

Carbon Sequestration leadership forum

CSLF-P-2009-08
28 May 2009

www.cslforum.org



POLICY GROUP

CSLF Strategic Plan Update

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CSLF STRATEGIC PLAN UPDATE

Note by the Secretariat

Background

The CSLF Strategic Plan was originally created in 2006 and was approved by the CSLF at the Delhi meeting in April 2006. The CSLF Policy Group agreed at its Cape Town meeting in 2008 to create a new Task Force, with Canada as Chair, to update the document so that it can be a key deliverable at the upcoming CSLF Ministerial Meeting.

Action Requested

The Policy Group is requested to review and approve the updated CSLF Strategic Plan.



Strategic Plan Update

2009-2013

DRAFT

June 2009 v10



The Vision for the Carbon Sequestration Leadership Forum

Global Warming is a major threat to the world. The Intergovernmental Panel on Climate Change (IPCC) concluded that greenhouse gas emissions must be cut at least in half from 2000 levels to avoid the most serious consequences of global warming. The IPCC also identified Carbon Capture and Storage (CCS) as a key mitigation technology. Analyses by the International Energy Agency (IEA) also confirm that CCS is an effective mitigation technology and estimate that CCS could provide approximately 20 percent of the total reductions needed by 2050.

The Carbon Sequestration Leadership Forum (CSLF) is an international climate change initiative to meet that threat through 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 has achieved several outstanding successes, notably: the definition of site selection criteria for CCS projects; the methodology for evaluation of storage capacities; the definition of legal and regulatory issues; organizing capacity building workshops in developing countries; and collaborating with the IEA to develop the recommendations on Near-term Opportunities for CCS to the G8. These recommendations have become the international reference to measure progress on CCS.

During the past six years, the CSLF has recognized over 20 international projects that advance the state of the art of CCS, each of which has been carefully reviewed in order to fill technology gaps. Reports published by CSLF are recognized as authoritative reference works worldwide.

Continuing to move CCS forward will require further global cooperation on an unprecedented scale. This cooperation is required to meet the challenges of advancing the technology, to reduce costs, to engage developing countries, and to collaborate with the private sector to deploy this technology. The CSLF welcomes the engagement of the IEA and the establishment of the Global Carbon Capture and Storage Institute (GCCSI) as its partners in furthering the achievement of these objectives.

Through implementation of this revised strategic plan, the CSLF will build a new foundation for international collaboration with its Members, Stakeholders, the academic community, the IEA and the GCCSI. The CSLF will be the catalyst for the deployment and eventual commercialization of CCS.



Strategic Plan Update 2009-2013

Carbon Dioxide Capture and Storage (also known as carbon sequestration or CCS) represents a new and vital tool among the suite of measures needed to address the serious and long term challenge of climate change in the context of sustainable development. The Carbon Sequestration Leadership Forum (CSLF) was chartered in 2003 to establish a framework for international cooperation in research and development for the separation, capture, transportation and storage of carbon dioxide. The purpose of the CSLF, as stated in its charter, is to:

- Facilitate the development of cost-effective technologies for the separation and capture of carbon dioxide for its transport and long-term safe storage;
- Make these technologies broadly available internationally; and
- Identify and address wider issues relating to carbon capture and storage, including promoting the appropriate technical, political, and regulatory environments for the development of such technology.

First CSLF Strategic Plan

The CSLF prepared its first strategic plan in 2004. The goal of that plan was:

To have the foundation in-place, by 2013, for the wide adoption of Carbon Capture and Storage, the CSLF will seek to raise the promise of carbon capture and storage over the coming decades, making it commercially competitive and environmentally safe through:

1. *Identifying the potential for CCS technology development and deployment opportunities.*
2. *Promoting the deployment of full scale demonstration and pilot projects.*
3. *Supporting development of relevant legal and regulatory frameworks.*
4. *Identifying potential barriers to and opportunities for investment and funding to facilitate projects.*
5. *Collaborating on capacity building with member developing countries to enable the widespread research, development and deployment of technologies.*
6. *Addressing the barriers to public awareness and acceptance of CCS, taking into account safety, liability and environmental impact/assessment issues.*

To achieve these stated goals, the 2004 CSLF Strategic Plan contained an Action Plan with six strategies, and “key outputs” within each strategy (Annex 1). The CSLF Policy Group was assigned responsibility for five strategies with 16 key outputs, and the Technical Group was given responsibility for one strategy with 13 key outputs.

At the CSLF annual meeting in Cape Town, South Africa (April 2008), the Secretariat reviewed the progress that had been made on the 2004 CSLF Strategic Plan and reported that significant progress had been made on 22 of the 27 key outputs. The Secretariat also determined that the six stated goals are well aligned with the charter and the key themes are valid. The Policy Group decided the Strategic Plan should be updated and that the Strategic Plan Update should address the CSLF role in implementing the recommendations from the G8/IEA/CSLF workshop in Calgary, Canada (November 2007)¹, and account for accomplishments since 2004. It was further agreed that the strategic plan should be restructured to establish clear, achievable and measurable goals and outcomes.

Objectives of this Update

This Strategic Plan Update lays a foundation for the work of CSLF over the remaining four years (2009-2013) of its charter. The objective is to lay the groundwork for international collaboration through the CSLF on those activities necessary for CCS to become widely commercial by 2020 in both industrialized and developing countries. The Strategic Plan Update builds upon the activities of the CSLF to date, takes into account the current global situation of CCS, and is aligned with other international collaborations on CCS.

Status of CSLF Activities

The CSLF Policy and Technical Groups made significant progress in achieving the goals of the CSLF through various task forces established to address specific areas of concern. Tables 1 and 2 respectively provide an overview of the achievements and current status of CSLF activities for the Policy and Technical Groups. These tables also show potential follow up activities that could be considered for the Strategic Plan Update.

Both the Policy and Technical Groups have had notable achievements to date and these achievements can provide the basis for further work. Of particular importance was the work on legal and regulatory frameworks, which was critical input to the IEA publication on *The Legal Aspects of CO₂ Capture and Storage*² in 2007 and provided input to the legislative and regulatory consideration of CCS in a number of Member jurisdictions. The CSLF also achieved a critical breakthrough by developing international standards for CO₂ storage capacity estimates which led to a series of reports on this topic.³

¹ www.cslforum.org/.

² http://www.iea.org/Textbase/publications/free_new_Desc.asp?PUBS_ID=1928.

³ http://www.cslforum.org/publications/index.html?cid=nav_publications.

