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ENVIRONMENTAL CLIENT ALERT

THE GREENHOUSE GAS EMISSIONS PERMIT TRADING MARKET: OPPORTUNITIES AND ISSUES FOR FINANCIAL INSTITUTIONS

INTRODUCTION

Driven by the Kyoto Protocol, a worldwide market is being formed in greenhouse gas (GHG) emissions credits. The largest single program to demand credits will be the European Emissions Trading System ("ETS"). On January 1, 2005, approximately 12,000 carbon dioxide emissions sources in 28 European countries will, for the first time, face mandatory GHG emission reduction requirements and will be able to trade **EU Allowances** under a new European carbon dioxide control program. In addition, Canada and Japan are implementing programs to meet their Kyoto commitments and will compete with Europe in the world emissions credit market.

Generally, the supply of emissions credits will come from developing countries and economies in transition. Countries such as Mexico, China and India will supply credits generated by the construction and operation of projects that result in net decreases of GHG emissions.

Financial institutions worldwide are already establishing mechanisms to participate in this emerging market but must address the issues discussed in Section II below in order to take full advantage of the opportunities provided by the market.

I. OVERALL STRUCTURE: THE KYOTO PROTOCOL

In 1997, under the auspices of the United Nations, parties to the Framework Convention on Climate Change adopted the Kyoto Protocol. The Kyoto Protocol established specific GHG emission

reduction targets for 38 developed countries and economies in transition, primarily in the northern hemisphere ("Annex I countries"). Those parties agreed to achieve the reductions between 2008 and 2012 and to demonstrate progress toward achieving the targets by 2005.

Estimated annual world-wide demand for project-related credits in 2010: **428** Million Metric Tons of CO₂ equivalent (MtCO₂)

Number of projects that must be operating in 2010 to meet demand at an average of 400,000 MtCO₂ per project per year: **1,070**

Number of projects that must be operating in 2010 to meet demand at an average of 250,000 MtCO₂ per project per year: **1,712**

Source, Kruger and Pizer, "The EU Emissions Trading Directive: Opportunities and Potential Pitfalls." Resources for the Future, Discussion Paper 04-24.

The Kyoto Protocol envisioned trading of GHG emissions reduction credits to reduce the cost of compliance. It provided for the trading of credits within Annex I countries, between Annex I countries, and between Annex I and non-Annex I countries. The Kyoto Protocol adopted a Joint Implementation program ("JI") to facilitate trading between Annex I countries and a Clean Development Mechanism ("CDM") to facilitate trading between Annex I and non-Annex I countries.

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Both the JI and CDM programs are project-based and allow the host country to approve projects and issue GHG emissions reduction credits accruing from project activities to be used to contribute toward compliance with emissions reduction requirements in Annex I countries. In addition to host country approval, CDM projects must be reviewed and approved by the CDM Secretariat.

JI projects create tradable **Emission Reduction Units ("ERUs")** and CDM projects create **Certified Emission Reductions ("CERs")**. ERUs and CERs are issued by the project host country to the government of an Annex I country. The government of the Annex I country must then issue the credit to a company or facility that is subject to GHG emissions reduction requirements.

II. THE DEMAND SIDE: THE EUROPEAN EMISSIONS TRADING SYSTEM ("ETS")

Who must comply with the new regime?

The program is broad in scope and will regulate emissions from carbon dioxide emission sources identified in the economic sectors shown in Table 1.

What is the schedule?

The program begins with a three year "warm up" compliance period from 2005 to 2007 and beginning in 2008 then segues to consecutive five year compliance periods. The 15 European Union member countries¹ and the three European Economic Area countries² were required to enact implementing legislation by December 31, 2003. By March 31, 2004, participating countries were required to publish National Allocation Plans ("NAPs") for distributing EU Allowances to emissions sources in the covered sectors and must finalize such allocations by October 1, 2004. The 10 countries currently in the process of joining the European Union³ must have the program,

GHG Assets

CERs: from projects in Non-Annex I countries

ERUs: from projects in Annex I countries, most likely to be generated in Economies in Transition

EU Allowances: from the European ETS

including legislation and NAPs, in place when they join in 2004. At some time after the promulgation of final NAPs by participating countries but prior to

Table 1: Regulated Economic Sectors

Energy	Iron and Steel
<ul style="list-style-type: none"> ✓ Combustion, including power, heat, and steam generation with 20MW or more of thermal input, aggregated from all on-site activities ✓ Mineral oil refineries 	<ul style="list-style-type: none"> ✓ Ore ✓ Pig iron and steel production with capacity greater than 2.5 tons per hour
Minerals	Other
<ul style="list-style-type: none"> ✓ Cement, over 500 tons per day using the clinker process ✓ Cement, over 50 tons per day using lime or non-rotary furnace processes ✓ Glass, over 50 tons per day 	<ul style="list-style-type: none"> ✓ Paper, over 20 tons per day ✓ Pulp

¹Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and the United Kingdom.

²Norway, Iceland, and Liechtenstein.

³Poland, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Slovakia, Slovenia, Cyprus, and Malta.

