

PLANKTOS

Home Overview Eco-Assets Science OceanCarbon Eco-Solutions Research Eco-Markets
PLANKTOS INC. News TheDebate OpenLetters Links

Invest In Cleaner Air

Eco-Asset trading is the buying and selling of environmental attributes. Perhaps the most dynamic opportunity in Eco-Asset trading is 'Carbon trading', the buying and selling of 'allowances' to emit CO2 and its equivalents. Carbon trading systems can achieve desired reductions in greenhouse gas emissions, at the lowest possible cost.

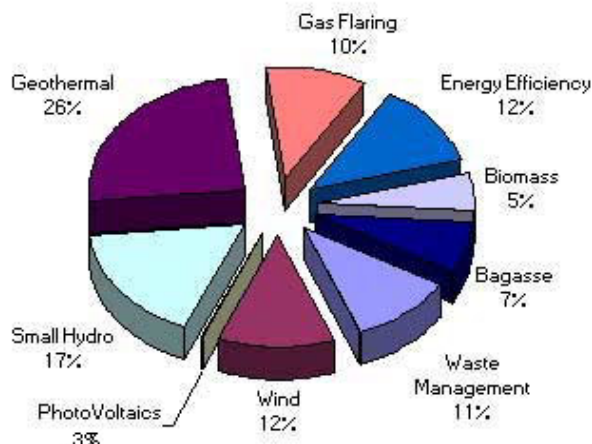
Planktos can help in this market place.

This approach is preferred by many over a regulatory approach such as carbon taxes or emission limits because it provides greater flexibility in how reductions are achieved to meet an overall target. In regard to atmospheric emissions outside of strictly local effects it makes no difference to the global environment whether CO2 is removed from the air in one location or another.

The United States and most of the signatories to Kyoto Protocol are committed to the international carbon trading market. It is clear that the fossil fuel industry will have to play a major role in any such market.

How are Carbon Offset Credits Created

Most nations are supporting market-based programs to help reduce greenhouse gas emissions. Such programs capable of addressing Green House Gases are doing so in about the following relative proportions.



Emission trading allows an organization (corporate or governmental) which has committed to a reduction target and reduces beyond that target, to sell its excess emission units to another organization unable to meet its target commitments. Article 17 of the Kyoto Protocol states that international trading

CERES SUSTAINABLE GOVERNANCE PROJECT INVESTOR COALITION FINDS U.S. CORPORATIONS FACE MULTI-BILLION DOLLAR RISK FROM CLIMATE CHANGE - RISK NOT ADEQUATELY ASSESSED BY BOARDS AND INVESTORS

April 18, 2002 - WASHINGTON -

There is mounting evidence that failure to respond to the risks posed by climate change could result in multi-billion dollar losses for U.S. businesses and investment portfolios, and this failure could represent a breach of fiduciary duty on the part of corporate directors and investment decision-makers, according to a report released today.

The report, *Value at Risk: Climate Change and the Future of Governance*, was released today by CERES, a coalition of investor and environmental groups that works with over 70 companies on corporate environmental responsibility. Investor members represent more than \$300 billion in assets. The report was written for CERES by Innovest Strategic Value Advisors, an investment research and advisory firm. The report is one of the first to make a direct link among climate change, fiduciary responsibility, and shareholder value.

"Because climate change will have an impact on all economic sectors, climate risk is now embedded, to some degree, in every business and investment portfolio in the United States," said Robert Massie, Executive Director of CERES. "The risks are two-fold: first, the economic/financial risk from the damages due to climate change itself, and second, exposure to the cost of greenhouse gas emissions from climate change regulation and potential litigation. This is another case of an 'off balance sheet' risk that is not being reported to shareholders."

should be 'supplemental' to domestic actions to meet emission reduction commitments. Systems for the measurement and verification of national emissions are critical for the proper functioning of credit/permit trades. The US, Australia, Canada, Japan and most members of the European Union favor trading in this way.

Clean Development Mechanism (CDM) has the dual aim of reducing global emissions while assisting developing nations in attaining ecologically sustainable development. The CDM allows government or private organizations in industrialized nations to receive credits for implementing emission reduction projects with developing countries. Credits are received in the form of 'certified emission reductions' (CERs). Governments or organizations can begin accruing CERs in 2000.

Joint Implementation allows industrialized nations to meet their emission reduction targets by investing in reduction activities with other industrialized nations. Credits from **JI** projects do not begin to accrue until the start of the first commitment period in 2008. The Kyoto Protocol states that **JI** projects should be 'supplemental' to domestic activities to reduce emissions.