Table 1. CSLF Policy Group Accomplishments and Future Potential

| Accomplishment | Significance | Status | Future Potential |
|--|--|---|--|
| 1. Members agree on the 2004 CSLF Strategic Plan as basis for future CSLF activities | <ul style="list-style-type: none"> The strategic plan represents consensus of the members on future activities. | <ul style="list-style-type: none"> Strategic plan has been agreed upon by the Members. Work has been carried out on 22 of 27 key outputs The 2004 strategic plan is now five years old and needs updating. | <ul style="list-style-type: none"> Update the original 2004 strategic plan Execute the updated strategic plan mobilizing resources from both the public and private sectors. Leverage CSLF resources by working with other international collaborations on CCS. |
| 2. Progress towards a financing approach | <ul style="list-style-type: none"> Financing is a major constraint on CCS, especially in developing countries. | <ul style="list-style-type: none"> Work is ongoing. A workshop on financing was held in Delhi India and a Task Force is working | <ul style="list-style-type: none"> One or more highly-visible projects in emerging economies could be developed. Facilitation for financing approaches for CCS |
| 3. Conducted capacity building workshops | <ul style="list-style-type: none"> This is a major demonstration of commitment to developing country members. | <ul style="list-style-type: none"> Four workshops have been held so far. They have all received enthusiastic response from developing participants and expressions of interest for more. | <ul style="list-style-type: none"> A much more robust capacity building initiative (as originally proposed by the Secretariat) could be implemented at low cost. All CSLF members, including industrialized countries need capacity building, not just the developing countries. |
| 4. Developed guidelines for legal-regulatory frameworks. | <ul style="list-style-type: none"> CSLF activities, with the IEA WPPF, accelerated consideration of legal and regulatory frameworks. | <ul style="list-style-type: none"> Worked with IEA WPPF to hold two workshops Developed guidelines | <ul style="list-style-type: none"> More info exchange among Members could be facilitated. Provide the basis for input to the UNFCCC, particularly on CDM and its successor mechanism. |
| 5. Recognized 19 major projects from around the world | <ul style="list-style-type: none"> This provides a basis for information sharing on 19 of the most important projects throughout the world covering all aspects of CCS. | <ul style="list-style-type: none"> Projects report progress regularly to the CSLF | <ul style="list-style-type: none"> Lessons learned from the recognized projects can be more broadly disseminated. New international collaborative projects can be facilitated, to the credit of the CSLF. |

Table 2. CSLF Technical Group Accomplishments and Future Potential

| Accomplishment | Significance | Status | Future Potential |
|---|--|---|--|
| 1. CSLF Technology Roadmap to identify and address gaps in R&D | <ul style="list-style-type: none"> The CSLF Technology Roadmap reflects a consensus of leading international experts on the technical developments necessary to develop and deploy all aspects of CCS. | <ul style="list-style-type: none"> Initial draft of roadmap was completed in 2004. The 2004 roadmap is currently being updated. | <ul style="list-style-type: none"> The CSLF could actively use the roadmap to develop approaches to filling gaps in RD&D that the roadmap identifies. |
| 2. Developed international standards for storage capacity estimates | <ul style="list-style-type: none"> This <u>critical breakthrough</u> fulfills previously-unmet requirements for financing and regulation. It provides a consistent basis for estimating, comparing and valuing geologic storage capacity for CO₂. | <ul style="list-style-type: none"> This capacity estimation methodology has been developed on a theoretical basis by the foremost experts in the world, but it has yet to be validated in the field. | <ul style="list-style-type: none"> These standards need to be validated in several site applications under diverse geologic conditions. |
| 3. Assessment and identification of gaps in MMV | <ul style="list-style-type: none"> This assessment describes gaps in MMV technologies and practices where further R&D is required. | <ul style="list-style-type: none"> Final report is complete. Closing identified gaps will require multiple projects. | <ul style="list-style-type: none"> Collaborative MMV projects can be developed under CSLF auspices. Development of standards for MMV can be accelerated. |
| 4. Examination of risk assessment standards and procedures | <ul style="list-style-type: none"> Reductions in perceived risks through better risk assessment will have a large impact on commercialization | <ul style="list-style-type: none"> Activities are underway to assess prior work in this area and determine critical issues. | <ul style="list-style-type: none"> Globally-accepted standards and procedures for risk assessment that would facilitate financing and public assessment. |

Capacity building and information sharing among member countries has been advanced through a series of workshops and the sharing of information regarding the 19 major CCS projects endorsed by the CSLF. Similarly, collaboration on research and development activities has been aided by the establishment of a Technology Roadmap in 2004, which is currently being updated. Other significant publications include reports on *Assessment and Identification of Gaps in Measurement, Monitoring and Verification*⁴ and *Identifying Gaps in CO₂ Capture and Transport*⁵ has aided this effort in areas of critical concern. Today, the CSLF is an ongoing organization with ongoing activities in these areas.

Situation Analysis

The development of this Strategic Plan Update must take into account the current and likely future situation faced by CSLF in serving its purpose. This situation includes the status and outlook for key drivers for CCS; the strengths, weaknesses, opportunities and threats faced by the CSLF; and the work of other international collaborations. Of particular importance is the commitment of the CSLF to participate in carrying out the recommendations made to the G8 jointly by the CSLF and the International Energy Agency (IEA), with a major contribution from the recently launched Global carbon Capture and Storage Institute (GCCSI).

Key Drivers for CCS

The key driver for CCS, is the perceived need to reduce greenhouse gas emissions and, in particular, CO₂ emissions. Many countries are implementing measures to reduce greenhouse gas emissions and more are being considered. International discussions are underway through the United Nations Framework Commission for Climate Change (UNFCCC) on a new international protocol to succeed the Kyoto Protocol. The status of CCS as a domestic mitigation policy is well accepted, including the accounting procedures developed by the IPCC.⁶ The principle area of contention is the use of CCS in the Clean Development mechanism (CDM), and the how that may be amended in the post-2012 agreement.

Interest in CCS technology has advanced rapidly over the past five years. The technology is now at the point where many fully-integrated industrial scale demonstrations and potentially commercial facilities are being contemplated. The scope of CCS research, development and demonstrations activities have vastly increased throughout the world.

However, the current economic conditions may reduce resources available for capital-intensive activities such as CCS and the costs of major projects have been escalating. On the other hand, CCS projects have been seen in some countries, as part of economic stimulus packages, and cost escalation is widely expected to abate with the economic slowdown.

⁴ http://www.cslforum.org/publications/documents/Final_Report_MMV_Task_Force.pdf.

⁵ http://www.cslforum.org/publications/documents/Final_Report_Task_Force_Identifying_Gaps_CO2_Capture_Transpo.pdf.

⁶ IPCC IGHG Inventory Guidelines 2007?

