

The Global Carbon Capture and Storage Institute

Positioning in the International Carbon Capture and Storage Landscape

The Global Carbon Capture and Storage Institute (GGCSI) has been established to accelerate the global adoption of safe, commercially and environmentally sustainable carbon capture and storage (CCS). A key early part of encouraging widespread deployment of the technology is the facilitation of a series of large scale integrated demonstration projects that will give the necessary confidence to proceed at pace. To achieve these objectives it will be necessary for the Institute to work with, and in partnership with, the other international organisations that already operate on a world-wide basis.

A critical issue therefore will be to understand and define how these different organisations can work in a cooperative and collaborative way that maximises the benefit of meeting the ultimate shared aim of rapid and safe deployment of CCS. In this context, it is very important to note that GCCSI brings much needed additional resources into this international arena that will not only accelerate the demonstration issues but also underpin many of the actions necessary to ensure that the conditions are right for deployment of the technology at scale worldwide.

GCCSI position and mandate are designed to complement and dove-tail with the roles of the well-established IEA and CSLF. GCCSI will be working collaboratively with the IEA and CSLF (and others as appropriate) in delivering the international CCS agenda and helping set the trajectory for deployment of CCS at the scale necessary to make a significant impact on mitigating the effects of climate change.

The mechanism for organising the work programs of each organisation, essentially the 'who does what, when and how', and the coordination of these activities is being established through detailed discussions with the IEA and the CSLF. The preliminary assignment of tasks between the IEA, CSLF and GCCSI, discussed in detail below, has been done on an informal basis to date. The focus of these discussions is the assignment of responsibilities against recommendations put to, and agreed by, the Group of Eight¹ Heads of Government in Hokkaido, Japan in 2008. It was of course these recommendations and the urgent need to act quickly that formed the rationale of why the initiative was taken by the Australian Government to establish GCCSI. While these details have yet to be formally endorsed by the IEA and CSLF it is intended that discussions will be concluded and outcomes agreed.

However, it does need to be noted that although the G8 recommendations are becoming accepted as the basis of the way forward for CCS, not all countries are members of the G8, IEA or CSLF communities and a number of countries

¹ Canada, France, Germany, Italy, Japan, Russia, the United Kingdom, and the United States

will have an important role to play, therefore there will be additional actions required outside these important recommendations.

This paper sets out to define the position of GCCSI and the role that it will have in relation to the IEA and the CSLF in progressing CCS work priorities. The later part of this paper addresses the matter of the strategic alliances and partnerships that GCCSI should pursue in order to achieve its objectives.

Rationale for GCCSI's position in the international CCS landscape

The role of GCCSI in the international CCS landscape emerged as a key discussion point at the London Preparatory Meeting held on 24-25 November 2008. GCCSI core proposition - that the fundamental driver of GCCSI should be demonstration projects - was welcomed by participants.

The key messages delivered on the role of GCCSI include that:

- GCCSI should work closely with the IEA and CSLF to coordinate CCS efforts world-wide, expand the CCS information base and accelerate wide-spread CCS deployment;
- GCCSI should focus on projects, particularly on large-scale multi-user infrastructure projects and bring together parties and coordinate consortia; and
- GCCSI will have a political and operational mandate to galvanise support for CCS and community awareness and acceptance of CCS as a climate change response.

Following from this, GCCSI fundamental role in the international CCS landscape is to accelerate the commercial deployment of CCS projects to make certain that the technology plays an integral part of the portfolio required to make significant reductions in the level of CO₂ emissions. This will be achieved by building confidence in CCS technology through the establishment of a series of large-scale integrated CCS demonstration plants.

The immediate priority for GCCSI will be to work with other organisations, Governments and industry to accelerate the establishment of 20 or more projects by 2010. This immediate priority follows closely from the G8 recommendations which support the launch of 20 fully integrated large-scale projects by 2010 to enable broad commercial deployment of CCS by 2020.