The Kyoto Protocol provides for companies and governments to offset some of the emissions by investing in carbon '**sinks**' like forest plantations or ocean sequestration. Carbon credits would be issued corresponding to the amount of carbon '**sunk**'. The key to this mechanism is tying the sequestration effort to specific reductions rather than fostering and regulating an existing subsidized agricultural industry to 'grow' carbon.

There are historical precedents for an emission trading program:

The Acid Rain Program in the US operating since 1995 represents the world's most successful emissions cap and allowance trading program. The program has been successful in facilitating reduction of SO₂ and NO₂ emissions throughout the United States. A side benefit of this has been that costs to effect reduction of SO₂ are many times less than that predicted by industry at the time of implementation.

Already a carbon emissions market is forming while government designed systems are being planned. Major companies around the world are conducting internal and cross-company trading. Many countries are encouraging this with promises of commercial benefits to those organizations committing to carbon reductions and trading early.

Opportunities with Planktos

Investment opportunities exist for those willing to acquire and trade these credits at an early stage. The credits are created only when reductions of carbon gas emissions have been verified and validated. New technology in development by Planktos will be the most efficient producer of these sequestered carbon emission reductions. As such we plan to establish a portfolio of the carbon credit options we produce during our research projects. These options will be available from Planktos to qualified buyers and investors whose purchases will effectively reduce and mitigate global warming and at the same time assist the expansion of

At the same time, Massie explained, "proactive action on climate change presents opportunities for new and expanded business activity, reduced costs, and increased shareholder value that will produce a net economic benefit."

[Entire Report \(600KB\)](#)

[CERES.org Web Site](#)

TRADING AIR EMISSIONS FOR ENVIRONMENTAL AND ECONOMIC BENEFIT

Success Stories from the Private Sector

Whether trying to achieve reductions in acid rain, smog causing pollutants, or greenhouse gases, emissions trading is a viable alternative to 'command-and-control' regulation, and creates powerful incentives for businesses to find innovative and cost-efficient means for reducing pollution.

The concept of emissions trading is straightforward: Government sets a total cap on emissions of a pollutant from a group of sources like power plants and factories. Each source is then given emission "allowances" to cover most of its current emissions; each allowance is typically worth one ton of emissions.

The clear and consistent message from these examples is that emissions trading provides powerful incentives for both environmental and economic gains. Emissions trading markets can lead to superior environmental performance, the stimulation of new technologies, and significant cost savings. Best of all, the full potential of emissions trading has only barely been tapped.

BROKERAGES STEP UP TO EMISSION TRADING

Emissions trading on way 1998
JOHN MACLEAY, News Limited

Planktos activities. One mechanism by which such carbon options might be marketed is via a 'Green Tag' program similar to those being developed by a number of organizations. Planktos will post it's 'Green Tag' program on our web site as soon as it is ready.

The following news reports give a brief perspective on the building activity in this new sector of the world energy marketplace.

Japan

The Japan Bureau of National Affairs reported November 25, 1998 that according to estimates from the Industrial Bank of Japan Ltd., the market for carbon dioxide emission trading would be as huge as \$177 billion worldwide in the year 2010. Japan's Mitsubishi Corporation to Participate in Bank's Carbon Fund, Officials Say, International Environment Reporter, Bureau of National Affairs, Nov. 25, 1998, Vol. 21, No. 24, p. 1177 at 1178.

United Kingdom

British Petroleum, which aims at reducing its GHG emissions by 10 percent from their 1990 levels, proceeded with its first intra company trade where 2 business entities concluded a GHG transaction at \$17 per ton of CO2 (about \$62 per ton of CO). Natsource, 1998-The Year in Review, Airtrends, Dec. 24, 1998, Vol. 2, Issue 12, at 6

Australia

Leslie Hosking, chief executive of the Sydney Futures Exchange (SFE), announced at COP-4 that the SFE is investing significant efforts into establishing an operational emission trading market for greenhouse gas allowances by November 1999. Sydney Futures Exchange Planning to Start Emission Trading in Next Year, International Environment Reporter, Bureau of National Affairs, Nov. 25, 1998, Vol. 21, No. 24, p. 1177

Canada

Although not qualified as joint implementation, Ontario Hydro concluded a transaction December 17 to buy "credits" for 290,000 metric ton of CO2 equivalent and an additional 157,000 metric ton of CO2 per year for five years. An executive for Toromont Energy, the other party to the GHG transaction, said his firm will receive close to \$600,000 for the sale. Toromont Exec Said Credits Sold for \$600K, AIR Daily, Vol. 5, No. 244,

THE Sydney Futures Exchange expected to add greenhouse gas permits to its list of tradable contracts before the end of 1999, SFE chief executive Les Hosking said yesterday.