Strength, Weakness, Opportunity and Threats (SWOT) Analysis

Strengths. Over the six years of its existence, the CSLF has demonstrated several key strengths. Foremost, is that the CSLF has demonstrated global convening power, both to facilitate information exchange on CCS and to bring together experts from around the world to address common problems such as developing standards for risk assessment and storage capacity estimates. The CSLF is an organization of national governments. CSLF Members represent a large portion of the world's energy supply and demand and represent both industrialized and developing countries. The participation of developing countries from around the world, in particular, is a unique strength. Until the formation of the Global Carbon Capture and Storage Institute, it was the only international organization focused solely on CCS. Stakeholders participate in its task forces and activities. These characteristics make the CSLF a unique forum for ongoing collaboration on CCS.

As a voluntary organization of governments, the CSLF can provide the basis for open discussions among governments and it does not impose the requirements of a funding organization.

Weaknesses. Being a voluntary organization, the CSLF has a limited internal budget and staffing resources. Also, it is not able to directly fund some of its outreach activities.

Opportunities. CCS now stands poised to transition from a largely experimental technology to a technology that is to be demonstrated at a commercial scale and will begin to be deployed commercially. Governments throughout the world can benefit from the open discussions and collaboration opportunities offered by the CSLF.

Two international organizations focused on CCS—the IEA and GCCSI have—complementary strengths. These provide the CSLF with the opportunities for collaboration that will greatly leverage its resources.

Threats. The primary threats faced by the CSLF are not threats to the CSLF as an organization, but rather the barriers those faced by CCS as a greenhouse gas mitigation measure. These barriers were identified at the first of the G8/CSLF/IEA workshops held in San Francisco and are shown in the accompanying box. Perhaps most important of those now is that CCS is still little known by the public and political decision makers. It is new and complex and therefore subject to considerable misunderstanding and it requires much more political championship in many countries.

International Collaboration

The work of the CSLF will complement that of the two other major international collaborations working to advance CCS, notably the International Energy Agency (IEA) and the new Carbon

Capture and Storage Institute (GCCSI). The CSLF, IEA and GCCSI are all guided by the recommendations of the Calgary, Canada G8/IEA/CSLF workshop

CCS research, development and demonstration activities are taking place in many countries that are Members of the CSLF and in some non-member countries. Some countries are also implementing economic incentives for CCS. A 2008 IEA report contains a comprehensive review of the activities of countries throughout the world.⁷ In addition, two other CSLF data bases currently under construction provide comprehensive global data on integrated demonstration projects and economic and financial incentives for CCS.

- The **International Energy Agency** has undertaken a broad array of efforts to further CCS. Some of these are the responsibility of its Working Party on Fossil Fuels; others are carried out by the IEA Secretariat. Two Implementing Agreements are particularly focused on CCS:
 - The IEA Greenhouse Gas R&D Programme is an international research collaboration that assesses technologies to achieve deep reductions in greenhouse gas emissions.
 - The IEA Clean Coal Centre is a research organization for clean coal technologies and much of its recent work has focused on carbon capture and storage in coal facilities.
- The **Global Carbon Capture and Storage Institute (GCCSI)** was launched in April 2009 to accelerate the deployment of CCS technologies through 20 fully integrated industrial-scale demonstration projects by 2020. The Institute has committed to work collaboratively with the IEA, the CSLF and other CCS organizations.

While not specifically focused on CCS, the Intergovernmental Panel on Climate Change (IPCC), which provides an objective source of information about climate change initiatives through assessing on a comprehensive, objective, open and transparent basis the latest scientific, technical and socio-economic literature produced worldwide. The IPCC has published its Special Report on Carbon Capture and Storage (2005), updated the inventory guidelines for CCS (2007), and recognized CCS as an important greenhouse gas abatement technology in its Fourth Assessment Report (2008).⁸

A number of regional collaborations on CCS are also taking place. The EU Zero Emissions Platform (ZEP) aims to achieve 12 commercial-scale demonstration projects by 2020 across a range of technologies. The Regional Carbon Sequestration Partnerships in the United States and Canada are conducting numerous regional studies. Similarly, the Asia Pacific Partnership and Asia Pacific Economic Cooperation and have sponsored several studies on CCS. Each of these activities has involved collaborations between the public and private sectors. In addition, various multilateral banks such as the World Bank and Asian Development Bank are considering the inclusion of CCS in their activities.

⁷ See Chapter 6 of International Energy Agency, CO₂ Capture and Storage, A Key Abatement Option, Paris, OECD/IEA, 2008.

⁸ These reports may be downloaded at: <http://www.ipcc.ch/>.

Strategy

With the evolution of CCS as a critical technology for GHG abatement, the CSLF needs to identify the areas where it can provide the greatest value. The CSLF has been a successful incubator for projects, such as the legal aspects, and this area is now being further developed by others. In addition to continuing with its technical work, the CSLF has identified that continuation and expansion of the capacity building activities; examination the financing options for CCS; enhancement of public outreach initiatives; more fulsome engagement of stakeholders; and enhanced international collaboration are the principal areas to pursue.

The development of the Strategic Plan Update is designed to advance the work to fulfill the purpose of the CSLF and, in particular, to facilitate implementation of the G8 recommendations. Future CSLF activities should follow three strategic principles:

1. Focus on activities that can have a high impact overcoming barrier to CCS, specifically those that implement the expert recommendations to the G8.
2. Engage only in those activities needed to make CCS a global reality by 2020, for which the CSLF is best suited by building on its strengths and prior activities.
3. The work of the CSLF should support the work of its Members and complement that of other international organizations also working on CCS.

Through work completed at the G8/IEA/CSLF workshop and prior work of the CSLF, eight strategies were developed to fulfill these purposes of the CSLF. Implementation of these strategies forms the framework of the CSLF strategic plan:

- Identify the potential for CCS technology and accelerate the research and development of that technology to realize its potential.
- Promote the deployment of pilot and full-scale demonstration projects.
- Support the development of relevant legal and regulatory frameworks.
- Identify potential barriers to investment and funding, and promote opportunities to facilitate CCS projects.
- Collaborate on capacity building with member developed and developing countries.
- Address the barriers to public awareness and acceptance.
- Collaborate with other International Organizations to share resources and information, and to avoid duplication of effort.
- Engage stakeholders in the development and execution of the CSLF strategic plan.

Specific Strategic Actions following these principles will be implemented by the Policy and Technical Groups and supporting strategies involve other organizations and stakeholders.

The Way Forward

The following section outlines the specific actions that relate to the strategic principles based on the above themes

G8 Recommendations

In January 2008, a report, was developed containing five high level recommendations and 27 more detailed recommendations to policy makers (Annex 2). This report was based on the finding three facilitated expert workshops in the United States, Norway and Canada. These recommendations were accepted by the G8 in its 2008 meetings in Japan. That report includes a recommendation that the International Energy Agency and CSLF carry-out an assessment of progress on the recommendations and report to the G8 leaders in 2010.

