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Policy Group

THE CREATION OF FINANCING ALTERNATIVES TO SUPPORT CARBON SEQUESTRATION PROJECTS

Note by the Secretariat

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Background

At its meeting in Rome in January 2004, the Policy Group requested that the Secretariat prepare a report on financing of carbon sequestration. This draft discussion paper on "The Creation of Financing Alternatives to Support Carbon Sequestration Projects" fulfills this request and was presented to the meeting in London of the Legal, Regulatory and Financial Task Force on 16 July, 2004. This draft discussion paper is intended to provide ideas for potential ways to finance carbon sequestration projects and to stimulate discussion on these concepts, particularly in developing countries. None of these ideas are intended as specific recommendations.

Action Requested

None

Conclusions

The Policy Group is invited to note in the minutes of its meeting of 15 September 2004 that:

> "The Policy Group takes note of the report entitled "The Creation of Financing Alternatives to Support Carbon Sequestration Projects" prepared at its request by the Secretariat.

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DRAFT DISCUSSION PAPER

INITIATIVES FOR FINANCING CARBON SEQUESTRATION PROJECTS IN DEVELOPING COUNTRIES

CSLF Secretariat Paper

While fossil fuels will remain the mainstay of energy production well into the 21st century, increased concentrations of carbon dioxide (CO2) due to carbon emissions are expected unless energy systems reduce the carbon emissions to the atmosphere. Accordingly, there have been increased initiatives around the world that focus on the development of technologies to capture and store CO2 as a means of stabilizing the level of greenhouse gases that are emitted into our atmosphere. Through the Carbon Sequestration Leadership Forum (CSLF), a group of 16 countries around the world working together to design and improve carbon capture and storage technologies through coordinated research and development. While technology development will continue to be the predominant focus in our effort to reduce carbon emissions, identifying future sources of financing for projects in emerging markets is tantamount to the success of reducing CO2 emissions and their effect on the global environment. This paper provides some initial thoughts and concepts for alternative financing methods that may be used to facilitate Carbon Sequestration projects in emerging markets. While it is still premature to arrive at any firm conclusions, we hope this paper stimulates new ideas and provokes constructive dialogue among the energy and financial communities to ultimately identify practical solutions for financing carbon sequestration projects around the world.

INTRODUCTION

Carbon Sequestration has great potential for reducing the effect of greenhouse gases such as CO2 into our environment. Concomitant with the vast environmental benefits, carbon sequestration has tremendous economic benefits as the use of existing infrastructure may be continued with little interruption allowing coal-producing countries around the world to continue to benefit from their vast indigenous resources.

While many OECD nations have internal resources to develop and implement carbon sequestration projects, the effect of carbon emissions on the global environment can not be completely mitigated without addressing the problems that exist in emerging market economies and the developing world. These markets lack the capital to invest in the high-cost and high-risk projects such as carbon sequestration and rely so heavily on their current production of electric energy which, albeit unfavorable for the environment, provides a vital lifeline to their growing industries and populations supporting economic and social growth where needed most.

Providing the developing world the resources required to reduce emissions produced by fossil fuel based technologies while not adversely affecting their ability to grow and prosper in the

global economy is the framework for many multilateral financial institutions. Examples of existing financing sources for projects benefiting the environment in emerging markets are provided below.

The Global Environment Facility (GEF): GEF is a mechanism for international cooperation for the purpose of providing new, and additional, grant and concessional funding to meet the agreed incremental costs of measures to achieve agreed global environmental benefits in the areas of biological diversity, climate change, international waters, and ozone layer depletion. In seeking to maximize global environmental benefits, the GEF emphasizes its catalytic role and leverages additional financing from other sources[1]. Because GEF only funds the incremental costs of a project associated with providing new and improved environmental benefits, additional financing sources for the capital costs associated with the traditional technology is required.

