

# Module 3: Carbon Finance



## **Lesson 8: An Introduction to the Flexible Mechanisms: Emissions Trading**

UNEP Finance Initiative (UNEP FI) e-Learning Course on  
**Climate Change: Risks and Opportunities for the Finance Sector**

in collaboration with



## Lesson 8: An Introduction to the Flexible Mechanisms: Emissions trading

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## Objectives

Questions answered in this lesson are:

1. What are flexible mechanisms of the Kyoto Protocol?
2. How does the EU Emissions Trading Scheme (EU ETS) work?
3. How did the emissions market evolve?
4. What are the risks and opportunities for companies in the EU ETS?
5. How can financial institutions help mitigate risks related to emissions trading?
6. How do financial institutions utilize the opportunities of emissions trading?

## Introduction

**H**uman induced climate change poses major risks not only to our environment and human health, but also to our economic systems. These challenges have to be dealt with. On the one hand, financial institutions have developed various risk transfer mechanisms that mitigate the financial risks of climate and weather conditions for their clients and themselves, such as weather derivatives and catastrophe bonds. On the other hand, there are numerous markets addressing policy regulations on a variety of environmental and climate change issues including acid rain from sulphur dioxide (SO<sub>2</sub>) emissions and ozone pollution from nitrogen oxide (NO<sub>x</sub>) in the US. Also, new markets are developing involving 'green power' products such as Renewable Energy Certificates (RECs), which foster the development of renewable energy in a cost-efficient way.



The Kyoto Protocol was signed in 1997 thus defining commitments of developed countries to mitigate climate change in line with the United Nations Convention on Climate Change of 1992. The Kyoto Protocol defines reduction targets of GHG emissions for individual countries and establishes three flexible mechanisms to facilitate the achievement of the reduction goals. Recently climate change has received rising international recognition as a high priority issue. The fourth scientific report of the Intergovernmental Panel on Climate Change (IPCC) in 2007 is recognizing greenhouse gas emissions due to human activities as the most likely cause of global warming.

The global market for greenhouse gas emissions under the Kyoto Protocol offers significant opportunities for financial institutions. The Kyoto Protocol is breaking new ground with the incorporation of three innovative market mechanisms – International Emissions Trading (IET), and the two project-based mechanisms Joint Implementation (JI) and the Clean Development Mechanism (CDM). The first commitment period of the Kyoto Protocol has started in January 2008. Nonetheless the European Union (EU) has already been operating a domestic emission trading scheme (EU Emissions Trading Scheme (EU ETS)) since January 2005. Various regional and national emissions trading schemes have been developed throughout the last years (e.g. in the UK, New Zealand) or are currently under development (e.g. the U.S. federal and some regional schemes and the Australian scheme).

This lesson aims to give an understanding of the basic principles of emissions trading, the risks and business opportunities associated with it, and the possibilities for financial service providers to encounter these risks and opportunities in a pro-active way.

## The Flexible Mechanisms of the Kyoto Protocol

Thirteen years after the adoption of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992, the Kyoto Protocol entered into force in February 2005. The Kyoto Protocol represents the collective will of 184 countries (as of January 2009) to mitigate human-induced climate change. With the ratification of the Kyoto Protocol the industrialized countries and countries in transition listed in Annex I of the UNFCCC (Annex I countries) have adopted individual targets for the reduction of national greenhouse gas (GHG) emissions by the end of the first commitment period of the Kyoto Protocol in 2012. The overall target is a 5.2% reduction in GHG emissions relatively to the level of GHG emissions in 1990 in these countries, which is translated into individual targets for each country.

**Kyoto Protocol  
entered into  
force in  
February 2005**

The Kyoto Protocol's flexible mechanisms – International Emissions Trading (IET), Joint Implementation (JI) and the Clean Development Mechanism (CDM) – provide incentives for the promotion of emission reduction activities, including investments in renewable energy and energy efficiency technologies, in both industrialised and developing countries.