The CSLF has endorsed these recommendations, many of which will influence the direction of this strategic plan update. The CSLF will play an active role in their implementation, as will the IEA and GCCSI. It is important, therefore, that this work be done effectively and without duplication of effort. It is necessary that the CSLF come to an agreement with the IEA and the GCCSI as to the specific roles each will plan in carrying out the G8 recommendation and to undertake the assessment on **all** of the recommendations, which will take place at the G8 Meetings in 2010 in Canada. The report on the detailed recommendations will be required in order to deliver the progress on the high level recommendations.

Action 1: The CSLF will collaborate with the IEA and the GCCSI to ensure effective implementation of the G8 recommendations, and will complete an assessment of all recommendations. This assessment will include indicators of progress, and provide a summary for the five high level recommendations:

- ✓ Demonstrating CO₂ Capture and Storage
- ✓ Taking concerted international action
- ✓ Addressing the Financial Gap
- ✓ Establishing legal and regulatory Frameworks
- ✓ Raising Public Education and Awareness

Additionally, this process will include a report on the detailed recommendations, with a view to a comprehensive report at the G8 Summit in 2010. Annex 3 , developed collectively by the IEA, GCCSI and the CSLF, provides the framework for undertaking the update to the recommendations, some of the recommendations; have been combined due to their similarity. This document will be used to indentify the lead group and the timelines for updating each recommendation.

Identifying potential for CCS technology development and deployment opportunities.

It is crucial to follow up the demonstration projects with short term R&D identified through those demonstration projects. In addition, medium- to long term R&D must be strengthened, as the whole area of CCS is in an early stage. More efficient and cost effective capture technology is needed, as well as a deeper understanding of all aspects of CO₂ storage in geological formations.

Numerous technology gaps for both capture and storage are being identified in the 2009 CSLF Technology Roadmap⁹. The next step would be to determine whether RD&D is currently underway to fill those gaps and, where it is insufficient, to promote the filling of those gaps.

The CSLF Technical Group has already made substantial progress in a number of areas, including storage capacity estimation, measurement, verification and accounting and risk assessment. Even though the CSLF has made great progress in standards for the quantification of storage estimates; there is need for methods and protocols for evaluation and qualification of storage sites, as well as methods and experience in monitoring the sites, both under operation and after completion of injection. In the case of a storage failure, remediation strategies must be developed. Consequences of CO₂ leakage to the marine environment are poorly understood today. These issues are well suited for international collaboration, and the CSLF can play in major role in facilitating the collaboration, particularly with the IEA Greenhouse Gas Programme.

Action 2: The Technical Group will expand its Roadmap to make it more actionable by its Members by comparing the technology gaps it identifies to projects ongoing or planned and further identifying where research needs are unmet .

This action will provide support to G8 recommendation 2

Promoting the deployment of full scale demonstration and pilot projects

Various organizations, such as the CSLF, ZEP and the IEA are collecting information on existing and proposed CCS projects of all types, including pilot and demonstration projects. The GCSSI intends to develop and maintain a commercial demonstration project database for projects that meet certain criteria being developed by the GCSSI/IEA/CSLF. While there is considerable overlap among the resultant data bases, there are differences in objectives and definitions and content. There is a need to coordinate these data bases so that the most accurate and complete information can be used to inform the G8 demonstration projects.

The CSLF will work with the other organizations to improve the accuracy, comparability and completeness of information from each source and to make relevant information available to so they can effectively develop the information base needed.

This activity supports G8 recommendation 1.

⁹ Hot link CSLF Technology Roadmap

Supporting development of relevant legal and regulatory frameworks

This aspect of CCS has been advanced from the original CSLF work by the IEA. Moreover, the GCCSI, the Weyburn-Midale Final Phase, and other projects underway in various jurisdictions will add to the sum of knowledge in this area. The IEA has established a Regulators Network to facilitate the sharing of information on CCS regulation among regulators throughout the world. Therefore, the CSLF will not pursue the legal and regulatory aspects as a primary course of action; rather it will actively participate in the IEA Regulators Network through its member countries.

The IEA's work will inform G8 recommendations 7 to 15.

Identifying potential barriers to and opportunities for investment and funding to facilitate projects.

CCS technologies have a critical role to play in mitigating carbon emissions to the extent required to achieve stabilization of atmospheric CO₂ concentrations. In order for this potential to be achieved there needs to be rapid progress in terms of numbers of demonstration projects being developed and the subsequent move from demonstration to deployment.

The majority of the first 20 demonstration projects (which the G8 would like to see launched by 2010) will be undertaken in the developed world. These projects will be supported by national/regional government funding as well as private sector investment. The GCCSI will have a role to play in assisting in the bringing together of partners that can support these first demonstration projects. Additionally, the CSLF has initiated an "Incentives Registry" which will be a database of financial incentives that have been announced in various jurisdictions.

Action 3: The CSLF will publish its incentive registry and maintain its currency through the CSLF members.

This activity supports G8 recommendation 16.

Recently the Financial Issues Task Force received funding from the Asian Development Bank (ADB) to prepare an analysis of key policy issues and barriers to CCS demonstration projects in developing countries. This analysis will include:

- The IPR issues from a developing country perspective;
- Identification of low cost and innovative financing approaches;
- Examination of CCS technologies to reduce trade barriers;
- Formulation of policies to seek private investment in CCS in developing countries.

Action 4: Ensure that the Financial Issues Task force completes its report for approval by the Policy Group. Develop follow-up actions as indicated by that report.

Moving from demonstration to widespread deployment

There will be a need for support wider deployment, as long as there is a funding gap between the carbon price and the costs of CCS. Demonstration projects are likely to need a greater level of support given the risks associated with first-of-a-kind projects. The wider deployment of CCS should be possible with a reduced incentive level, that is, there should be reduced risks as a result of the demonstration projects, developing countries may be more comfortable with CCS technology with the possibility of developing their own incentives for CCS projects as a global carbon price should emerge, which will act as, at least, a partial incentive. However, the quantum of support required will still be significant - Boston Consulting Group has estimated that about \$100B of public subsidy will be required to bring CCS to a commercial level by 2030. Support for early deployment is most likely to be effective in the form of an ongoing reward linked to the actual amount CO₂ stored. Provided sufficient certainty can be given to CCS developers regarding the size of the reward, such as underwriting the carbon price, the link with stored CO₂ would contribute to the costs of the CCS chain. This incentive could be structured such that it is reflective of the carbon price, i.e., when the market price of carbon is high, the level of support would be proportionately lower, and vice-versa, which would provide an incentive for the continued operation of the capture facility. Therefore, CCS needs to be positively identified as an acceptable mitigation technology by emissions trading systems. Once CCS becomes a commercially viable option, in other words the carbon price is sufficient to incentivize the incorporation of CCS on power plants (and industrial point sources), the uplift would be removed.

Action 5: The CSLF will explore through the Incentives and Investment Task Force the most effective way to fill the gap between the carbon price and costs of CCS in order to incentivize early deployment of CCS.