Prototype Carbon Fund (PCF): The World Bank established the PCF as a "pilot activity" in 2000 after recognizing that climate change, and accompanying disrupted weather patterns—caused by the greenhouse effect through atmospheric loading of greenhouse gases (carbon dioxide, methane, etc) could wreak havoc on the planet, particularly large parts of the developing world which make up the majority of its borrowing clients. The PCF, with the operational objective of combating climate change, aspires to promote the Bank's tenet of sustainable development, demonstrate the possibilities of public/private partnerships, and offer a "learning-by-doing" opportunity to its stakeholders.[2]

Unlike the GEF which lends resources of the fund itself, the PCF operates as a clearinghouse whereby the fund invests contributions made by companies and governments in projects designed to produce emissions reductions. These contributors to the fund in turn receive a pro rata share of the emissions reductions (credits) received by the fund subsequent to its investments. The framework for this fund stems from the Clean Development Mechanism (CDM) and Joint Implementation (JI) established under the Kyoto Protocol which were contemplated to combat global climate change and attract investment in developing countries and economies-in-transition.

While there is a reasonably abundant source of financing resources for projects that improve the environment and support economic growth, carbon sequestration projects face many obstacles that are difficult to overcome, particularly in emerging markets. Carbon sequestration is capital intensive and carries significant technical and commercial risk. Accordingly, incentives must be provided to the commercial sector in order for utilities and private electric generators to consider investing in such projects.

PROJECT RISKS

The successful implementation and financing of any project, regardless of technology, requires a complete assessment of risks and the successful mitigation thereof. Such risks are addressed through appropriate project structuring, contract design**,** accepted codes and standards that would

[1] The Mission of the Global Environment Facility as stated in their Operational Strategy.
[2] About PCF as stated in the Prototype Carbon Fund website.

govern the engineering process for sequestration, insurance, and guarantee schemes in the normal course of project development. As project finance became the predominant means of implementing energy projects around the world over the last twenty years, allocating these risks has become somewhat routine through a good project-financed security structure. However, what has not been prevalent in projects financed with project finance is the technology risk associated with carbon sequestration.

One of the greatest challenges to financing carbon sequestration is in the allocation of the additional inherent risks to parties able to absorb them. Uncertainty as to total capital costs and operating performance of carbon sequestration projects lead the list of risks that must be properly allocated. Perhaps more complicated still, is the risk of CO2 release during each of the extraction, transportation and sequestration phases of a project and the implications thereof. Once these risks are properly quantified and allocated (to a party most suitable for assuming such risks), a greater number of the options for financing carbon sequestration projects will surface. It is important to note, however, that even if the risks are mitigated to the point where carbon sequestration projects are "bankable," the economic returns must be such that the private sector has the incentive to invest in these projects.

Because of the social and economic benefits of carbon sequestration, the coal producing countries as well as the international community should be expected to share some of the risks associated with the deployment of advanced coal power generation technologies with sponsors of those projects. Examples of risk mitigation strategies where these parties may assume a direct role in the ultimate financing of sequestration projects include:

- Some form of contingency fund to cover additional and unexpected capital costs is likely to be necessary to finance a carbon sequestration project. Because of the uncertainties in total costs to complete a commercial-scale project in a developing country, some source of low-cost capital must be available to cover unexpected overruns that could not reasonably be assumed by a private contractor.

- Extended warranties for plant performance is necessary in order to obtain private sector financing for carbon sequestration projects. Because of the uncertainties involved herein, a supplemental package to cover the cost of repairing and replacing parts is vital to financing a future project.

- Business Interruption insurance to absorb the financial risk of any revenue loss or any additional costs resulting from delays in operation, reduced availability or performance attributable to the new technology used in carbon sequestration (including the incremental cost of obtaining such insurance) is likely required for financing.

- A long-term maintenance agreement with the technology suppliers is critical to the long-term success of a carbon sequestration project and therefore its ability to obtain financing. This agreement will minimize the risk of technology suppliers escaping their warranty liability by alleging improper maintenance and repair. Such an agreement also protects the investors against the risk of invalidation of insurance coverage.

- An indemnity agreement between a government or government-related entity (such as the Overseas Private Investment Corporation of the United States) and investors against claims for unexpected release of CO2 during the capture, transportation and sequestration phases of a project. This insurance is tantamount to obtaining private capital as the certainty of the carbon sequestration technology is not yet proven to the independent investor's satisfaction.

- Potential blanket insurance or overall project guarantee that may be provided by a Government or quasi-government entity that provides an additional insurance to project lenders and investors should unforeseen risks or problems surface. Such an insurance product may ultimately be transferred to private underwriters once the technology and the sequestration market mature.

