactions.
- Enhance the digital knowledge sharing platform to suit Member requirements, focusing on areas such as online learning, data analysis and sharing of non-proprietary financial models and design specifications.
- Roll out a global set of knowledge sharing staff that will be embedded into projects to accelerate their delivery.



Screen shots from the Institute's newly launched social website. The website has been designed to support networking and personal interaction, collaboration and knowledge exchange between users and the CCS community.

23

STRATEGIC PARTNERSHIPS

In 2009–10 the Institute collaborated with, or provided funding to, a number of global organisations with established expertise to address barriers facing CCS. These partnerships have allowed the Institute to create immediate impact in its formative stages, and are part of a process to establish a more coordinated approach amongst the international community to the development and adoption of CCS worldwide.

The Institute aims to build its internal capacity but still wishes to gain value from effective collaboration with others that have a similar set of objectives. It will therefore continue to utilise Strategic Partnerships with other international bodies or regional experts working to help deliver on its objectives.

These Strategic Partners include:

- Asian Development Bank;
- Bellona Foundation;
- Carbon Sequestration Leadership Forum;
- Commonwealth Scientific and Industrial Research Organisation;
- International Energy Agency;
- International Energy Agency Greenhouse Gas R&D Programme;
- International Energy Forum;
- The Climate Group;
- United Nations Industrial Development Organisation;
- William J Clinton Foundation; and
- World Bank.



ASIAN DEVELOPMENT BANK (ADB)

The Institute provided AU\$21.5 million to the ADB to establish a CCS Fund aimed at financing a range of project development activities in the Asia and Pacific region, with a focus on China, India, Indonesia and Vietnam.

The ADB is an international development finance institution with a mission to help its developing member countries reduce poverty and improve the quality of life. The ADB has well developed relationships with developing countries in the Asia Pacific Region and has expertise in the legal, economic and financial disciplines.

The ADB work program includes:

- promotion of projects;
- capacity development; and
- storage investigations and studies.

Achievements

Two technical assistance projects have been funded to date:

People's Republic of China: Carbon Dioxide Capture and Storage Demonstration – Strategic Analysis and Capacity Strengthening.

The fund provided US\$1.25 million of a US\$1.55 million project to develop a comprehensive road map for CCS demonstration project(s), the establishment of essential enabling policies, and a legal and regulatory framework for CCS demonstration, the identification of priority demonstration projects and associated financing needs, and an assessment and development program for capacity in the region.

Carbon Dioxide Capture and Storage Demonstration in Developing Countries – Analysis of Key Policy Issues and Barriers.

The fund provided US\$350,000 to deliver an analysis of intellectual property issues from the perspectives of developing countries, an identification of innovative and low-cost financing approaches, an examination of the appropriate classification of CCS to reduce trade barriers, and a formulation of recommendations on enabling policies for seeking private investment in CCS demonstration and deployment.



BELLONA FOUNDATION

The Institute has committed approximately AU\$1.3 million to support the Bellona Foundation to deliver the Bellona Environmental CCS Team work program (BEST).

The Bellona Foundation is an international environmental NGO based in Norway. Bellona has become a recognised technology and solution-oriented organisation with offices in Oslo, Brussels, Washington DC, St Petersburg and Murmansk. The Bellona Foundation is a strong advocate of CCS having driven outcomes supporting CCS within the European Commission.

The BEST work program will include:

- delivery of a comprehensive CCS advocacy program in selected countries;
- roadmaps for CCS deployment in selected countries;
- targeted research to address CCS knowledge gaps; and
- facilitation of CCS deployment in Norway through stakeholder interaction.

Achievements

BEST has identified Hungary and Greece as the European Union member states with the greatest CCS potential, and has initiated advocacy work there with both government and industry. The program has also established databases and collection methodology on CO_2 sources, and storage potential and is conducting a life-cycle analysis of European power production.



CARBON SEQUESTRATION LEADERSHIP FORUM (CSLF)

The Institute provided AU\$1.2 million to support a collaborative program with the CSLF to deliver capacity building activities around the world.

The CSLF is a Ministerial-level international climate change initiative that is focused on collaborative efforts to develop improved costeffective technologies for the separation and capture of carbon dioxide for its transport and long-term safe storage.

Achievements

The Institute has collaborated with the CSLF on a number of initiatives.