Collaborating on capacity building for member developing countries

The CSLF has been very successful in building capacity, especially in emerging economies, through workshops. Countries must advance a host of associated activities such as developing the legal, policy and regulatory framework necessary for CCS deployment, building institutions to manage research and regulatory efforts, and gaining public acceptance regarding the safety and effectiveness of CCS.

To achieve worldwide commercial deployment as early and effectively as possible it is critical that countries share their experience and know-how with others so each can build their own capacity to effectively deploy CCS. The CSLF Policy Group approved the report "Capacity Building for Sequestration in Emerging Economies" in its 2005 meeting in Berlin thereby adopting a comprehensive capacity building plan. The report recognizes the benefits of collaboration on capacity building in emerging economies will accrue to all participating members.

This plan is designed on the principle that capacity building will be most effective when it involves ongoing relationships of collaboration between peers in similar institutions supplemented by effective informational resources. The plan has five components: inventory available resources, evaluate sequestration opportunities, provide training, develop expertise and build institutions.

Implementing this plan requires an ongoing commitment to capacity building and resources to achieve it. Capacity-building issues cut across the responsibilities of both the Policy and the Technical Group. A CSLF Capacity Building Task Force with delegates representing both groups must be reconstituted

The primary objective of the plan is to assist CSLF members, especially emerging economy members to develop the knowledge, skills, expertise and institutions they need to understand and implement carbon sequestration. This can be accomplished by developing a set of informational, training and educational resources, and compiling an inventory of available resources including the wide range of information, tools and expertise available throughout the world in government agencies, multilateral institutions, academic and research institutions and industry. These resources can then be made available to CSLF member countries on a need basis through a variety of mechanisms such as the deployment of subject matter advisory teams, the establishment of partnerships or fellowships between institutions with similar functions, training seminars and workshops, and internet peer groups.

Action 6: The CSLF will further develop, implement and maintain a capacity building program tailored to the needs of each Member, including schedule, budget and the necessary resources and funding for implementation.

This action supports G8 recommendation 4 and 22.

In 2008, the Technical Group formed a Working Group on Student Body Initiative to encourage student / researcher collaboration and assemble a directory of student and researcher international activities. The Working Group has made some inroads toward that end, and intends to conclude its activities and sunset within the next year.

The topic of carbon capture and storage (CCS) in the academic community is an important; it is proposed initial that a new Task Force be created to develop contacts within academic community, identify academic perspectives and programs on CCS for universities in CSLF Member countries, and determine the path forward for the CSLF in this area. One possible activity for the Task Force would be to investigate the possibility of an exchange program for university professors in CCS curricula. This would result in creating a stronger CCS network and information exchange within the academic community.

This Task Force could also investigate the concept and worth of assisting in the development of an international graduate degree program (first at the MS level and subsequent at the Ph.D. level) focused on CCS and Carbon Management for universities in CSLF Member countries. Such a program could be based on a combination of face-to-face and web-based classes and research projects, to be offered by faculty in the participating universities, in order to ensure maximum

diversity and accessibility. A core principle of the program could be to integrate both student and faculty mobility in more than one core university location.

Action 7: The Technical Group forms a new Task Force to engage the academic community in CCS

Addressing the barriers to public awareness and acceptance

Public awareness and acceptability for CCS falls into two areas:

1. The global aspects of CCS as an important mitigation technology; and
2. The local aspects of developing transportation and storage projects.

The CSLF will focus on the first area, since project acceptability will be highly dependent on local conditions, which could be significantly different among locations. A large body of work exists in this area that needs to be consolidated and presented in reader-friendly terms. This project could be undertaken in cooperation with the GCCSI, and the IEA.

Action 8: The CSLF will implement activities to communicate the global aspects of CCS as an important mitigation technology.

This will include the development of informational materials that can be used by policy makers, regulators, project developers and NGOs in order to promote the positive aspects of CCS. An international CCS communications network will be developed in order to provide a forum to exchange communication practices, ideas and materials. The network will need to include Member representatives as well organizations such as the IEA and the GGCSI, as well stakeholders including industry and NGOs. This forum could be modeled after the IEA's Regulators network

This action supports G8 recommendations 19 and 20.

Stakeholder Engagement

It is recognised by CSLF members that significant Stakeholder involvement in the CSLF process is critical to the attaining CSLF goals and objectives. Stakeholders have participated in CSLF since its inception by serving on Task Forces, providing resources for CSLF activities and input into the CSLF decision-making process. To achieve CSLF strategic goals, it is expected that Stakeholders will have to play an increasing role in supporting the activities of CSLF by serving on Policy and Technical Task Forces and providing expert views on any major issues. A key element of the G8 commitment by 2010 to 20 industrial-scale demonstration projects world-wide requires a central role for industry within the government-industry partnerships required.

The G8/IEA/CSLF workshops are a benchmark for stakeholder engagement; therefore the CSLF will implement that style of process more broadly

Action 9: The CSLF will more effectively engage and draw upon the expertise of stakeholders. To this end the CSLF will undertake the following:

1. Make facilities available for Stakeholders to hold a forum at each annual CSLF meeting, including Ministerial meetings.
2. Stakeholders are invited to attend and participate in all Policy and Technical Group and Task Force Meetings.
3. A Stakeholder contact will be identified for each CSLF member.
4. CSLF members will encourage meetings with Stakeholders in their constituencies to inform and discuss with them CSLF issues.
5. Establish a Stakeholder calendar of CCS events on the CSLF website.

Collaboration with other International Organizations

While a great deal of work has been done in individual organizations, little effort has been made to consolidate these findings. The number of organizations and related meetings, conferences and workshops is proliferating at an alarming rate, which tends to dilute the limited resources available.

The launch of the GCCSI in April 2009 provided a forum in which major international CCS organizations (the IEA, GCCSI and CSLF) were able to articulate their respective roles. At that meeting each organization described its functions, membership and geographical representation. While there is inevitably some duplication in functions, membership and geography, it is clear that collaborative effort will produce better results than each organization working separately, the sum of the whole being greater than the sum of the parts. Moreover, there is an industry view that supports an increasing need for collaboration and cooperation between the many organisations now operating in the CCS development domain. With industry resources now tightly constrained that need for collaboration extends to the industry engagement processes.

Action 10: The CSLF will establish a formal, long-term working relationship with the IEA and GCCSI.

In addition to its collaborative role the CSLF has a unique role internationally, which is promoting CCS. In that regard it is vital that CCS be recognized in the post-2012 agreement as a measurable, reportable and verifiable mitigation technology. It should be noted that CCS is the ONLY technology that truly conforms to these principles. In 2008, the CSLF applied for observer status before the United Nations Framework Convention on Climate Change (UNFCCC) as an Intergovernmental Organization (IGO). Because the CSLF is not an independent legal entity, however, the application was denied. For this reason, the CSLF role must be to support its Members that are parties to the Convention.