Anthropogenic GHG emissions are a by-product of some of the most vital economic activities – most obviously energy generation, transportation and some industrial activities, but also less obvious activities such as agriculture and deforestation. The flexible mechanisms of the Kyoto Protocol were thus developed in order to introduce an efficient, market guided allocation of reduction activities so that the costs of reduction are reduced to a minimum.

### International Emission Trading (IET)

To make emissions tradable, the Kyoto Protocol 'translates' them into emission allowances. Each allowance represents the right to emit one tonne of CO<sub>2</sub> or an equivalent amount of other GHGs (t CO<sub>2</sub>e). Under IET, industrialised countries can trade part of their emissions allowance budget known as Assigned Amount Units (AAUs). This encourages countries to reduce their emissions in order to sell AAUs. Given that the costs of emission reduction vary between different Annex I countries, IET aims at an optimal allocation of abatement activities and thus minimisation of the costs of compliance with the Kyoto Protocol. In principle, this trading regime applies to nation states, although the participation of companies is not explicitly excluded.



IET follows a so-called cap-and-trade approach, where mandatory emission caps are set and related volumes of emission allowances are allocated to the participants. IET is determined by the difference between actual emissions and emission targets of the participating nations (the so called Kyoto-gap or commitment-gap). If taking into account only emission targets assigned to Annex I countries, there is evidence that supply will be larger than demand. Russia and the other former East Block countries have a large surplus of emission rights (so called "hot air") due to the breakdown of many industries since 1990. The biggest AAUs surplus is expected from Russia (around 4.6 billion tons for the 2008-2012 period) followed by Ukraine (1.7 billion) and Central-Eastern Europe (1.6 billion), while the shortage of industrially developed Annex I countries is expected to be 3.0 billion. Political accountability of compliance buyers makes purchases of hot air difficult as they are considered to stem from structural changes rather than an environmental effort of the sellers. Schemes to direct proceeds from hot air sales to further emission reduction efforts in seller countries have shown some initial successes and 2008 saw the five first AAU transactions.

IET under the Kyoto Protocol has officially started in January 2008, but for participation each country has to fulfil certain eligibility criteria. So far 33 out of 38 Annex I countries have fulfilled all eligibility requirements.

### **The Project-Based Mechanisms**

The project-based mechanisms - Joint Implementation (JI) and Clean Development Mechanism (CDM) - further add flexibility to the IET by generating emission reduction certificates from individual climate protection projects. Under JI, an industrialized country invests in an emission reduction project in another industrialized country and receives credits for achieved emission reductions – so called Emissions Reduction Units (ERUs). Under CDM, an industrialized country invests in a project in a developing country and obtains credits for emission reductions called Certified Emissions Reduction Unit (CERs). This allows Annex I countries to reach their commitment level of emissions by implementing emission reduction projects in countries with lower abatement costs.

The market for these certificates has been already up and running since years. Transactions are concluded under a forward deal structure while the physical clearance will take place with the transfer of Kyoto credits to the registries of trading countries once they are connected to the trading system.<sup>1</sup>

## **The EU Emission Trading System: The First International Emissions Trading Scheme in Practice**

As part of its compliance with its Kyoto obligations, the European Union (EU) started an EU-wide cap-and-trade emissions trading system (EU ETS) in January 2005. Unlike the state-level approach of the IET, the EU scheme comprises direct trading between single installations from carbon intensive industry sectors.



The first phase of EU ETS was from January 2005 to December 2007. The second phase started in January 2008 and runs until 2012, coinciding with the first Kyoto Protocol commitment period. The third one is foreseen for 2013-2020. This binding scheme is targeted at large individual energy-using installations emitting CO<sub>2</sub> in defined economic sectors: Energy activities (thermal power plants (> 20 MW), mineral oil refineries, coke ovens); production and processing of ferrous metals (metal ore, iron, steel); mineral industry (cement, clinker, glass, bricks, porcelain); and other activities (paper and pulp production). The scheme comprises 11,400 installations, covering about 45% of EU emissions. As a market-based mechanism, the ETS ensures emissions are reduced most cost-efficiently, the cap giving effective control over total emission volumes.

