



Meeting Summary
CSLF Policy Group Task Force on Financing CCS
Warsaw, Poland
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PARTICIPANTS

CSLF Delegates

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Aleksandra Koterias, Central Mining Institute, Poland
Doug MacDonald, Asian Development Bank
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Bob Pegler, Global CCS Institute
Andrew Paterson, CSS Alliance, United States
Xiaodong Pei, Consultant, Asian Development Bank
Kristofer Seryani, UAE/Masdar
Justin Swift, Swift Global Solutions, United States
Clement Yoong, Consultant, Asian Development Bank

MEETING

Welcome and Opening Comments

Chairman Bernard Frois of France welcomed the participants and described the purpose of the Task Force. He said that the Task Force had organized two successful workshops on financing CCS, one in London and the other in Washington. These workshops were attended by representatives of finance, industry and government. Dr. Frois stated that in this meeting, the Task Force will hear about a report by the Asian Development Bank (ADB) on financing CCS in developing countries and consider the next steps for the Task Force.

Asian Development Bank Presentations

Four presentations on various issues related to financing CCS were made by representatives of the ADB. These presentations cover information in a draft report to the CSLF on the subject of financing CCS demonstration projects in developing countries, copies of which were distributed.¹

Doug MacDonald explained the basis for the technical and cost estimates used for a financial analysis of CCS projects in China and India. These technical and cost estimates considered the technical readiness of CCS technologies for demonstration in China and India, estimated power plant capital and operating costs with and without CCS, and developed criteria for identifying potential demonstration sites. Cost estimates for CCS in China and India were made by adjusting estimates of costs for power plants with and without CCS for a US site to sites in China and India. The estimates for a US site were made by the US DOE's National Energy Technology Laboratory and included estimates of capital and operating costs for IGCC, post-combustion and oxyfuel power plants. Costs for China and India were considerably lower than costs in the US, but plants with CCS still had considerably higher costs than plants without CCS.

China was seen as having several strengths for CCS demonstrations, notably that the Chinese were already experimenting with capture technologies as well as with EOR and ECBM storage. In addition, China has extensive gasification experience. On the other hand, the needs for power are being met by a large volume of conventional coal plant construction without CCS.

India faces several challenges, including high ash coals that are impediments to IGCC, negative perceptions of CCS and fewer CCS activities than China. The emphasis on construction of Ultra-Mega Power Plants means that post-combustion capture would be most appropriate in India.

Xiaodong Pei presented a financial analysis of power projects with and without CCS in China based on the estimates shown in the presentation by Doug MacDonald. This analysis considered both post-combustion capture at a supercritical coal plant and pre-combustion capture at an IGCC plant. The impact on electricity tariffs was used as the key indicator of financial viability, not return on investment. The major barrier to CCS in China is its high cost, which would result in higher electricity tariffs. Due to these high costs, investors have no motivation to conduct CCS demonstrations. A "what if" scenario assessment was conducted to analyze the impact on electricity tariffs of subsidies on the added capital cost and energy penalty for supercritical and

¹ Asian Development Bank, "Carbon Dioxide Capture and Storage Demonstrations in Developing Countries, Analysis of Key Policy Issues and Barriers," ADB 7278-REG: Draft Final Report, October 2010.

IGCC plants with CCS. A number of policy tools were seen as being required to implement CCS. These included direct subsidies to investors, raising tariffs, tax credits, carbon taxes and carbon markets.

Prof. A. Damodaran discussed various business models that might be used to promote the transfer of CCS technology. Three business models for technology transfer were discussed: purchase/import of the technologies, licensing of the technologies, and joint ventures. The purchase/import model was seen as being not viable because the best CCS technologies are not likely to be offered for sale and developing countries were not in a position to purchase technologies while bearing all of the high costs and risks. Licensing of technology has been proposed for CCS technologies as it lets the technology provider keep the intellectual value of the technology. Joint ventures are seen as a good approach to transfer of newly commercial CCS technology as they create an ongoing relationship between organizations with complementary skills and involve a sharing of risks.

Clement Yoong gave a presentation on trade barriers to CCS in current international trade negotiations. The Doha Ministerial Declaration agreed to by all WTO members calls for “the reduction or as appropriate elimination of tariff and non-tariff barriers to trade in environmental goods and services (EGS).” CCS faces several problems, however, in qualifying for EGS status. There is not yet agreement on what EGS is or what constitutes CCS technology. CCS is not well known to the negotiators. The consequences of being classified as EGS are both positive and negative. A number of approaches could be used for classification of CCS as an EGS. He made several recommendations:

- Support and maintain negotiations on EGS;
- Develop a defined CCS list of Environmental Goods and Services;
- Promote a CCS sectoral climate trade agreement in WTO and UNFCCC;
- Consider other model agreements;
- Promote CCS in regional trade agreements;
- Support CCS in the Clean Development Mechanism;
- Streamline investment rules and IPR to aid technology transfer;
- Establish a Multi-institution Global Task Force on Government Policy Barriers to CCS;
- Increase cooperation between WTO, CSLF, IEA, APEC, and GCCSI to leverage efforts at information sharing on CCS; and
- The liberalising of trade in EGS to include CCS has to be part of an agreement that is acceptable to all countries.

Ashok Bhargava of the ADB stated that CCS faces major challenges in developing countries. He said that the ADB was proposing a US\$5 billion fund to support CCS demonstrations in developing countries. This fund is needed to lower the cost and risk profile for those projects.

Discussion

Chairman Frois noted that the ADB had done very thorough work and that a presentation on this work would be given to the Policy Group in its meeting the next day.

With regard to the trade barriers, one idea mentioned in the discussion was having the CSLF develop a list of CCS technologies. Abdulmuhsen Alsunaid of Saudi Arabia noted that the next meeting in the Dubai round that could consider this issue would be in early November.

Bob Pegler of the Global CCS Institute stated that the Institute has set up a working group on financing that would also be working in this area.

Dr. Frois asked what the Task Force do should next. He noted that the situation is complicated and there are ideas for different types of partnerships.

The CSLF Policy Group Chairman, Victor Der of the United States, stated that the most useful work that could be undertaken would be an analysis of the “trigger points” in the market that would allow the constraints to be addressed.

Andrew Paterson of the CCS Alliance noted that the funding needed not just to address added costs, but also risks. The amounts needed to address projects with CCS globally in power and industrial sectors are very large and such large amounts would have to come from global bond markets. Debt financing dictates a credit risk framework. The bond markets would expect all risks to be addressed, and, in particular, geologic risk, which would need to be quantified in monetary terms.

Participants also stated that different business models could be used for CCS. What would work in one country or industry would not necessarily work in all countries or industries. Therefore, a “suite of tools” is needed (grants, loan guarantees, long-term off-take agreements for stable revenues, operating subsidies for CCS, insurance, accelerated depreciation, etc.), for governments to utilize in negotiating financing of projects with CCS because economic and geographic and regional development circumstances vary widely. Such public-private partnerships must be negotiated to recognize this regional variation.

A consensus was reached that the Task Force will:

- Evaluate the trigger points of the various financing models that could be used in different countries; and
- Hold two workshops on financing CCS, one in Asia and the other in Washington, DC, USA.

Dr. Frois also stated the CSLF should recognizes the results of the ADB study as important work and that a summary of that study would be presented in the CSLF Policy Group meeting the next day along with a description of what the Task Force was planning to achieve.