Action 11: The CSLF will support its members as they make representations on CCS at meetings such as the UNFCCC Conference of the Parties to ensure that CCS is included in any post-2012 regime, including the Clean Development Mechanism, or its successor.

This action will be undertaken in conjunction with Action 7 and supports recommendation 23.

Relationship of CSLF Action Plans to the G8 Recommendations

Table 3 maps the CSLF action plans to the recommendations, note that the recommendation number is that which is provided in the Appendix 2 document for tracking, and not the original submission to the IEA.

Table 3. Relation of CSLF Actions to G8 Recommendations

| CSLF Action Plan | G8 Recommendation |
|-------------------------|--------------------------|
| 1 | 24 |
| 2 | 2 |
| 3 | 16 |
| 4 | |
| 5 | |
| 6 | 4 and 22 |
| 7 | 19 and 20 |
| 8 | |
| 9 | |
| 10 | 23 |

Action Plan 1 G8 Recommendations

Lead member: Canada

Action: The CSLF will collaborate with the IEA and the GCCSI to ensure effective implementation of the G8 recommendations, and will complete an assessment of all recommendations. This assessment will include indicators of progress, and provide a summary for the five high level recommendations as well as the detailed recommendations contained in the third workshop report, which will include a listing of current and proposed projects.

Outcome: A report to the G8 Leaders' Summit in June 2010 that describes the progress on the commitments made in Japan in 2008.

Milestones: Develop a Memorandum of Understanding with IEA and GCCSI that will identify which organization (IEA, GCCSI or CSLF.) will address the individual recommendations and the drafting of reports. **1 July 2009**
Draft report on recommendations **1 February 2010.**
Final report **1 March 2010.**
Summary report on high level recommendations **1 April 2010.**

Priority: Very High. This action must be complete by dates above since the report needs to be delivered to host committee in April 2010.

Action Plan 2 Technology Roadmap

Lead member: Norway

Action: The Technical Group will expand its Roadmap to make it more actionable by its Members by comparing the technology gaps it identifies to projects ongoing or planned and further identifying where unmet research needs.

Outcome: Identification of unmet research needs. Members (or others) can then either take up the task of filling these unmet needs or can cooperate on joint projects to fill these needs.

Joint projects resulting from such identification can be candidates for CSLF recognition.

Milestones: Unmet research needs identified by **1 April 2010**

Priority: High

Action Plan 3 Incentives Registry

Lead: *CSLF Secretariat*

Action: The CSLF will publish its incentive registry and maintain its currency through the CSLF members. This database will provide information on the types of

incentives available to CCS projects. The data will be displayed by national and sub-national levels (e.g., country, state or province), the type of incentive (e.g., capital subsidy, tax credit feed-in tariff etc).

The secretariat will send a template to member countries requesting the information.

Outcome: A searchable database that provides current information to interested parties

Milestones: Template to be sent to members **1 February 2009.**
Responses to be input by **1 June 2009.**
Database available **1 October 2009**

Priority: High

Action Plan 4 Developing Country Financing

Lead Member: TBD

Action: The Financial Issues Task Force will complete its report for approval by the Policy Group. Develop follow-up actions as indicated by that report. Transform the Financial Issues Task Force into a subgroup within the new Incentives and Investment Task force to focus on financing CCS in emerging economies.

Outcome: Report by the Financial Issues Task Force and integrate with Action Plan 5

Milestones: Report from the Financial Issues Task Force **1 September 2009**

Priority: High

Action Plan 5 Bridging the Finance Gap

Lead Member: France

Action: The CSLF will explore, through the newly established Incentives and Investment Task Force, the most effective way to fill the gap between the carbon price and costs of CCS in order to incentivize early deployment of CCS. Engage with the financial community, develop a Financing roadmap

Outcome: Identification and evaluation of policies that governments could use to promote to facilitate private investment in CCS.

Milestones: Assessment of the effectiveness of current financial measures identified in the incentives registry **April 2010**
Workshops with the Financial Community **January 2010, onwards**
CSLF Financing Roadmap **31 December 2010**

Priority: Very High

Action Plan 6 Capacity Building

Lead Member: Saudi Arabia

Action: The CSLF will further develop, implement and maintain a capacity building program tailored to the needs of each Member

Outcome: Implementation of the capacity building plan approved by the Policy Group in Berlin.

In addition, the Secretariat, under the direction of the Task Force Chairman, will be charged with the responsibility to carry out the day-to-day activities required to coordinate and execute the initiative, including:

- Assemble and maintain data base of available resources for capacity building,
- Create and implement mechanisms to facilitate partnerships,
- Seek outside funding from the multinational financial institutions and foundations,
- Ensure that information developed in this initiative is effectively disseminated.

Milestones: Data base of resources available for capacity building
Implementation of mechanisms to facilitate partnerships **1 January 2010**
Outside funding secured **1 January 2010**
Effective dissemination of information **Ongoing**

Priority:

Action Plan 7 Capacity Building Academic Link

Lead member: Brazil

Action: Create a new task force that would provide clear links among academic institutions of CSLF member countries with the intent of identifying academic CCS programs and the developments of curricula for graduate and post-graduate programs

Outcome: Programs are identified and catalogued. Proposals for curricula are developed

Milestones: Catalogue is available **August 2010**

Priority Medium

Action Plan 8 Communications

Lead member: United States

Action: Establish a Communication Task Force to review existing literature on CCS public awareness, in the broad context, i.e., not at the site specific level. Sources would include: existing CSLF work, IEA, WRI, CSIRO.
The text should show that a broad suite of technologies will be required to achieve the target level of atmospheric concentrations of CO₂

Outcome: The CSLF visibility is raised, key stakeholders and audiences are engaged with timely information.

| | |
|---|-------------------------------------|
| Milestones: Web Site | Ongoing |
| Members Identify CSLF Spokespersons | Ongoing |
| Prepare calendar of CCS events | September 2009 |
| Communications Vehicles/Talking Points | August, 2009 |
| Communications Materials/Standard Speech | 3rd Quarter, 2009 |
| Communications Materials/Power Point Presentation | 3rd Quarter, 2009 |
| Identify Conference/Speaking Venues | ASAP |

Priority:

Action Plan 9 Stakeholder Engagement

Lead: Policy Group

Action: The CSLF will more effectively engage and draw upon the expertise of stakeholders.

Outcome: Greater stakeholder participation, more robust CSLF products.

| | |
|---|---------------------------|
| Milestones: Make facilities available for Stakeholders forum at each annual CSLF meeting, including Ministerial. | October 2009 |
| Stakeholders invited to all Policy and Technical Group and Task Force Meetings. | Ongoing |
| Stakeholder contact identified for each CSLF Member | 15 September 2009. |
| Stakeholder calendar of CCS events on the CSLF website | 1 September 2009 |

Priority:

Action Plan 10 International Collaboration

Lead: *CSLF Secretariat*

Action: The CSLF will establish a formal, long-term working relationship with the IEA and GCCSI.