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January 1, 2005, operators of emissions sources must apply for EU Allowances. Beginning on January 1, 2005, no covered source may emit carbon dioxide without an EU Allowance.

How will the program work?

Sources must apply for EU Allowances to the country in which the source is located. Participating countries will issue one EU Allowance per ton of carbon dioxide emissions to sources for the relevant compliance period, according to the country's NAP. Countries must allocate EU Allowances for the subsequent five year compliance periods at least one year prior to the beginning of each period. The total number of EU Allowances that will be allocated to a source will be based on the source's historic carbon dioxide emissions. Countries are directed to take into account in their allocation plans the need to provide access to EU Allowances to new or expanded sources. Ultimately, however, countries will allocate EU Allowances in a manner that will contribute to the reduction in total GHG emissions that the country must make in order for the European Union to comply with its commitment, under the Kyoto Protocol, to reduce GHG emissions eight percent below 1990 levels by 2012.

EU Allowances will be freely transferable. EU Allowance holdings and transactions will be tracked both at the participating country level and at the European Union level and EU Allowance holding and transaction information will be available to the public.

The European Union has proposed that, beginning in 2005, participating countries or sources will be able to comply with European emissions reduction requirements by using ERUs or CERs. Under the European proposal, ERUs and CERs could be converted into EU Allowances by a member country, potentially increasing their value. The proposal would limit the use of ERUs and CERs to 6% of a country's total EU Allowance allocation. However, given that the overall emissions reduction requirements for many countries will be approximately 5 - 10% of that country's total EU Allowance allocation, this limit may not have a practical impact.

Both countries and companies will purchase CERs. Compliance with emissions reduction requirements under the European system is at a country level. CERs must be issued by the government of the project host country and received by the government of the purchasing country. Therefore, there will be government-to-government flows of CERs. However, individual companies will also face emissions reduction requirements and some will seek to use CERs to meet those requirements. Therefore, they will seek to receive CERs from the appropriate government to meet their emissions reduction requirements.

What will the new European carbon dioxide emissions permit market look like?

By any measure, the European market resulting from this program will be significant. When fully implemented, the program will cover an estimated 12,000 installations emitting some 1.5 billion tons of carbon dioxide annually. Compare this to 445 facilities emitting approximately 8.5 million tons of sulfur dioxide currently covered under the United States program for trading sulfur dioxide emission allowances to control sulfur dioxide emissions from power plants.

European Union officials estimate that the aggregate annual compliance costs for the European program will range from € 2.5 - 3 billion and that the average price for a carbon dioxide permit in 2005 could be approximately € 10 per ton, rising to as much as € 14 thereafter.

III. THE SUPPLY SIDE: THE EXAMPLE OF MEXICO

Although China and India may become larger suppliers of CERs, examining the Mexican program is illustrative of the steps to be taken by a country to establish emissions credit approval procedures.

In January 2004, Mexico established the Mexican Committee for Emissions Reduction and Greenhouse Gas Capture Projects. The Committee is an inter-Ministry commission chaired by the Secretary of Environment and Natural Resources (SEMARNAT) and it appears that the Department of Energy, the Federal

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Electricity Commission (CFE, the national electricity utility), and Petroleos Mexicanos (PEMEX, the national oil company) will also play important roles.

Estimated annual ERU and CER demand from European ETS participants in 2010: **91 MtCO₂**

Estimated annual ERU and CER demand in Europe as a whole: **208 MtCO₂**

Source, Kruger and Pizer.

The purpose of the Committee is to act as Mexico's Designated National Authority under the CDM program. As such, the Committee will approve projects, identify project opportunities and promote projects. The Committee's first task will be to develop operational rules for project approval.

The Committee has yet to publish such rules but preliminary indications are that Mexico will follow other Latin American countries, such as Panama and Brazil, and publish very general procedural rules. Mexico would then rely on the CDM Secretariat to conduct in-depth, substantive reviews to determine whether projects meet CDM criteria. This makes sense given the thorough review given to projects by the CDM Secretariat. The Committee is also empowered to enter into memoranda of agreement with both Kyoto and non-Kyoto countries for the trading of emissions credits. It appears that private and public entities will be able to present projects to the Committee for approval and that project applicants will not be required to reveal the party that will ultimately receive the CDM credits generated by the project, although the project must, under Kyoto rules, receive public input and the project proposal documents will be made available to the public.

Mexico is also taking other steps that could enhance project approvals. Mexico created GHG emissions inventories for 1990 and 1996, which can assist in determining the baselines from which projects will be required to reduce emissions. In addition, Mexico is establishing an expanded, more comprehensive registry of GHG emissions, which could simplify baseline determinations.

IV. HOW CAN FINANCIAL INSTITUTIONS CAPITALIZE ON THIS NEW MARKET?

Some multilateral financial institutions, including the World Bank and the European Bank for Reconstruction and Development have already established funds to invest in projects that generate credits. Other financial institutions, such as the World Bank and the European Investment Bank, are considering establishing such funds. These initial funds are targeted to investors who will require credits for their own compliance needs. Credits obtained by the funds from their investment activities will be distributed among the investors.