For the second phase each EU country had to develop a National Allocation Plan (NAP) outlining the total number of emissions allowances (EUAs) allocated to the individual

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<sup>1</sup> The connection to the trading system and the transfer of credits between the accounts of different entities is managed via an electronic interface called International Transaction Log (ITL)

installations covered by the scheme. The volume of allocated EUAs to each installation is determined by the volume of their past emissions. At the end of each year, each site must surrender sufficient allowances to cover its CO<sub>2</sub> emissions for that year. Failure to do so will result in fines – 40 euros per tonne of CO<sub>2</sub> in the first phase, and 100 euros for the subsequent ones. In addition, the deficit must be compensated for in the following year.

Companies can meet their targets by implementing measures to reduce CO<sub>2</sub> emissions or by buying surplus allowances from other companies. The so-called “linking directive” from 2004 allows emissions credits from JI/CDM projects under the Kyoto Protocol to be used within the EU ETS, but only to a limited extent. On average an amount corresponding to 11.5% of allocated EUAs can be submitted as CERs or ERUs, with the actual quota varying from country to country.

The legislation for the third phase (2013-2020) was finalised in December 2008. Post 2012 the EU-ETS will include also other gases than CO<sub>2</sub>. Allocation of EUAs will not be based on past emissions anymore. Most EUAs will be sold in auctions and the rest will be allocated for free based on carbon intensity benchmarks of industry sectors. Thus, the cleaner the installation, the larger share of allowances it will get for free.

### **Risks and Opportunities for Participating Companies**

For all companies running installations that fall under the EU ETS, CO<sub>2</sub> risk management emerges as an important factor for their decision-making. The most important risk categories for individual companies are:

- cash flow risks, such as increased expenditure on measures aimed at reducing CO<sub>2</sub> or the purchase of emission allowances;
- market perception risks which may influence market capitalisation; and
- capital cost risks, such as more stringent credit conditions as a result of altered credit risk ratings.

Companies should understand the marginal abatement cost options available from different GHG mitigation strategies and they should understand the tools that are available to achieve compliance within GHG regulatory regimes. Financial service providers can assist companies in managing these effects, and in particular, reducing the transaction costs of trading by offering new products and services.

### **Who loses and who gains from the EU ETS?**

Clearly, the EU ETS transfers new liabilities and therefore business risks to the economy. As a consequence of the EU ETS, Emissions Trading Researcher Point Carbon estimates higher electricity prices across the EU with additional costs of 260-600 million Euros per year for the sectors affected. Energy generation is a major source of CO<sub>2</sub> emissions. Also, policy makers tend to confront energy producers with stricter targets, because they do not face the same international competition as many affected manufacturing industries. Hence, emission certificates arise as a serious additional cost factor in the energy industry. However, it has been estimated that on average, 40-70 percent of CO<sub>2</sub> costs is passed on as opportunity costs to industrial and retail energy clients in the form of higher power prices. However, these opportunity costs do not directly occur for the energy companies because the allocation of certificates is free of charge until



2012. For this reason, the German antitrust agency accused in late 2006 major German power companies (e.g. RWE) for gaining unjustified windfall profits.

The situation varies in other industry sectors where companies often do not have the opportunity to pass on costs due to higher price sensitivity and international competition. Research conducted by Investment Bank Dresdner Kleinwort concludes that cement companies with large exposures to EU countries are affected by the EU ETS with estimated additional costs for individual companies of up to 15 percent. The cement sector is one of the most energy intensive industries. At the same time, research shows that thorough market analysis can turn these risks into opportunities. For example, the case of Heidelberg Cement clearly shows that industrial participants can profit from emissions trading. The German cement company was reported to make a double-digit million profit by selling emission reductions. The company had invested into modernisation and energy efficiency improvement of its plants and thus greatly decreased emissions. It also makes active use of the project-based mechanisms.