FINANCING SOLUTIONS FOR CARBON SEQUESTRATION

As noted earlier, deployment of carbon sequestration technologies contribute to improving environmental quality and human life locally and worldwide while simultaneously contributing to local and national economic development. It is therefore justifiable for the international financial community, governments, energy companies and technology suppliers to seek financial support individually or collectively to bring such projects to fruition. While the Global Environment Facility (GEF) and Prototype Carbon Fund (PCF) as described above are potential sources of implementing some level of carbon sequestration projects, implementation on a larger commercial scale will require greater capital from various sources, including the private sector.

In order for a viable and sustainable market for carbon sequestration to exist around the world, we must address three fundamental aspects for financing new technology projects:

1. A profitable business operation must be developed making sequestration a viable business in its own right.
2. The return on capital vs. risk must be structured to be attractive to investors with respect to other competing opportunities**.**
3. A source of private capital must be identified or developed;
4. Low-cost debt financing must be available to make projects economically feasible;

Source of Private Capital

Carbon Sequestration Trust Fund: A trust fund may be established for funding future carbon sequestration projects. The fund is built up over time through a tariff "surcharge" which fossil-fueled power generating plants would charge to its customers. The revenue generated from the surcharge would be exempt from taxation and deposited into a managed trust account that would grow over a period of time. The fund would ultimately be utilized to finance the construction of a new carbon sequestration addition to the fossil-fueled plant. As a means of providing utilities further incentives to establish and utilize this type of fund, carbon or emission credits may be granted as funds are deposited into the trust (there is still a debate ongoing whether sequestration qualifies as a reduction of CO2 and therefore should warrant carbon credits but it is assumed that

there will be a consensus on this before sequestration projects are implemented in emerging markets). Some form of a matching principal to augment the contributions to the fund by Governments or Multilateral Development Banks (MDBs) may reduce the time necessary to reserve enough funds to begin a sequestration project. For example, if a government or MDB matches $.33 for every dollar contributed to a Carbon Sequestration Trust Fund by a utility, the required funds may be available in almost half the time it would take otherwise.

Source of Debt Financing

Government and MDB Financing Instrument: Over the past two decades, we have seen several creative financing instruments developed by governments and multilateral development banks to implement pioneering projects in emerging markets. For example, the Private Sector Energy Development Fund was established by the Government of Pakistan with funding from the World Bank, JBIC and several export credit agencies to provide debt financing at attractive rates unattainable in the commercial market to qualifying energy projects as part of their initiative to build much needed capacity to support their growing demand. In this case, the Government of Pakistan receives long-term concessional financing from the MDB's and, in turn, on-lends to qualified projects in order to bring down the cost to a level that makes the project economically feasible. A similar financing instrument may be developed to bring the cost of carbon sequestration down to levels the marketplace can afford.

Sequestration as a Business Model

Carbon Emission Credits & Trading: In order for carbon sequestration projects to be viable in the long-term, a commercial business model must exist whereby the private sector has the monetary incentive to invest, own and operate projects that reduce the amount of CO2 in our atmosphere. Ideally, we will soon reach a point in the development of sequestration technologies whereby the international community will reach a consensus on the long-term sustainability of carbon sequestration and afford the investors in these technologies with the economic credits necessary to continue financing these projects. The credits referred to here are those contemplated and enacted subsequent to the Kyoto Protocol whereby investments by public and private enterprises would result in obtaining credits that would have a marketable value that may be liquidated in a global marketplace. In order to obtain any component of private sector financing for future carbon sequestration projects, some form of "monetizeable" economic credit must be granted. Ultimately, some reasonable form of financial and capital gain must be associated with sequestration in order for projects to be developed and sustained in the long-term.

CONCLUSIONS

Carbon sequestration contributes to improving environmental quality and human life while simultaneously contributing to economic development. While there are many technical and economic challenges that must be overcome prior to seeing sequestration projects developed on a global scale, it is only a matter of time before we see sequestration projects being implemented on a larger scale. Once the risks are fully identified and allocated, insurance vehicles must be established which cover all remaining risks inherent in sequestration projects. Once the risks are allocated, financing resources from developed countries and MDB's coupled with incentives for the private sector to invest their own resources will serve as catalysts for of carbon sequestration.