- Bridging the Commercial Gap workshop in New York (September 2009). Hosted in partnership with the CSLF, the IEA and Coal Industry Advisory Board.
- Commercial and Financial Structuring of Large Scale Projects with CCS workshop in Washington (April 2010).
- Commercial and Financial Structuring of Large Scale Projects with CCS in London (January 2010).
- Developing an International Definition of CCS Ready workshop in Ottawa (March 2010). A joint event with the CSLF and IEA workshop.



COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION (CSIRO)

The Institute has committed AU\$3.9 million to support the CSIRO to deliver a coordinated global scientific research program aimed at better informing its Members on the status of CCS public awareness and approaches, materials and efforts to better engage with impacted communities.

The CSIRO is Australia's national science and industrial research agency and one of the largest and most diverse research agencies in the world.

The CSIRO work program includes the following activities:

- utilising an established network of social research specialists to inform community engagement by both projects and governments, and to harness the wealth of information and expertise in this discipline;
- developing case studies and tools to provide proponents with a sophisticated insight and analysis into their social landscapes; and
- assisting projects to build healthy relationships with communities.

Achievements

- A one day international communications conference for stakeholders (November 2009), hosted by the CSIRO, that attracted 98 international representatives from industry, government, non-government organisations, researchers, and communication practitioners.
- Development of case studies on the social contexts of five CCS projects.
- Arrangement to extend the European Commission (FENCO) work examining the impacts of CCS communications to the USA, Japan and Australia.



INTERNATIONAL ENERGY AGENCY (IEA)

The Institute provided approximately AU\$15.77 million to the IEA to fund the establishment of a dedicated CCS unit aimed at utilising expertise on energy issues and markets to deconstruct the barriers to project deployment.

The IEA is an intergovernmental organisation which acts as energy policy advisor to 28 member countries in their effort to ensure reliable, affordable and clean energy for their citizens.

The IEA work program includes the following activities:

- undertaking technological and economic analysis;
- commencing regulatory and policy analysis and issuing recommendations;
- providing tools to achieve public engagement and acceptance; and
- active capacity building and outreach.

Achievements

- Creation of a specialist CCS Unit including a leader, five analysts and the capacity to draw on other IEA resources.
- Development of a comprehensive three year plan to develop and promote CCS.
- Collaborative development of a report to the G8 meeting in Canada (June 2010) outlining the status of CCS globally and the technical, financial and regulatory support that is necessary to achieve desired levels of CCS adoption. This extensive study was developed through a coordination group that encompasses the IEA, the Institute, the Carbon Sequestration Leadership Forum (CSLF) and the Governments of the USA, UK and Canada.



IEA GREENHOUSE GAS R&D PROGRAMME (IEAGHG)

The Institute has committed AU\$2.5 million to the IEAGHG to undertake research activities to help progress the G8 recommendations.

The IEAGHG is an international collaborative research program established under the International Energy Agency (IEA) to evaluate technologies that can reduce greenhouse gas emissions derived from the use of fossil fuels.

The IEAGHG work program includes:

- global storage resource gap analysis;
- studies to assess the impacts of impurities on geological storage sites;
- secretariat support for the IEAGHG Social Research Network; and
- sponsorship of the IEAGHG's Summer School, student mentoring program and GHGT conferences.

Achievements

- Work has progressed on the Global Storage Resource Gap Analysis which will alert policymakers to the scale, cost and timing of the storage resource assessment tasks. This report is anticipated for release before the end of 2010.
- IEAGHG Social Research Network: held in Paris, France (November 2009). Findings, conclusions and recommendations were then fed directly into an Institute led conference to help inform CCS project proponents.
- IEAGHG Summer School: held in Australia (September 2009) and Norway (August 2010). Institute support provided students from diverse academic backgrounds with a broad understanding of the issues surrounding CCS and encouraged their active participation in this area.



INTERNATIONAL ENERGY FORUM (IEF)

The IEF and the Institute jointly established a series of symposia on CCS designed to accelerate commercial deployment of CCS, particularly in oil and gas producing and consuming countries.

The IEF is the world's largest gathering of Energy Ministers. Through the Forum and its associated events, IEF Ministers, their officials, energy industry executives, and other experts engage in a dialogue of increasing importance to global energy security.