## **Market Developments in the EU ETS and the Kyoto Market**

Between 2005 and 2007 there has been a 4.5 fold increase in the trade volume of the EU ETS: while 362 million tons of EUAs have been transacted in 2005, constituting 15% of the total allocated volume, 2008 has seen 3.1 billion tons of EUAs transacted which makes up for almost 150% of an annual allocation. About 37% of EUAs have been traded exchanges, while the rest has been traded over the counter. The opening of the *Green Exchange* and the *Bluenext* exchange in 2008, shows ever growing competition on the exchange market thus far dominated by the *European Climate Exchange* (ECX).

The framework giving a price to an EUA is created by political decisions such as the stringency of the emission cap of the whole EU-ETS set out in legislation. Once these decisions are taken, the price fluctuates according to market forces and in particular reflecting:

- prices of energy commodities and electricity prices which influence the energy mix and the level of emissions from energy use;
- weather conditions that influence energy consumption;
- supply of credits from Kyoto projects (CERs/ERUs);
- the cost of internal emission abatement measures; and
- general economic trends that influence the level of emissions from production activities.

The following graph shows the EUA-price developments in 2005-2009 for the EUAs 2007 and 2009 EUA future deals. The orange line shows the price for EUAs traded in the first phase of EU ETS, the green line shows the price of EUAs sold for usage in the second phase of the EU ETS.



Noticeable in the above graph is the big price drop in April/May 2006. This downfall is due to the disclosure of the emissions data for 2005, which exposed an average over allocation of EUAs so that supply of EUAs on the market exceeded demand. At the same time, the first countries published allocation plans for the second phase of EU ETS which did not contain significant cuts. From September 2006 onwards a clear decoupling of prices for EUAs of the first and second phases can be seen. October 2008 disclosed how strongly the EUA had integrated to the global financial and commodity markets. After a few weeks of resistance, EUAs followed course with the drop of the stock markets.

In parallel to the Kyoto market and the EU ETS some regional schemes have already evolved, like the Regional Green House Gas Initiative (RGGI) in the US or the New South Wales GHG Abatement Scheme (NSW GGAS) in Australia. Further schemes are currently under implementation or under development like the Federal scheme in the US, the domestic scheme in Australia, the New Zealand Emission Trading Scheme. The traded volumes in these regional schemes are still rather modest. They made up for about 38 million tons of CO<sub>2</sub> traded in 2007. This constitutes about 1.4% of the carbon volume traded globally, whereas the EU ETS consisted of some three thirds of the global carbon market in 2008.

The following table shows the overall market development in volumes and value of the various market segments including CER and ERU trading.

	2005		2006		2007			
	Final figures		Final figures		February forecast *		Final figures	
	[Mt]	[€ million]	[Mt]	[€ million]	[Mt]	[€ million]	[Mt]	[€ million]
<b>EUA total **</b>	362	7,218	1,017	18,143	1,750	18,503	1,643	28,133
- OTC	207	4,269	627	11,180	-	-	1,009	17,278
- exchanges	55	1,131	190	3,395	-	-	434	7,431
<b>CER total</b>	401	2,038	563	3,920	552	4,321	947	11,737
- Primary	397	1,985	523	3,349	456	3,260	597	5,984
- Secondary	4	50	40	571	96	1,061	350	5,753
<b>ERU total</b>	28	96	21	95	45	277	38	326
<b>Other total</b>	7.8	52	31	300	50	500	48	186
<b>Sum</b>	<b>799</b>	<b>9,401</b>	<b>1,632</b>	<b>22,458</b>	<b>2,397</b>	<b>23,601</b>	<b>2,676</b>	<b>40,382</b>

(Source: Point Carbon 2008)

Financial service providers clearly play an important role in the operation of these emission markets, especially because they increase market liquidity and reduce volatility. During the second phase, EUAs have been traded for many years with future contracts but spot trades have increasingly gained in popularity. Spot trading of international carbon units such as AAUs, CERs and ERUs goes hand in hand with the process of the trade participants fulfilling the eligibility requirements. Thus, with nearly 30 countries reaching that stage by the end of 2008, activity with these products has also picked up.

