



Providing Carbon Emission Trading Opportunities

As a response to the ever growing threat of Global warming caused by rising CO₂ emission levels, many member nations attended the United Nations Framework Convention on Climate Change and agreed to limit and eventually reduce greenhouse gas emissions. The Kyoto Protocol is an International treaty which resulted from the Convention and its major feature is that it sets legally binding targets for 37 Industrialised countries and the European community for reducing greenhouse gas (GHG) emissions.

The main distinction between the Protocol and the Convention is that while the Convention encouraged industrialized countries to stabilize GHG emissions, the Protocol actually commits them to do so.

Under the treaty, countries must meet their targets primarily through national measures and, importantly, the Kyoto Protocol offers the additional route of meeting their targets by way of market-based mechanisms, such as Emissions Trading which is transacted through the “The Carbon Market”.

Prices of carbon credits will increase by as much as 42% by 2012, Barclays says.

Source: Bloomberg news 14/03/11

The Carbon Market

As set out in Article 17 of the Kyoto Protocol, Emissions trading allows countries that have emissions permitted to them but not used- to sell this excess capacity to countries that are over their targets. Thus creating a new commodity known as

Carbon Trading

There are three main kinds of Carbon Credits.

The first two carbon credit types relate to meeting obligations under the Kyoto Protocol

EU Emission Allowances (EUA)

Certified Emission Reduction (CER)

This third category relates to

Voluntary or Verified Emission Reduction (VER)



EU Allowances - EUA

To allow comparison between the different adverse effects of gases on the environment, scientists have defined multipliers for gases that compare their greenhouse potency or global warming potential relative to that of carbon dioxide. The Emission reduction unit (ERU) is a trading unit under the Kyoto Protocol representing a reduction of greenhouse gases under the Joint Implementation mechanism, where it represents the equivalent of a reduction of one tonne of CO₂.

The mechanism known as “Joint Implementation” is defined in Article 6 of the Kyoto Protocol and it allows a country with an emission reduction or limitation commitment under the Kyoto Protocol to earn ERUs from an emission-reduction or emission removal project in another Annex B Party, each equivalent to one tonne of CO₂, which can be counted towards meeting its Kyoto Target.

Joint Implementation (JI) offers Parties a flexible and cost-efficient means of fulfilling a part of the Kyoto commitments, while the host Party who sets up the project benefits from foreign investment and technology transfer.

HSBC Holdings Plc says that the global market for low carbon energy will triple to \$2.2 trillion by 2020.

Source: Bloomberg.com 06/09/10

A JI project must provide a reduction in emissions or an enhancement of removals that is additional to what would otherwise have occurred. Projects must also have the approval of the host Party and participants have to be authorized to participate by a Party involved in the project.

Projects starting as from 2000 may be eligible as JI projects if they meet the relevant requirements but ERUs may only be issued for a crediting period starting after the beginning of 2008.

China to set up a national carbon trading platform by 2015

Source: Bloomberg.com 27/06/11

Certified Emission Reductions - CERs

The Clean Development Mechanism (CDM), defined in Article 12 of the Protocol, allows a country with an emission-reduction or emission-limitation commitment under the Kyoto Protocol (Annex B Party) to implement an emission-reduction project in developing countries. Such projects can earn saleable Certified Emission Reductions (CER) credits, each equivalent to one tonne of CO₂, which can be counted towards meeting Kyoto targets.

The mechanism is seen by many as a trailblazer. It is the first global environmental investment and credit scheme of its kind and provides a standardized offset instrument.

A CDM project activity might involve, for example, a rural electrification project using solar panels or the installation of more energy-efficient boilers.

The mechanism stimulates sustainable development and emission reductions, while giving industrialized countries some flexibility as to how they meet their emission reduction or limitation targets.

However, a CDM project must provide emission reductions that are additional to what otherwise would have occurred. The projects must qualify through a rigorous, costly and public registration and issuance process. Approval is given by the Designated National Authorities. Public funding for CDM project activities must not result in the diversion of official development assistance.

Voluntary or Verified Emission Reductions - VERs

Both Voluntary and Verified apply to the emerging voluntary carbon credits/ offsets market outside of the Kyoto compliance regime. These credits are issued from reductions that have been generated by projects that are assessed and validated by objective third parties outside of the UN Framework Convention on Climate Change (UNFCCC).

Although still currently smaller than the compliance market, general professional opinion is that the potentially large returns in this market shall be through VERs due to the fact that the growth is led by the private sector as opposed to Government policy, thus leaving it likely to overtake the compliance marketplace.

Many countries and states - California prominent amongst them - are now accepting VER credits in place of CERs to be used to offset emissions.

Again, VERs will only be issued if it can be demonstrated that that the project has reduced emissions over and above what would otherwise have occurred and will also make a contribution to local sustainability. VERs are registered on the VCS register and can be traced from source.