Achievements

- A symposium was hosted by the Energy Research Institute of China's National Development and Reform Commission (ERI – NDRC) in Beijing, China (September 2009). Recommendations were presented to the 12th IEF meeting in Cancun (March 2010). The symposium called for greater cooperation across industry and governments.
- A second symposium was supported by the government of Algeria in Algiers (June 2010). The symposium in particular called for inclusion of CCS in the CDM under the Kyoto Protocol or any post-Kyoto agreement.

THE CLIMATE GROUP

THE CLIMATE GROUP

The Institute provided AU\$3 million to The Climate Group to explore financing options for large-scale and first-of-a-kind CCS projects, and the role of public policy in improving confidence to financiers.

The Climate Group is a key NGO working to support government and business transition to a low-carbon economy future.

The Institute is working with The Climate Group to finalise a work program for this partnership.



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANISATION (UNIDO)

The Institute provided approximately AU\$300,000 to a Global Technology Roadmap for CCS in Industry. The Roadmap will focus on five industrial sectors which CCS can be applied to: high purity CO₂ sources, cement, iron and steel, refineries and biomass-based CO₂ sources.

UNIDO is a specialised agency of the United Nations. Its mandate is to promote and accelerate sustainable industrial development in developing countries and economies in transition, and work towards improving living conditions in the world's poorest countries by drawing on its combined global resources and expertise.

Achievements

- Two day sectoral workshop held in Abu Dhabi (30 June–1 July 2010).
- Production of a final report of the workshop capturing key issues for the different sectors.
- A second workshop to discuss the draft Roadmap in Amsterdam (September 2010).



WILLIAM J. CLINTON FOUNDATION (CLINTON FOUNDATION)

The Institute provided AU\$10 million to the Clinton Foundation to support the work being conducted through the Clinton Climate Initiative to accelerate key 'Early Mover' CCS projects around the world.

Established by former US President Clinton in 2001 the Clinton Foundation works to strengthen the capacity of governments and individuals to alleviate poverty, improve global health, strengthen economies, and protect the environment.

The Clinton Foundation work program includes:

- collaboration with 'Early Mover' CCS projects in the Netherlands and Australia to help overcome specific barriers;
- identification of potential future CCS projects and work to accelerate the development of these; and
- sharing 'best practice' and case studies from Early Mover projects that have been engaged.

Achievements

- Scoping work has been conducted in Indonesia, Malaysia, China, Germany, UK, Netherlands, Poland and Australia to identify and select potential future CCS projects for engagement.
- Studies undertaken for the Carbon Net project, Australia.
- Collaboration on stakeholder activities, Netherlands.
- Malaysian CCS scoping study due to be completed in November 2010.



WORLD BANK

The Institute provided AU\$2.4 million to the World Bank's CCS Trust Fund to provide assistance to the deployment of CCS in developing countries.

The World Bank is a vital source of financial and technical assistance to developing countries around the world, seeking to alleviate poverty and enable people to help themselves and their environment by providing resources, sharing knowledge, building capacity and forging partnerships in the public and private sectors.

The Trust Fund's main objectives are to:

- support strengthening capacity and knowledge sharing, to create opportunities for countries to explore their CCS potential, access carbon markets and realise benefits of domestic CCS technology development; and
- facilitate inclusion of CCS options into low-carbon growth strategies and policies developed by national institutions and supported by bank interventions.

Achievements

 10 projects will likely be supported from the fund. Details regarding the recipients and terms of support for these projects will be announced in coming months.

GOVERNANCE

The Board acts in the best interests of the organisation as a whole and is accountable to Members for overall direction, management and corporate governance.

As a global, not-for-profit organisation the Institute and its Board are committed to appropriate corporate governance. The Board acts in accordance with the Australian Corporations Act and the corporate governance principles contained within.

FOUNDATIONS FOR MANAGEMENT AND OVERSIGHT

The role of the Board is established by the Board Charter. It includes:

- overseeing the Company, including its control and accountability systems;
- monitoring and ensuring compliance with legal and regulatory requirements and ethical standards and policies;
- monitoring and ensuring compliance with best practice corporate governance requirements; and
- approving and ensuring compliance with the Institute's aim, objectives and values, and providing strategic direction for the development, execution and modification of the Institute's strategy.

The Board formally delegates responsibility for the Institute's day-to-day operations and administration to the Chief Executive Officer and the executive team.

BOARD STRUCTURE

Board members including the Chair are independent, non-executive Directors. The Institute's Constitution requires no less than three and no more than seven Directors. Directors must be non-executive and possess an appropriate range of skills, experience and expertise. There are three Directors as at 30 June 2010 comprising:

- Russell Higgins AO, Chair;
- Tina McMeckan, Director; and
- Dr Makoto Akai, Director.