Outcome: A collaborative agreement is reached, which will identify the lead and supporting roles of each organization; that each organization ensures that the other two are invited to important meetings; and that there is a consistent exchange of information, ideas and developments in CCS.

Milestones: That an agreement on coordination is reached by **1 July 2009**
Meetings with the IEA and GCCSI to ensure coordination and collaboration
Ongoing

Priority: Very High

Action Plan 11 Promotion of CCS at Climate Change Negotiations

Lead: *CSLF Secretariat*

Action: Support the Members in advocating the inclusion of CCS in the post-Kyoto framework for climate change by becoming a focus for and facilitating the exchange of information on advocacy of CCS before the UNFCCC.

Outcome: Members are effective in advocating inclusion of CCS in the post-Kyoto

Milestones: Support to the Members as requested through the Copenhagen negotiations in December 2009

Priority: Very High

Annex 1

Action Plan of the 2004 CSLF Strategic Plan

| Strategy | Key Outputs | Responsibility |
|--|--|----------------------|
| 1. CCS Technology Development and Deployment | Research and development 1. Key definitions for CCS identified and disseminated (2007) 2. Technology roadmap developed for each of the identified technical work areas, including links between them and member country roadmaps. (2006 - 09) 3. Identification of key obstacles to achieve improved technological capability. (2006-07) | Technical Group (TG) |
| | Collaborative projects 1. Collaborative research, development, and demonstration (RD&D) projects that reflect members' priorities. (2006 and continuing) 2. Guidelines for collaborations and reporting of results. (2006) 3. Collaborative RD&D projects reviewed annually. (2006 and continuing) 4. Each country to provide information on its short term opportunities for international collaboration and coordination identified (e.g. EOR or removal of CO ₂ from natural gas) (2006-07) 5. Each country to provide information on its full scale demonstration project opportunities for international collaboration and coordination. 6. Recommendations for risk assessment standards and procedures. | TG |
| | Technical support for policy development 1. Key definitions for CCS identified and disseminated (2006-07) 2. Recommendations for standard methodologies to establish baselines against which CCS projects can be assessed. (2006-07) 3. Recommendations for guidelines for monitoring, measurement and verification systems taking into account the work of other international organisations. (2006-07) 4. Capacity estimation methodologies developed. (2007-2009) | TG |

| Strategy | Key Outputs | Responsibility |
|--|--|-------------------|
| 2. Policy and Legal Framework | 1. Recommendations for strategies and instruments to address identified research needs (2006-07) | Policy Group (PG) |
| | 2. Support the development of relevant legal and policy frameworks. (2006-07) | PG |
| | 3. Identify potential issues relating to the treatment of intellectual property issues for CCS. (2007-08) - consideration of IEA CCS intellectual property outcomes (2006-07) | PG |
| | 4. Exchange information and where appropriate provide support in the discussions on the potential role of CCS as a technology under the Clean Development Mechanism (2006-09) | PG |
| 3. Capacity Building | 1. Involvement of developing countries in CSLF projects (2006-07) | PG |
| | 2. A set of information, training and educational resources that all members can utilise (2007-08) | |
| | 3. Experience from CSLF projects and CCS-related institution building identified and shared with developing countries (2007-08) - Developing countries included in full scale or lighthouse projects (2006 – 09) | |
| | 4. Contribute to the development of knowledge, skills, expertise and institutions that developing countries need to understand and implement CCS (2007-09) | |
| 4. Public Awareness & Acceptability | 1. Member countries develop educational material, establish baseline information, use outreach briefings and workshops and form multi-stakeholder groups (2006-2009) | PG |
| | 2. Develop and promote the CSLF website (2006) | PG |
| | 3. Public outreach experts identified to develop CSLF approach (2006) | PG |
| | 4. Collaboration with all sectors of the international research community, including industry, academia, government and non-government organizations and stakeholders for input to Policy and Technical groups (2006-07). - Develop and monitor global compendium of CCS projects and activities | PG |
| 5. Involve Stakeholders | 1. Consideration of stakeholder engagement strategy and processes by the Policy Group on the basis of proposals by stakeholders. (2006) | PG |
| | 2. Stakeholders attend relevant meetings and provide input to development of the resulting work programs (2006 and ongoing) | PG |
| 6. Collaboration with Other International Organisations | 1. Co-operation to help achieve the CSLF goal, e.g. with the United Nations Framework Convention on Climate Change (UNFCCC), the International Energy Agency (IEA), the Asia-Pacific Partnership on Clean Development and Climate, the World Bank, World Energy Council (WEC), World Coal Institute (WCI) and the International Petroleum Institute amongst others. (2006) | PG |
| | 2. Partnerships with compatible organisations, e.g. IEA, APEC, UN bodies, research organisations (2006) | PG |

Annex 2

Assessment of the Progress on the G8/IEA/CSLF Recommendations – April2009 v2

CSLF PG Carbon Sequestration leadership Forum Policy Group; **CSLF TG** Carbon Sequestration leadership Forum Technical Group
IEA International Energy Agency Secretariat ; **TRM** IEA Technology Roadmap; **IEA GHG** International Energy Agency GHG R&D Programme; **IEA WPPF** International Energy Agency Working Party on Fossil Fuels; **GCCSI** Global CCS Institute

| No | Recommendation | Lead Back-up | Date | Comments |
|------------------|---|------------------------------|-----------|---|
| Technical | | | | |
| 1 | Governments are encouraged to cooperate internationally to partner, financially support, and share information on large-scale integrated carbon dioxide capture and storage demonstration projects | GCCSI | 15 May 09 | GCCSI to undertake a 'baseline study' on project status globally and develop a portfolio of projects and rationale for support to reviewed by IEA and CSLF through peer review of progress (at that time) at Bergen meeting in May and then to G8 meeting |
| 2 | 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. | CSLF TG IEA GCCSI | | GCCSI will provide resources to CSLF Roadmap. GCCSI may commission research, but will not undertake it |
| 3 | Governments should urgently establish primary assessment of prospective sedimentary basins, using an appropriate CO ₂ Storage Capacity Estimation methodology, including source-sink matching. | GCCSI IEA GHG CSLF TG | | GCCSI to undertake a global mapping project Methodology from CSLF TG. IEA GHG regional programs will feed |
| 4 | Governments are encouraged to provide technical assistance, either individually or via appropriate international bodies to assist developing countries to produce mapping and capacity estimates. | CSLF TG GCCSI | | Target countries are G8 "O5" and GCCSI members |
| 5 | Further work is required to understand and define the concept of "capture and storage ready" plants and its value as a viable mitigation strategy | CSLF TG GCCSI IEA WPPF | Sept09 | Workshop planned TBA GCCSI to undertake work on CCS Ready for input into CSLF work |