Mr. Hosking said emission trading markets were already emerging in Chicago, New York and London. Emission trading could, within five years, have an annual turnover of as much as \$US100 billion (\$164 billion) globally.

Mr Hosking said that although the SFE had been proposing greenhouse trading for several months, it already had the systems in place to begin the contract within the next 12 months.

CANTOR FITZGERALD ENVIRONMENTAL BROKERAGE SERVICES FOR EMISSIONS TRADING

The only place on the Internet where you can see live environmental credit markets.
www.cantor.com/ebs/

**FUTURES & OTC WORLD
COMMODITIES
CLEARING THE ATMOSPHERE**

How could futures trading stave off environmental catastrophe?

Can derivatives save the planet? So often portrayed as capricious monsters at odds with the common good, financial markets have been proposed to solve one of the most serious problems modern humanity has to face - global warming.

Convincing the powers that be has been a worthwhile struggle, according to Richard Sandor. A vice-chairman of the CBOT and CEO of Environmental Financial Products, Sandor is both a gregarious Chicagoan, and a seasoned derivatives innovator.

The greatest initiative in emissions trading has been shown by London's International

December 21, 1998, at 1.

WHITEHOUSE FACT SHEET ON INTERNATIONAL EMISSIONS TRADING

Description

The principle of emissions trading is to use the efficiency of the market place to achieve environmental objectives at the lowest possible cost. Under an international emissions trading regime, a country (or firm) would be able to meet its emissions reduction target by reducing pollution itself, purchasing reductions from another country (or firm) that was able to achieve excess gains, or some combination of both.

Given an effective international regime, emissions trading provides a powerful incentive for nations to reduce below the amount required and then sell excess reductions to others who in turn avoid more costly actions. The U.S. has proposed that emissions trading be permitted among all countries that agree to a binding emissions target.

How it would work

Consider a simplified example for how international emissions trading might work. Country A and Country B must reduce emissions by 100 tons each. It might cost each country \$1,000 to reduce 100 tons individually for a total cost of \$2,000. However, if Country A could reduce its emissions by 200 tons for a total cost of \$1,500 and sell half of these reductions to Country B, the overall target would be achieved for \$500 less, a savings of 25 percent.

U.S. experience

Emissions trading is being used successfully at the domestic level to reduce sulfur dioxide emissions (which cause acid rain) under the Clean Air Act. Achieving targeted reductions was originally estimated to cost \$5 billion annually if traditional controls had been required and \$4 billion with emissions trading. A GAO estimate after the initial stage of emissions trading now puts the cost at \$2 billion per year, or 60 percent below the original estimate with pollution reductions significantly ahead of schedule. Emissions trading has also been successful in cutting the costs of phasing out leaded gasoline and in curbing the production of chlorofluorocarbons which deplete the ozone layer.

Cost savings

According to the 1997 Economic Report of the President, international emissions trading for carbon dioxide could lower the cost of reductions by 50 percent below the minimum achievable using purely domestic programs.



Petroleum Exchange. As CEO of the only derivatives exchange in London with an unclouded reputation, Lynton Jones has a confidence that cuts through his English reserve. IPE's proposal has caught the mood of the times. Jones comments "Once emissions legislation had been implemented by the government, IPE could administer the primary, bilateral emissions market, while launching a CO₂ futures contract as part of a secondary market. We are prepared to launch a contract to trade - and there are other things that would need to be done, by a body in the UK, which we are happy to do, or we think we could help with."

WHO IS TRADING IN CARBON CREDITS TODAY

Toyota has created an \$800,000 model forest which is being monitored with emissions measuring equipment to calculate CO₂ absorbed. They are also working with botanists to develop genetically engineered trees that absorb CO₂ faster.

Nebraskan energy company Tenaska has invested \$500,000 into Costa Rican rainforest protection as a way of reducing their CO₂ emissions.

BP has initiated an internal carbon trading system, involving 10 business units around the world. The scheme will see trading amongst the business units as well as trading between the units and outside parties. One of the first external trades has been between BP's Kwinana refinery in Western Australia, and the state forestry organization.

Pacific Power, one of Australia's largest electricity generators, has purchased the carbon credits from a newly planted 1,000 hectare forest plantation on the north coast of New South Wales (NSW) from the NSW State Forests organization. The trade

For More Information on how Planktos can help you invest in clean air and carbon offset futures contact us.

Planktos
1151 Triton Drive, Suite C
Foster City, CA 94404

E-mail: info@planktos.com

covers a ten year period during which the plantation is expected to sequester 250,000 tonnes of CO2.