The Constitution has established a process to govern the appointment and retirement of Directors and a Board Selection Panel has been appointed by Members to nominate candidates to fill vacancies.

THE INTERNATIONAL ADVISORY PANEL

The International Advisory Panel (IAP) is a key advisory panel within the governance structure of the Institute and has been established to provide strategic guidance and advice to the Board, as well as act as ambassadors to the organisation. The IAP collectively brings forward experience in corporate building, strategic engagement, international liaison, and government policy.

There are six members of the panel comprising:

- James Wolfensohn, Chair;
- Russell Higgins AO;
- Claude Mandil;
- Prof Zeng Rongshu;
- Dr Leena Srivastava; and
- Lord Nicholas Stern of Brentford, Kt, FBA.

CONSTITUTION

The Institute has put in place a Constitution that defines its function and provides a set of principles and procedures to govern its conduct.

At the Institute's first Meeting of Legal Members held in Paris (November 2009), a number of changes were made to the Constitution including:

- clarification of the objectives to ensure support for the Institute's income tax-free status application;
- defining the role of the Board Chair on the Board Selection Panel; and
- clarification of the rotation of Directors.

RISK

The Board is responsible for oversight of material business risk and is assisted in this role by the Board Audit and Risk Committee (ARC). The ARC was established with the first meeting held on 6 October 2009. Current members of the ARC include:

- Tina McMeckan, Chair;
- Russell Higgins AO, Director; and
- Roger Amos, independent member.

Objectives include providing assistance to the Board in relation to:

- establishing and reviewing a comprehensive risk management framework for the Institute;
- promoting a culture of compliance; and
- maintaining and improving the effectiveness of compliance strategies, internal and external audit functions, and the quality and credibility of financial accounting processes.

Together with the Board, the ARC has facilitated the development of a risk management framework designed to protect reputation and manage risks that may prevent the organisation from achieving its goals and objectives, or capitalising on opportunities. Management is responsible for implementing a risk management system that regularly audits, and manages material risks.

BOARD BIOGRAPHIES:

Russell Higgins AO, Chair, has extensive corporate and government experience both in Australia, and internationally. He is a non-executive director of APA Group, Telstra Corporation Limited and SunRice Limited. Russell was Chairman of the Federal Government's Energy Task Force from 2003–04, Secretary of the Department of Industry, Science and Resources from 1997 to 2002 and Executive Director, Resources and Energy from 1992–96. Prior to that he worked on economic and fiscal policy in the Departments of Treasury and Finance and at the OECD in Paris. He is a former Chairman of the Snowy Mountains Council and the Australian Government's Management Improvement Advisory Committee and a former director of Australian Biodiesel Group Limited, EFIC, CSIRO, Austrade, the Australian Industry and Development Corporation, as well as a former member of Australian Government's Joint Economic Forecasting Group. In 2006–07 Russell was a member of the Prime Ministerial Task Group on Emissions Trading. He also led the APEC work in the energy sphere for many years.



Tina McMeckan, Director, has served on the boards of a number of energy-related corporations, including Alinta Ltd, United Energy Ltd and Snowy Hydro Trading Pty Ltd. Other energy related directorships have included the Westar and Kinetik Energy Group, Victorian Power Exchange, and Solaris Power. Tina was previously an executive manager with GPU PowerNet and the SECV Energy Traders, and a project manager with the Victorian Department of Treasury and Finance on gas industry reform. Tina offers specific expertise in commercialisation of science and technology. Outside the energy sector, Tina is the Chair of the Centre for Eye Research Australia, a Director of Circadian Technologies Ltd, a Director of the Cooperative Research Centre Spatial Information, a Director of Metlink Victoria Ptv Ltd and a Director of the National Board of Norton Rose law firm.

Dr Makoto Akai, Director, is a principal research scientist with Japan's National Institute of Advanced Industrial Science and Technology (AIST) with extensive technical knowledge and expertise in the energy sector; specifically CCS. Makoto joined AIST, which falls within the Ministry of Economy Trade and Industry (METI) after the reconstruction of the Japanese Government in April 2001. Makoto has led a number of research groups, such as Distributed Energy System, and Socioeconomic and Policy Study. Makoto has played key roles in international activities which have included managing the International Collaboration Project on CO₂ Ocean Sequestration under IEA/CTI, and delegate to the Experts Group on R&D Priority-Setting and Evaluation under IEA/ CERT, and the IEA Hydrogen Programme.