The possibility to use project based Kyoto credits (ERUs and CERs) within the EU ETS has further created an opportunity for swap deals. Some trading institutions have developed swap instruments in order to trade CERs for EUAs, taking advantage of price differences and future market developments.

### **The voluntary market**

Besides the compliance schemes of the Kyoto Protocol or EU ETS, there is also a growing carbon market on a voluntary basis. Voluntary carbon trade enables entities from countries that did not ratify the Kyoto protocol (such as USA, Australia or Turkey) to participate in the carbon markets and offers an opportunity to prepare for anticipated cap and trade systems. A very significant segment of the voluntary carbon market also arises from corporate responsibility commitments of diverse corporations. A rapidly increasing number of companies from various sectors which are not covered by mandatory GHG abatement schemes are developing carbon neutral activities as part of their corporate sustainability strategy. Such activities aim at the off-setting of a company's emissions via carbon credits from emission reduction projects. This voluntary market is far less homogenous and less regulated than the "official" carbon market. The commodity that is mostly used for voluntary off-setting is the Verified Emission Reduction (VER), but there are many different VER standards, varying hugely in quality and price. The volume of the voluntary offset market grew from 20 to 75 million tons of CO<sub>2</sub> from 2006 to 2007 and it constitutes around 7% of the project based transactions.

## **The role of the USA**

Although the USA has not ratified the Kyoto Protocol, it starts to play a significant role in the global carbon market. Being still the world's largest emitter, the USA is also the biggest voluntary carbon trader with around 30 million VERs traded in 2007. Current developments on legislative level show progress towards the introduction of domestic emission trading schemes. The new Obama administration has been active in pushing for a cap-and-trade scheme. In the end of March 2009 Congressmen Waxman and Markey proposed a bill (draft legislation) setting the rules for a US carbon market. The United States will also play a key role in the December 2009 negotiations which are expected to lead to a global carbon market for the post-Kyoto time.

## **How financial institutions can encounter the challenges related to climate change and emissions trading**

The financial services industry has a two-fold responsibility with respect to climate change. On the one hand, it needs to be prepared for facing new risks due to the negative effects that climate change has on its business and its customers. On the other hand, it can significantly help the low-carbon economy to develop by providing related products and services (e.g. services for emissions trading and financing for renewable energy technologies).



Financing institutions have to take into account new risks connected with carbon market products and services, such as:

- **Credit risks:** Climate change mitigation policies transfer new liabilities to the affected companies. If these liability risks are not managed adequately, the creditworthiness of GHG-intensive clients is negatively influenced which has a direct negative impact on the financial institution that e.g. provides a loan to this company.
- **Market risks:** High volatility of emissions prices, volatile carbon-related commodity prices (e.g. coal, gas, oil) and the insufficient availability of certificates at the market are market risks that have to be managed by financial service providers. The price and volumetric risks lead to decreased corporate planning reliability for financial institutions and their clients.

In the case of asset managers, they have to develop an understanding of the extent to which climate change will impact or enhance the value of investments.

For the insurance sector, the growing intensity of extreme weather events and the related claims are both business opportunity and additional risk. To make use of the new business opportunities, insurers are developing products to encourage emissions reductions, like Pay-as-you-drive car insurance, which encourage people to drive less, renewable energy insurance packages or carbon delivery guarantees.

Against this background, financial institutions need to develop carbon risk management tools for their loan, insurance, asset management, and investment due diligence. These considerations of financial risk implications for investments into carbon intensive sectors have a big impact on GHG reduction activities. There are also other possibilities for financial institutions to show commitment to the carbon business, such as investing into companies that are providing carbon offsets, as it has recently been done by the JP Morgan acquiring British voluntary carbon offset provider Climate Care, or launching a green index as it has been done by the UBS bank, thus tracking the returns and carbon footprints of 600 major companies across 18 European countries.

The following case studies display different approaches of leading financial service providers to deal with the opportunities and risks of emission trading.