G8 recommendations and GCCSI, CSLF and IEA

The G8 recommendations focus on what efforts need to be made globally, by organisations and Governments, to meet the objective of broad commercial deployment of CCS by 2020. The G8 outlines that international efforts should: be concerted and focussed on demonstrating CCS; address financial gaps; establish legal and regulatory frameworks; and raise public education and awareness. Based on these recommendations and the mandates/work programs of the IEA and CSLF the GCCSI position in the international CCS landscape is realised.

GCCSI will support the work programs of the IEA and CSLF to achieve the G8 recommendations where the interests of those organisations intersect with GCCSI. The IEA provides policy advice to its member countries as part of its

treaty arrangements, on meeting their energy objectives and is also responsible for reporting to the G8 on the progress of its recommendations within the CCS arena. The IEA, through its core work and that of its various implementing agreements, provides expert input into a CCS work program through the Clean Coal Centre and the IEA Greenhouse Gas Research and Development (IEA GHG R&D) Programme. The Working Party on Fossil Fuels also steers the policy direction of fossil fuel and carbon-related matters, while the Coal Industry Advisory Board provides high level advice to the IEA's Governing Board. GCCSI will work collaboratively and in partnership with each of these areas of the IEA.

The CSLF, formed at the Ministerial-level of Government, is focussed on the development of improved cost-effective technologies for the separation and capture of carbon dioxide for its transport and long-term safe storage. The CSLF seeks to achieve this through the development and deployment of such technologies via collaborative efforts that address key technical, economic and environmental obstacles. The CSLF also seeks to promote awareness and champion legal, regulatory financial and institutional environments conducive to such technologies. GCCSI will work closely with the CSLF to assist in the advancement the G8 recommendations and in areas of mutual interest.

G8 RECOMMENDATIONS: WHERE THE GCCSI WILL LEAD

GCCSI will be taking a leading role and working in close collaboration with the CSLF and the IEA on the following G8 recommendations (subject to formal agreement by the IEA and CSLF together with the GCCSI):

Driving projects through international cooperation

G8 REC: Governments are encouraged to cooperate internationally to partner, financially support and share information on large-scale integrated carbon dioxide capture and storage demonstration projects.

This recommendation is a priority for the Institute and action is already underway to deliver on this recommendation through a number of major pieces of work. Foremost this includes a major 'baseline' study on the status of CCS deployment and projects globally that will identify the progress being made towards the desired 20+ demonstration projects and estimate the current anticipated trajectory for achieving this. The next step will be to actively engage with the projects to identify key issues to be addressed to drive projects forward.

GCCSI has also commissioned work to establish a global portfolio of CCS demonstration projects that will maximise and accelerate opportunities for learnings in order to bring down costs and build public confidence in CCS technologies. This project will be subject to review by the IEA.

Knowledge sharing

G8 REC: Accelerate the deployment and acceptance of CCS by sharing of principles and experiences on site selection with the aim of improving practices and ensuring integrity of storage sites, lowering costs and transferring knowledge through international organisations. Publicly-funded CCS projects should be required to disseminate non-proprietary information to facilitate the development and deployment of this technology.

This recommendation is a major action task for GCCSI and will create important linkages and shared learnings across a range of projects that will expedite the deployment and success of each subsequent CCS demonstration project. Defining the parameters of knowledge sharing and intellectual property will be pursued by the Institute in conjunction with the European organisation- European Technology Platform for Zero Emission Fossil Fuel Power Plants (ETP-ZEP) amongst others which is beginning to progress some work in this area.

Public Education and Awareness

G8 REC: Governments, together with industry and other stakeholders, should commit resources to advance understanding and education related to CCS. Communication strategies need to reflect different audiences, including the general public and project-level communities. Further, CCS should be communicated in the context of GHG mitigation options to demonstrate the role that CCS can play in reducing GHG emissions in a world of growing energy and resource demand.

GCCSI sees this area as one in which it can make a substantial contribution that, in close collaboration with the CSLF, will benefit both proponents of CCS, by providing advice on communication strategies to the public, and more broadly by contributing to public education and awareness campaigns globally. GCCSI will seek to bring together the actions of current actors in this area such as the CSLF, the IEA Working Party on Fossil Fuels, the IEA GHG R&D and ZEP while also pursuing its own projects in this area.