As the market develops, funds with other investment strategies utilizing credits as marketable assets may be established. Commercial banks and other financial institutions may choose to participate in established funds or explore other fund strategies.

In addition, commercial banks and other financial institutions directly involved in financing projects that could generate emissions reduction credits must now anticipate, in the financial structuring for projects, the generation by the projects of a new valuable, marketable asset.

Utilization of credits generated by projects, particularly in developing countries, raises three categories of issues that must be addressed.

General issues

The legal context of the European program is still unsettled and may vary from country to country. Credits may be treated as commodities in one country, securities in another and as other financial instruments in a third. Interests in credits, such as options, may require different legal treatment than the underlying credits themselves. Also, the method for perfecting a security interest in credits may vary from country to country. Financial institutions will be required to understand and navigate these various legal schemes in order to effectively protect their positions.

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Issues associated with fund organization and management

In addition to customary investment fund issues relating to cross-border investment, financial institutions looking to establish funds for investment in projects that will generate emissions reduction credits useable in the European and other markets face the following legal and business issues:

- > Defining fund strategy regarding the types of credits to be captured, *i.e.*, the types of credits to be generated by the projects which the fund finances
- > Method of valuation of credits and distribution of credits among investors or other disposition of credits and distribution of income
- > Tax issues relating to the distribution of credits among investors or disposition of credits
- > Funds investing in projects which generate credits will also face the project finance issues described below

Issues associated with project finance

All financial institutions that fund or participate in projects that will or could generate CERs and ERUs must address the following issues:

Defining the GHG Emissions Reduction Asset

The project documents must describe the type of GHG emissions reduction asset that will be created by the project. The documents must specify the regulatory system under which the asset will be created, such as the Kyoto system, and the type of asset that will be created, such as a CER or ERU.

Defining Who Has What Rights in the Asset

Project documents must determine who owns the GHG emissions reduction asset. Ownership, however, is not the only property right associated with the asset. Issues must be addressed regarding other property rights, such as defining security interests held by project financing parties in the assets and the rights of those security interest

holders. The project documents must also specify how those holding security interests may perfect and enforce their rights. In addition, project documents may create ancillary rights to streams of income from the asset, such as derivatives, that if not part of the security interest must at least be harmonized with the security interest.

Contingencies and Change in Law

CDM projects require approval by the government of the host country as a part of the project approval process. Risks due to this contingency must be recognized, insured against or hedged where possible, and clearly allocated among the parties where uninsurable or not hedged.

In addition, project documents should address market risk by determining which parties will bear the risks of shortfalls in GHG emissions reduction credits or volatility in credit prices and which parties will benefit from unexpected gains in such prices.

Specifications and Roles

Project documents usually contain technical specifications for project construction and operation. Emissions baselines, emissions reduction verification methods and other technical issues associated with the generation and certification of project related GHG emissions reduction credits should also be included in the project specifications.

Local Laws

Local laws regarding the expatriation of capital and taxes may need to be assessed in designing the mechanism that will be used for emissions credit sales. Project parties must identify applicable local rules and allocate responsibility for and costs associated with compliance.

Currency Risks

Customarily, international project finance mechanisms must address risks associated with fluctuations in local currency. Depending on the liquidity of the GHG emissions reduction credit market and the relative value of GHG emissions reduction credits in relation to the cost of the project, GHG

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emissions reduction credits can form a meaningful stream of hard currency income from the project.

Delivery

Project-related documents must address contingencies in the event that emissions credits are not delivered, are delivered in insufficient quantities or are of insufficient quality. Project documents must include provisions requiring emissions credit suppliers to make up for insufficient deliveries, either by supplying credits from other sources or through cash sufficient for purchasers to meet their emissions credit requirements from alternate sources and penalties for failure to deliver. Participants in mandatory GHG emissions reduction programs will likely face fines in the event of improper GHG emissions reduction credit delivery. In addition, illiquid credit markets may not allow suppliers to make up shortfalls in the event of improper delivery. These potential liabilities, including those arising from improper delivery of emissions reduction credits, must be allocated between the parties in the project related documents.

Ongoing Auditing and Verification

In addition to any ongoing auditing and verification required by the applicable regulatory program under which the GHG emissions reduction credits are created, purchasers will likely seek to create auditing and verification rights, given the long periods over which the credits may be generated. Production of credits will be closely tied to the ongoing functioning of the project so that GHG emissions reduction credit auditing can probably coincide to some degree with project auditing, although auditing of GHG emissions reduction credits will require special expertise and methodology.

Indemnities and Dispute Resolution

To the extent that risks cannot be insured or hedged in financial or other markets, parties may seek indemnification. In addition, disputes between parties must be identified and resolved as efficiently as possible. Many international project agreements provide for dispute resolution through international arbitration. In addition, disputes regarding GHG emissions reduction credit regulations must be resolved within the procedures created by those regulations. Parties who might otherwise be adverse may, in certain instances, wish to join together for the purposes of defending emissions credit creation and monitoring issues before regulators.

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