Wind Energy

Wind power is a clean, renewable source of energy which produces NO GHG emissions or waste products. Power stations are the biggest contributor to carbon emissions and we need to switch to forms of energy that do not produce CO₂ emissions. Just one modern wind turbine results in a saving of over 2,000 tonnes of CO₂ emissions annually. The average wind farm will pay back the energy used in its manufacture within 3-5 months of operation and can be expected to last for 20 years.

A modern wind farm produces energy 70-85% of the time but its output varies according to wind speed. Over the course of a year, it will typically generate 30% of the theoretical maximum output. This is known as load factor. The load factor of conventional power stations is on average 50%.

The simple fact is that, as power stations are being shut down, both through old age and legislation, alternative energy is required and wind turbines produce sufficient power to fill this void in a clean planet-friendly way.

Wave and Tidal Power

Marine renewables have only just become commercially viable energy sources, Portugal was the first country to implement a successful project creating a 2.5MW wave farm off the coastline.

There are a number of different tidal systems used to generate electricity, such as:

- Tidal Impound
This works by using huge volumes of fast flowing water to drive turbines built into the barrage.
- Submerged Turbines
These operate using unchecked constant tidal flow much like a sunken wind turbine in mechanics.

Solar Power

This involves the conversion of sunlight into electricity, either directly using photovoltaic's (PV), or indirectly using concentrated solar power (CSP) to split water and create hydrogen fuel using techniques of artificial photosynthesis. CSP systems use lenses or mirrors and tracking systems to focus a large area of sunlight into a small beam. PV converts light into electricity using the photoelectric effect.

There are 14 types of PV cells such as film, monocrystalline, silicon, polycrystalline silicon and amorphous cells, as well as multiple types of concentrating solar power systems.

Recent studies have shown that the global PV market exceeded 16GW in 2010.

4000 Airlines will be forced to adhere to emissions targets or buy carbon credits to cover excess emissions

Source: General news 08/03/11

Biomass

Biomass is another renewable energy source and is biological material from living, or recently living organisms, such as wood, waste, (hydrogen) gas, and alcohol fuels. Biomass is commonly plant matter grown to generate electricity or produce heat. In this sense, living biomass can also be included as plants can also generate electricity while still alive.

The most conventional way in which biomass is used is still reliant upon direct incineration. Forest residues, for example yard clippings, wood chips and garbage. Biomass may also include biodegradable wastes that can be burnt as fuel, including organic materials as fossil fuels.

Biomass can be converted to useful energy in a number of ways:

- **Thermal Conversion:** These are processes in which heat is the dominant mechanism to convert the biomass into another chemical form. Some of the applications are combined heat and power (CHP). Typically, biomass power plant efficiencies run at around 25%
- **Chemical Conversion:** A range of chemical processes may be used to convert biomass into other forms so as to produce a fuel that is more conveniently used, transported or stored, or to exploit some property of the process itself.
- **Biochemical Conversion:** This process makes use of the enzymes of bacteria and other micro-organisms to break down biomass. Other chemical processes such as converting straight and waste vegetable oils into biodiesel are examples of transesterification. .

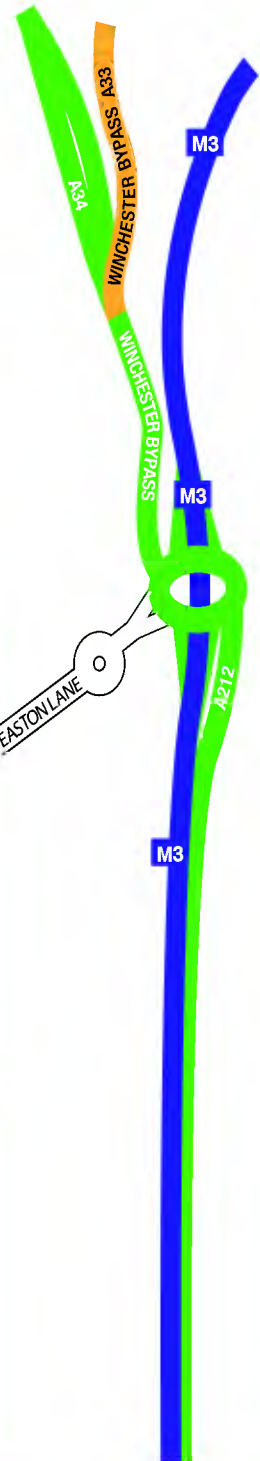
The existing biomass power generating industry in the United States alone produces about 1.4% of the US electricity supply and amounts to some 11,000 MW.

Head of the International Energy Agency expects carbon to rise to \$175 a tonne by 2050

Source: General news November 2010



Come visit us...



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