Global Atlas

G8 REC: Governments should urgently establish primary assessment of prospective sedimentary basins, using an appropriate CO₂ Storage Capacity Estimation methodology, including source-link matching.

An immediate priority for GCCSI is to initiate the establishment of a CO₂ Global Storage Atlas, using agreed methodology from the CSLF Technical and Policy Group. While this project will initially draw from work already undertaken in this area it will also work to further establish more robust estimations to be reported in a consistent way. The IEA will also be contributing to this work through the storage and mapping work it is undertaking in North America.

G8 RECOMMENDATIONS: WHERE THE GCCSI WILL SUPPORT

GCCSI will partner closely with the CSLF and the IEA to support actions to realise the following G8 recommendations (subject to agreement by the IEA and CSLF together with the GCCSI)

Research and Development

G8 REC: Governments and the private sector are encouraged to undertake and fund Research Development & Demonstration of carbon dioxide capture technologies with the objective of reducing costs and improving overall system efficiencies.

This recommendation is essential to driving the deployment of CCS. While not taking a leading role, GCCSI will encourage appropriate R&D work, in particular identifying R&D gaps impeding the progress of commercial deployment and encouraging research to plug those gaps, by establishing strategic relationships with important R&D centres worldwide to ensure the flow of appropriate information and to initiate specific work where appropriate.

CCS Ready

G8 REC: Further work is required to understand and define the concept of 'capture and storage ready' plants and its value as a viable mitigation strategy.

This recommendation is a priority for GCCSI and it is currently commissioning work on the definitional issues of CCS ready together with several case studies to illustrate the application of the definition by regulators. The aim of this study is to develop a common understanding of the term, work towards international harmonisation of the concept of CCS ready and to provide substantial input to the planned CCS work through 2009.

Progressing legal and regulatory matters

G8 RECs: The IEA and CSLF should continue to develop the recommendations for future legal work in CO₂ storage by: collecting examples of regulatory streamlining and other incentives and practices which will facilitate critically needed near-term demonstration projects; using existing project data to develop internationally consistent guidance for CO₂ storage project site identification, monitoring and long-term verification; and continuing to share regulatory models internationally.

G8 REC: For the demonstration projects, the appropriate level of government should use a framework, formulated using best practices at the time of the project. That is, projects should not be delayed because the complete regulatory framework is not in place. Based on experiences from demonstration projects, frameworks for full commercial-scale projects can then be formulated.

GCCSI will actively support the IEA in pursuing these recommendations by providing input from studies and analysis of CCS projects as they relate to regulatory environments.

Financial barriers and Government collaboration

G8 REC: Governments should address, together with the private sector, the financial gap and risks facing early CCS projects, accelerate the adoption of large-scale CCS. Public-private collaborations should not endanger the benefits of creating a competitive business environment for the products and services associated with CCS, but should clearly identify risk sharing arrangements. Government to government collaboration should stimulate and support these partnerships through appropriate policy and action.

GCCSI will support the IEA Working Party on Fossil Fuels on these recommendations by providing input through its studies and analysis of CCS projects that will include analysis of financial barriers to deployment.

Valuing Carbon

G8 REC: Governments should provide long term policy certainty through the introduction of appropriate regional/national instruments to create a value for CO₂, such as emissions trading and/or tax treatment; and to ensure that emissions trading systems recognise CCS for permanent storage. Governments should collaborate to ensure that their respective CCS legislation and regulations are compatible with international fungibility of mitigation credits for CCS.

GCCSI will collaborate with the IEA on this recommendation by providing input through its studies and analysis of CCS projects that will include analysis of the impact of carbon values on project deployment.

Developing Economies mechanisms

G8 REC: Governments are encouraged to provide technical assistance, either individually or via appropriate international bodies to assist developing countries to produce mapping and capacity estimates.

G8 REC: Governments should actively encourage the CDM Executive Board to adopt CCS as an acceptable mitigation technology.