**Case Studies:**

<a href="#">HSBC Holdings (Europe)</a> 	
<i>Classification and awards</i>	<ul style="list-style-type: none"> <li>- First among 40 world's largest banks in corporate governance and approaches to climate change related challenges and opportunities</li> <li>- First in the Low Carbon Finance category (by BusinessWeek, 2006)</li> <li>- "Green Power Partner of the Year" (by U.S. EPA)</li> </ul>
<i>Commitments</i>	<ul style="list-style-type: none"> <li>- In December 2004 committed to become the first bank in the world to achieve carbon neutrality. 813,000 tons of CO2 emissions were offset in 2006 with the help of HSBC's regional offices to purchase voluntary emission reductions from several renewable energy projects</li> <li>- Through Carbon Management Plan achieves reduction of direct emissions, buying green electricity and offsetting remaining emissions</li> </ul>
<i>Emission trading</i>	<ul style="list-style-type: none"> <li>- In 2007 launched climate change fund that invests in clean energy, energy efficiency, water, waste and pollution control companies.</li> <li>- Exploring options to participate in JI/CDM markets</li> </ul>
<i>Incorporation of climate change related issues into the financial activity</i>	<ul style="list-style-type: none"> <li>- In 2003 established Environmental Risk Standard in order to rate its clients</li> <li>- Issued lending guidelines to support lower carbon economy transition</li> </ul>
<i>Support of climate change abatement initiatives</i>	<ul style="list-style-type: none"> <li>- Provides financing for low carbon projects and technologies</li> <li>- In 2007 launched Global Environmental Efficiency Program to reduce company's direct environmental impact by integrating renewable energy technology, water and waste reduction programs in the activity cycle of the company</li> <li>- Installed solar panels at some offices and bio-diesel plants, micro wind turbines</li> </ul>
<i>Support of climate-related initiatives</i>	<ul style="list-style-type: none"> <li>- In 2007 launched \$100 million HSBC Climate Partnership with several large NGOs and Smithsonian Tropical Research Institute to be involved in climate change related issues in the municipal policy, forestry and hydro sectors</li> <li>- In 2004 formed partnership with two universities to conduct research on climate change and other environmental challenges</li> <li>- Member of Carbon Disclosure Project, where information on climate risks and opportunities are gathered for a coalition of investors</li> </ul>
<i>Internal units dealing with carbon market related issues</i>	<ul style="list-style-type: none"> <li>- Sir Nicholas Stern (the author of "Stern Review on the Economics of Climate Change", one of the most influential reports on climate change) is appointed Special Advisor on Economic Development and</li> </ul>