THE GLOBAL CCS INSTITUTE MEMBERS

KEY

All Members 263

Legal Members 238 Foundation Members 22 Collaborating Participants 3

The Commonwealth of Australia The Emirate of Abu Dhabi – MASDAR The Government of Canada The Government of the Peoples Republic of China The Republic of Bulgaria The Government of the French Republic The Federal Republic of Germany The Government of Japan The Government of the Republic of Korea The Government of Malaysia 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 Romania The Government of Sweden The Republic of Trinidad and Tobago The Government of United Kingdom The Government of the United States of America The Government of Alberta The Government of Saskatchewan The Government of Scotland The State Government of New South Wales The State Government of Queensland The State Government of Victoria The State Government of Western Australia Asian Development Bank Japan Bank for International Cooperation (JBIC) Accenture LLP AGR Field Operations Aker Clean Carbon Aker Solutions Alcoa of Australia Ltd Alstom Power Ltd

Altona Energy AMEC PIC American Electric Power Service Corporation Anglo American Metallurgical Coal Pty Ltd Anthony Veder Group NV A.P. Moller – Maersk A/S ARC Resources Ltd Arcelor Mittal Research Maizieres SA Arch Coal Inc ARUP Pty Ltd ASME-Australia Aurecon Australia Pty Ltd Aviva Corp. B9 Coal Babcock & Wilcox Company Baker and McKenzie **BG Energy Holdings Limited BHP** Billiton **Biorecro AB** Blue Strategies LLC **Bluewave Resources** Bloomberg New Energy Finance Booz & Co. **Boston Consulting Group BP** Australia Limited Calera Corporation Calix Limited **CCGVeritas CCSTLM** Central Petroleum Ltd CE.Si.S.P. **Chartis International** CH2M HILL Energy & Chemicals Chevron Australia Pty Ltd Chiyoda Corporation Clean Energy Systems Inc ConocoPhillips CO² Solutions Inc. **CPC** Corporation Det Norske Veritas Deutsche Bank Asset Management Doosan Babcock Energy Limited Duke Energy **Dow Chemical Company** Ecofys Netherlands BV Eco Securities International Limited E. ON AG Emerson Process Management Flow B.V. ENAGAS SA **ENEA** Consulting ENEL S.p.A. Enhance Energy Inc Entech Strategies LLC **Entergy Services Corporation** Enviro-Energy International Holdings Limited Ernst & Young

Exergen Pty Ltd Exxon Mobil Australia Pty Ltd Frommer Lawrence & Haug LLP Fortum Oyj **GDF SUEZ Group** Geogreen Golder Associates Pty Ltd Hatch Associates Pty Ltd Hess Corporation Hitachi Limited Honeywell Ltd Howden Group Limited HTC Purenergy Inc Hydrogen Energy California IBM Australia Ltd **IHI** Corporation Infrastructure Partnerships Australia **INPEX** Corporation Integrated Carbon Sequestration Pty Ltd Integrated CO₂ Network (ICO₂N) **INTERKONSULT Ltd ION** Engineering Jacobs Consulting Japan NUS Co. Ltd JP Morgan Chase & Co Kawasaki Heavy Industries Korean Electric Power Corporation (KEPCO) **KPMG** L.E.K. Consulting LCS Japan Liberty Resources Macquarie Capital Group Mærsk Olie og Gas M.E.T.T.S Pty Ltd Mitsui & Co Ltd Nippon Steel Engineering Co. Ltd Norton Rose NTT Data Institute of Management Consulting Parsons Brinckerhoff Australia Pty Ltd Peabody Pacific Pty Ltd Perdamen Chemicals and Fertilisers Powerspan Corp Pöyry Energy Consulting Process Group Pty Ltd **Quality Energetics** Ramgen Power Systems, LLC Reed Smith LLP Repower Energia Italia S.p.A. ResourcesLaw International Associates Pty Ltd Reykjavik Energy Rhead Group