Annex 2. Assessment of the Progress on the G8/IEA/CSLF Recommendations – April2009 v2 (Continued)

| No | Recommendation | Lead Org Back-up | Date | Comments |
|-------------------------|---|---------------------|------|----------|
| Legal/Regulatory | | | | |
| 6 | Governments should develop clear and equitable systems regarding access rights to sites for the geological storage of CO ₂ . These systems should define parties' responsibility before, during and after injection, including surface rights, mineral or hydrocarbon rights, and issues with respect to the ownership of the pore space. Such property rights should ensure the ability to safely utilize and fairly allocate storage capacity | IEA -TRM | | |
| 7 | Governments should clearly define the liability regime for the operational, closure and post-closure phases of a storage project. The regime should also address: - Government assumption of long term liability. - The timing of the transfer of liability to Governments for the post-closure phase. - Implications for surface and sub-surface transboundary movement of carbon dioxide. | IEA-TRM | | |
| 8 | Governments should develop clear licensing and permitting systems for storage projects. Such regulations should address procedures and responsibilities to ensure safe closure and provisions for post-closure monitoring, and remediation, if necessary. | IEA-TRM | | |
| 9 | The IEA and CSLF should continue to develop the recommendations for future legal work on CO ₂ 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 CO ₂ storage project site identification, monitoring and long-term verification. - Continuing to share regulatory models internationally. | IEA-TRM GCCSI | | |

Annex 2. Assessment of the Progress on the G8/IEA/CSLF Recommendations – April2009 v2 (Continued)

| No | Recommendation | Lead Org Back-up | Date | Comments |
|----|--|---------------------|-------------------------------|--|
| 10 | For the demonstration projects, the appropriate level of government should use a framework, which is 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 experience from demonstration projects, frameworks for full commercial-scale projects can then be formulated. | IEA-TRM GCCSI | | |
| 11 | Governments should ensure that the way in which CO ₂ is classified in the various laws and regulations that would govern its capture, transport and storage does not inhibit its safe use for that purpose. In particular, CO ₂ should not be classified as a pollutant or waste such that it cannot be injected for permanent storage. | IEA-TRM | | |
| 12 | Laws and regulations governing the geologic storage of CO ₂ , for the purpose of GHG mitigation, should recognize that other substances may enter in the CO ₂ stream incidental to its capture at the source, and that these are likely to be injected with the CO ₂ . Proposals to allow the injection of incidental substances, other than CO ₂ , should be based on a thorough understanding of the potential impacts of both injecting and not injecting these substances. | IEA TRM IEA GHG | | IEA GHG will provide technical assessment |
| 13 | Accelerate the deployment and acceptance of CCS by sharing of principles and experiences on site selection with the aim of improving practices and ensuring the 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 (was No 16) | GCCSI | Review at Bergen 27 May 09 | <i>This will be a follow-up to #32</i> GCCSI to coordinate with ZEP |

Annex 2. Assessment of the Progress on the G8/IEA/CSLF Recommendations – April2009 v2 (Continued)

| No | Recommendation | Lead Org Back-up | Date | Comments |
|----|--|---------------------|------|--|
| 14 | Governments working with stakeholders need to develop performance-based standards for storage site safety and integrity. | CSLF TG | | Scoping paper, ISO may be a step too far |
| 15 | Intellectual property used for CCS should be adequately protected while enabling it to be applied as widely as possible. To this end, the IEA should conduct case studies of successful instances of the treatment of similar intellectual property rights, which could potentially be used as models for CCS. | IEA TRM. | | |

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| No | Recommendation | Lead Org Back-up | Date | Comments |
|-----------------------------|---|---------------------|---------------------------|---|
| Commercial/Financial | | | | |
| 16 | Governments should address, together with the private sector, the financial gap and risks facing early CCS projects, and to 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. (was No 17) | IEA WPF GCCSI | 2 nd half 2009 | Workshop to be arranged by IEA WPF |
| 17 | The insurance industry should be encouraged to work with governments and industry to develop insurance-based products to address the potential business liabilities associated with CCS through all its phases. (was No 18) | | | Nothing further, there are insurance based products |
| 18 | <p>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 (ETS) recognize CCS for permanent storage. (was No 19)</p> <p>Governments should collaborate to ensure that their respective CCS legislation and regulations are compatible with international fungibility of mitigation credits for CCS (was No 22)</p> | IEA GHG GCCSI | | Should be global GCCSI may do some economic modelling. WEO2009 will have CCS post 2012 policy piece |

| No | Recommendation | Lead Org Back-up | Date | Comments |
|---------------------------------------|---|------------------------------|------|---|
| Public Education and Awareness | | | | |
| 19 | Governments, together with industry and other stakeholders, should commit resources to advance the understanding and education related to CCS. Communication strategies need to reflect different audiences, including the general public and project-level communities (was No 20) | GCCSI/ CSLF PG IEA GHG | | GCSI will cover local and global issues CSLF will focus on global issues |
| 20 | 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. (Was No 21) | GCCSI/ CSLF PG IEA GHG | | IEA GHG will develop communication network |

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| No | Recommendation | Lead Org Back-up | Date | Comments |
|---------------------------------|--|--|-----------|--|
| International Mechanisms | | | | |
| 21 | To accelerate policy and regulatory development globally, G8 governments should support the dissemination of best practices and existing legislation including: - Permitting requirements for site-selection and long-term monitoring, verification and remediation. - Accounting protocols used in trading systems that are verifiable and treat CCS on a consistent basis with other mitigation measures. (Was No 23) | IEA Regulators Network | | IEA could do more documentation with additional funding |
| 22 | The World Bank and other multilateral lending institutions should be encouraged to work with developing countries to fund capacity building, such as training, mapping, identification of potential CO2 storage reservoirs and estimation of large emission sources, in those countries. (Was No 24) Multilateral lending institutions should provide financial support to share the risk of appropriate demonstration projects, in developing countries. (was No 25) | IEA GCCSI IEA WPPF CSLF PG | Fall 2009 | In combination with #4 IEA to organize “Donors” conference with World bank. CCS will be an item |
| 23 | Governments should actively encourage the CDM Executive Board to adopt CCS as an acceptable mitigation technology. (Was No 26) | CSLF PG GCCSI IEA | | Letter of support sent from the CSLF to the UNFCCC. CSLF has applied for IGO status Ad hoc interventions on post 2012 issues |
| 24 | 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 by the G8 to further accelerate the exploitation of near-term CCS opportunities. (Was No 27) | IEA/CSLF will provide joint report | | GCCSI will provide information on demonstration projects for this report |