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	<p>Climate Change</p> <ul style="list-style-type: none"> <li>- Group Corporate Sustainability executives address risks and opportunities derived from climate change and embed sustainability within the company's operations</li> <li>- Climate Change Centre of Excellence in India evaluates implications of climate change for HSBC</li> </ul>
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<a href="#">ABN AMRO Holding N.V. (Europe)</a> 	
<i>Classification and awards</i>	<ul style="list-style-type: none"> <li>- Second among 40 world's largest banks in corporate governance and approaches to climate change related challenges and opportunities</li> </ul>
<i>Commitments</i>	<ul style="list-style-type: none"> <li>- To become carbon neutral by 2008 by offsetting over 400,000 tons of annual CO2 emission</li> <li>- Comprehensive approach to climate change including areas of science, measurement, avoidance, minimization, offsetting, adaptation, business initiatives, advocacy in the emission management sector ...</li> </ul>
<i>Emission trading</i>	<ul style="list-style-type: none"> <li>- Active in emission trading, OTC trading in the EU ETS</li> <li>- Facilitates JI/CDM projects</li> <li>- Developed Climate Change and Environment Index to track performance of climate change and environmental businesses</li> </ul>
<i>Incorporation of climate change related issues into the financial activity</i>	<ul style="list-style-type: none"> <li>- Decision-making on clients, transactions and project financing activities includes environmental, social and ethical considerations, in a framework of Sustainability Strategy and Strategic Risk Agenda</li> </ul>
<i>Support of climate change abatement initiatives</i>	<ul style="list-style-type: none"> <li>- 47.7% of power purchased by the Holding is from renewable sources</li> <li>- Clean Tech Fund invests in innovation in renewable energy sector</li> <li>- Low Carbon Accelerator fund for low carbon and energy efficiency companies</li> <li>- "green loans" for renewable energy projects</li> <li>- €2 billion assets are under socially responsible mandates</li> <li>- Advises and co-invests with sponsors of environmental projects</li> <li>- Monitoring and reducing emissions through direct efficiency measures and employee awareness rising</li> </ul>
<i>Support of climate-related initiatives</i>	<ul style="list-style-type: none"> <li>- Sponsor and member of Carbon Disclosure Project</li> <li>- Participant in Climate Accord initiative to educate investors and corporate decision-makers on climate change issues</li> <li>- Founding Partner of Clinton Foundation's Energy Retrofit Program to support energy efficiency measures in large cities</li> </ul>
<i>Internal units dealing with carbon market related issues</i>	<ul style="list-style-type: none"> <li>- Managing Board is addressing climate change issues, while Sustainability Department and decentralized "sustainability experts" implement the decisions through global Business Units</li> <li>- Group Risk Committee and Sustainable Risk Advisory team working together on clients and transactions decision making</li> <li>- Commodity Derivatives team active in emission trading</li> </ul>

<b>Bank of America Corporation (USA)</b>	
	
<i>Classification and awards</i>	<ul style="list-style-type: none"> <li>- Seventh among 40 world's largest banks in corporate governance and approaches to climate change related challenges and opportunities</li> </ul>
<i>Commitments</i>	<ul style="list-style-type: none"> <li>- \$20 billion commitment to support environmentally sustainable business activities directed to address climate change (lending, investing, philanthropy, creation of new products ...)</li> <li>- Commitment to purchase 500,000 carbon credits over three years, thus partially offsetting annual 1,46 million tons of CO2 emissions</li> <li>- Target: by 2009 to reduce emissions by 9% relatively to 2004</li> </ul>
<i>Emission trading</i>	<ul style="list-style-type: none"> <li>- From July 2007 joined Chicago Climate Exchange, Chicago Climate Futures Exchange and European Climate Exchange</li> </ul>
<i>Incorporation of climate change related issues into the financial activity</i>	<ul style="list-style-type: none"> <li>- Environmental policy guidelines are included in credit risk manual. Forest Practices policy applies to credits and bonds underwriting. Use of World Bank's pollution control and abatement guidelines in project finance.</li> </ul>
<i>Support of climate change abatement initiatives</i>	<ul style="list-style-type: none"> <li>- In 2005 electricity consumption reduced by 4%</li> <li>- In 2005 \$27 million invested in energy efficiency projects</li> <li>- Construction of the world's most environmentally responsible office building in New York</li> <li>- \$100 million will be invested in energy conservation measures of the bank's facilities</li> <li>- Providing \$200 million equity in Low Income Housing Tax Credit projects</li> <li>- Green Mortgage; \$1,000 rebates on mortgages for homes meeting Energy Star specifications</li> <li>- \$1 million grant for UN Foundation to double energy efficiency in U.S.</li> <li>- Reimbursement program for employees buying hybrid vehicles</li> <li>- Launch of "green" credit card that allows to earn carbon offsets through purchases</li> </ul>
<i>Support of climate-related initiatives</i>	<ul style="list-style-type: none"> <li>- Partnership with San Jose Unified School District and Chevron Energy Solutions to establish solar power and energy-efficient facilities in order to sell its power at rates below the market utility rates</li> </ul>
<i>Internal units dealing with carbon market related issues</i>	<ul style="list-style-type: none"> <li>- Environmental Services Department analyses environmental risks of different business lines</li> <li>- Energy Services Financing Solutions Team</li> <li>- Global Wealth and Investment Management division pursue sustainable timber investment products</li> </ul>