Rio Tinto Ltd Rolls-Rovce **RPS** Energy **RWE** Power AG Samsung Techwin Co. Ltd Scottish Power Senergy Alternate Energy Ltd Services Petroliers Schlumberger Shell International Petroleum Company Limited Siemens Australia Ltd Sojitz Corporation Solid Energy New Zealand Limited Southern States Energy Board Standard Chartered Bank StatoilHydro ASA Strike Oil Limited Sumitomo Corporation Taisei Corporation Taiwan Power Company Tarong Energy Technovation Partners Co. Ltd Tenaska Inc 3D-GEO Pty Ltd Toshiba Corporation Total S.A. Toyo Engineering Corporation TransAlta Corporation **TNO** Consulting TÜV SÜD Industrie Service GmbH Uhde Shedden (Australia) Pty Ltd Vattenfall AB Vattenfall Europe Woodside Energy Ltd Worley Parsons Services Pty Ltd Xstrata Coal Pty Ltd ZEEP Australia Pty Ltd ZeroGen Alberta Research Council Inc Australian Coal Association Australian National Low Emissions Council R&D **Bellona** Brazilian Coal Association British Geological Survey Canadian Clean Power Coalition Carbon Capture and Storage Association (UK) Carbon Capture and Storage Research Consortium of Nova Scotia Carbon Dioxide Reduction and Sequestration R&D Center (Korea) **CCS** Alliance Clean Air Taskforce

Coal Utilization Research Council Cooperative Research Centre for Greenhouse Gas Technologies (CO2CRC) Commonwealth Scientific and Industrial Research Organisation (CSIRO) demosEUROPA – Centre for European Strategy Electric Power Research Institute (EPRI) Energy Research Centre of the Netherlands (ECN) Fundación Ciudad de la Energía (CIUDEN) Główny Instytut Górnictwa IEA Greenhouse Gas R&D Programme Industrial Technology Research Institute (ITRI) Institute for Studies and Power Engineering International Aluminium Institute (IAI) Japan CCS Company Ltd Japan Coal Energy Center (JCOAL) Japan Oil, Gas and Metals National Corporation (JOGMEC) Korean Institute for Advanced Engineering (KIAE) Korea Institute of Energy Research (KIER) Lawrence Livermore National Laboratory National Institute of Marine Geology and Geoecology (GeoEcoMar) Nature Research Centre of Lithuania Petroleum Technology Research Centre Inc Petrophysical Institute Foundation (IPf) Research Institute of Innovative Technology for the Rotterdam Climate Initiative Scottish Centre for Carbon Storage Scottish European Green Energy Centre Seoul National University South African National Energy Research Institute (SANERI) Texas Carbon Capture Storage Association The Climate Group The Clinton Foundation UCG Partnership United States Energy Association University of Ballarat University College London University of Leeds (Low Carbon University of Mining and Geology of Bulgaria University of Tokyo US Carbon Sequestration Council (USCSC) World Coal Institute Yonsei University Zero Emission Development Institute Zero – Zero Emission Resource Organisation

COLLABORATION PARTICIPANTS

International Energy Agency International Energy Forum The World Bank

As at 13 September 2010



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All information correct at 13 September 2010.



ABOUT THIS PAPER STOCK: MANUFACTURED CAREON NEUTRAL PRODUCTS FOR WHICH THE CARBON EMISSIONS CREATED DURING THE MANUFACTURING PROCESS ARE CALCULATED, REDUCED AND THEN OFFSET, HOWEVER EMISSIONS 'FROM CRADLE TO GRAVE' ARE NOT ASSESSED. THE CALCULATED FOOTPRINT IS THEREFORE RESTRICTED TO THE MANUFACTURING PROCESS. WITHIN THE MILL GATES ONLY AND DOES NOT INCLUDE DELIVERY TO THE CONSUMER: RENEWABLE ENERGY ENERGY OBTINIED FROM SOURCES THAT CAN BE NATURALLY REPLENSIBED. CURRENT FORMS USED BY PAPER MILLS INCLUDE SOLAR, HYDROELECTRICITY COMMERCIAL AND SMALL-SCALEJ, BIOMASS, WWE AND WIND POWER, FOREST MANAGEMENT THESE PAPERS ARE TOTALLY DERIVED FROM RESOURCES WHICH ARE MANAGED TO ENSURE THEIR RENEWABILITY FOR ERNERTIONS TO COME. ELEMENTAL CHORINE FREE (EOF) PULP IS BLEACHED USING PROCESSES THAT DO NOT USE ELEMENTAL CHLORINE GAS, REDUCING SIGNIFICANTLY THE AMOUNT OF TOXINS RELEASED.