G8 REC: The World Bank and other multilateral lending institutions should be encouraged to work with developing countries to fund capacity building, such as training, mapping, and identification of potential CO₂ storage reservoirs and estimation of large emission sources in those countries.

Multilateral lending institutions should provide financial support to share the risk of appropriate demonstration projects in developing countries.

GCCSI will work closely with the CSLF and the IEA to develop capacity and other mechanisms to facilitate CCS projects and encourage broader deployment of CCS in emerging countries.

Assessment and review

G8 REC: The IEA/CSLF will assess the implementation of these recommendations on an ongoing basis, and will provide this assessment to the G8 leaders in 2010. This assessment will include further actions that could be taken the G8 to further accelerate the exploitation of near-term CCS opportunities.

Given that GCCSI will be taking a lead responsibility on some of the G8 recommendations, as well as supporting others that are of relevance to its portfolio, GCCSI will be contributing to this recommendation. It will do so by providing progress against achieving the 20+ demonstration plants by 2020, as well as other information and data that is relevant to assessing progress on the recommendations.

GCCSI partnerships and alliance strategy

While the IEA and CSLF are indeed the GCCSI's vital partners there are a number of other key players which GCCSI seeks to form relationships with. Therefore GCCSI collaborative efforts will extend well beyond relationships with the IEA and CSLF to deliver on the G8's recommendations, and the GCCSI will work closely with other strategic partners and alliances that are able to assist GCCSI to achieve its goals.

Partnerships along the spectrum of opportunities

GCCSI seeks to develop meaningful partnerships and alliances with entities, noting that there are already numerous bodies working on CCS that provide expertise, direction and knowledge on different aspects of CCS technology. For GCCSI strategic alliances and partnerships will need to closely align with its clear objective or otherwise provide significant input by other means into achieving this objective. Therefore the priority for GCCSI will be to form strategic alliances and partnerships with entities that have the capability to drive CCS projects forward and into the pre-feasibility and demonstration phase.

Research and development organisations should form part of GCCSI's strategic alliances. GCCSI will support research and development organisations where their work is of merit in driving commercialisation of CCS or integrated full-scale multi-user projects. Project consortia and research and development working together in a complementary way will be critical in elevating projects into full-scale demonstrations and preventing their disappearance into the so-called 'technological valley of death'. By operating effectively across these groups, GCCSI can potentially influence the success of worthy projects.

GCCSI will also need to engage with entities that are focussed on delivering public education and awareness campaigns. Engagement with the public through awareness and education campaigns is crucial for proponents of CCS demonstration projects and for whom the Institute will be supporting through advice and other such means. Further, public education and awareness campaigns will be necessary at a broader level to raise the profile of CCS as an integral part of the range of solutions available to deal with climate change.

Therefore GCCSI will need to work across a number of different types of entities each with a particular focus on CCS that will facilitate project deployment. To this end GCCSI sees that it must form strategic alliances in thematic areas including: projects, policy, knowledge sharing, research and development, regulatory and economic matters and public education and awareness. Based on this strategy GCCSI has initiated contact with a number of entities including: the Clinton Foundation, the Climate Group, ZEP, various European Commission initiatives, CO2CRC, SANERI, IEF, the Asian Development Bank, Geoscience Australia and CO2GeoNet.

Entities wishing to engage with GCCSI will need to demonstrate their capacity to influence outcomes and that they are prepared through this process to share knowledge with GCCSI and other strategic alliances and partnerships to accelerate the up-take of subsequent CCS projects.

Of further consideration for GCCSI and its Foundation Members is to engage with organisations that have 'reach' into jurisdictions that are critical to the concerted global effort of deploying CCS. GCCSI is aware that varying political and economic arrangements will require flexibility in its approach to establishing strategic relationships.

As a global concerted effort on CCS is required to achieve broad commercial deployment, GCCSI will be actively engaging across various regions and economies to facilitate projects. Through its global approach to strategic partnerships and alliances, as well as focussing on project facilitation, GCCSI is positioning itself to meet its objectives in a targeted and effective way.