## Key Terms

- International Emission Trading (IET)
- Emission Trading Scheme of the EU (EU ETS)
- National Allocation Plan (NAP)
- Marrakesh Accords
- Emission Reduction Unit (ERU)
- Assigned Amount Unit (AAU)
- EU Allowance (EUA)
- Certified Emission Reduction (CER)
- Clean Development Mechanism (CDM)
- Joint Implementation (JI)
- United Nations Framework Convention on Climate Change (UNFCCC)
- Voluntary Emission Reduction (VER)

## Wrap up

This lesson gave an introduction to the flexible mechanisms of the Kyoto Protocol and the EU Emissions Trading Scheme. It has shown that emission trading does not merely place a burden on affected industries, but that companies (including financial institutions) can profit from it through pro-active and innovative market behaviour. Financial institutions are directly affected by the various emissions trading schemes in place, because they impact the financial balance and profitability of their customers. This creates the necessity for specific risk assessment tools. At the same time, financial service providers can offer a range of services related to emission trading as displayed in the case studies.



## Additional Reading

- Commission of the European Communities (2001): Establishing a Framework for Greenhouse Gas Emission Trading within the European Community
- CERES (2008): [Corporate Governance and Climate Change: The Banking Sector](#)
- [Global Framework for Climate Risk Disclosure \(2006\)](#)
- Grubb, Michael (2003): [The Economics of the Kyoto Protocol](#)
- Michaelowa, Axel / Koch, Tobias (2001): [Glossary of International Climate Policy Terms](#)
- Massachusetts Institute of Technology (2008): [The European Union's Emissions Trading System in Perspective](#)
- Point Carbon (2007): [Carbon Market Monitor; The 2007 carbon market in review](#)
- Rory Sullivan (editor) (2008): [Corporate Responses to Climate Change](#)
- The World Bank (2008): [State and Trends of the Carbon Market 2008](#)
- United Nations Framework Convention on Climate Change (UNFCCC) (1998): [Kyoto Protocol to the United Nations Framework Convention on Climate Change](#)
- United Nations Framework Convention on Climate Change (UNFCCC) (2005): [Caring for Climate - A guide to the Climate Change Convention and the Kyoto Protocol](#)
- WWF International / Allianz Global Investor (2005): [Climate Change and the Financial Sector: An Agenda for Action](#)
- Stockholm Environment Institute/Tricorona (2008): [A Comparison of Carbon Offset Standards](#)
- Point Carbon (2007): [Voluntary Carbon Markets: Lost in Transactions?](#)



## Related Links

**Climate Action Network:**

<http://www.climatenetwork.org/>

**DEFRA:**

<http://www.defra.gov.uk/environment/climatechange/index.htm>

**Environmental Finance – Climate Change:**

<http://www.environmental-finance.com/online.htm>

**European Commission – Climate Change:**

<http://ec.europa.eu/environment/climat/emission.htm>

**Greenpeace:**

<http://www.greenpeace.org/international/campaigns/climate-change>

**IEA:**

[http://www.iea.org/Textbase/subjectqueries/keyresult.asp?KEYWORD\\_ID=4124](http://www.iea.org/Textbase/subjectqueries/keyresult.asp?KEYWORD_ID=4124)

**IETA:**

<http://www.ieta.org/ieta/www/pages/index.php>

**IPCC:**

<http://www.ipcc.ch/>

**New Carbon Finance:**

<http://www.newcarbonfinance.com/>

**PEW Centre on Global Climate Change:**

<http://www.pewclimate.org/>

**PointCarbon:**

<http://www.pointcarbon.com/>

**UNFCCC:**

<http://unfccc.int/2860.php>



UNEP Finance Initiative (UNEP FI)

# **e-Learning Course on** Climate Change: Risks and Opportunities for the Finance Sector



in collaboration with:

UNEP FI Climate Change Working Group | United Nations Institute for Training and Research |  
UNEP FI Australasian Credit Risk Advisory Committee | EPA Victoria | Bank of America