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Differences Between Voluntary Carbon Credits and CERs

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This article will attempt to distinguish between voluntary carbon markets, renewable energy credit (REC) systems in the United States, and certified emission reductions or CERs used for carbon trading under the Clean Development Mechanism of the Kyoto Protocol. There are distinct differences between the voluntary initiatives being developed in the United States, and the programs being implemented abroad, designed for conformance with the Kyoto Protocol. Greenhouse gas or carbon credits developed in the United States, cannot be traded, purchased, or sold abroad in the international market which operates under the Kyoto Protocol's specific requirements, such as, monitoring, verification, validation and certification.

Voluntary Programs in the United States

Although there is no national mandated carbon offset program in the United States, various state and regional programs are being developed for the voluntary reduction of greenhouse gases. There are several initiatives such as the Regional Greenhouse Gas Initiative (RGGI) being developed by nine north eastern states, or the recent California Global Warming Bill, and many other programs, such as, the Chicago Climate Exchange, and the California Climate Action Registry.

The Chicago Climate Exchange, is a member based exchange for voluntary GHG reductions, trading and registry for the United States. Carbon credits called Carbon Financial Instruments or CFIs, are registered under the Chicago Climate Exchange and traded amongst its registered member companies in the United States. Companies who fail to reduce their own emissions, can purchase credits from those who make extra emission cuts, or from verified offset projects. As of July 2006, more than 11.6 million metric tons were traded at prices between \$2.00-5.00 per metric ton.

The California Climate Action Registry is a voluntary program to help companies and organizations in California to register an inventory of their greenhouse gas (GHG) emissions. The purpose of the Registry is to establish GHG emission baselines against which any future GHG emission reduction requirements may be applied.

The Regional Greenhouse Gas Initiative, or RGGI, is a cooperative effort by Northeastern and Mid-Atlantic states to develop a regional strategy for reducing carbon dioxide emissions by using a multi-state “cap-and-trade program” with a market-based “emissions trading system.”

The Climate Trust was organized in 1997 in response to State of Oregon Legislation that required new power plants built in Oregon to offset part of their emissions of carbon dioxide (CO2). The Oregon Standard allows power plants to comply by paying mitigation funds to a non-profit organization such as the Climate Trust. In turn, the Climate Trust uses these funds to purchase greenhouse gas offsets that are generated by projects that avoid, sequester, or displace carbon dioxide on behalf of the power plant owners.

Verified Emission Reductions

Outside of Kyoto compliant mechanisms, other actions taken to reduce greenhouse gas emissions are being verified and traded in the global over-the-counter market for greenhouse gas emissions. These are categorized as Non-Kyoto Compliant Reductions. Some companies are trading emission reductions in other markets, since they fail to meet all the requirements or obligations under Kyoto for certification, such as, non-compliant with “additionality” or “leakage.” These so-called "verified emission reductions" (VERs) are not a standardized commodity. While they may eventually become CERs or ERUs, many of these reductions have no secondary market benefits outside of their embedded "green image value" or speculative value. Buyers therefore tend to pay a discounted price for VERs, which takes the inherent regulatory risks into account.

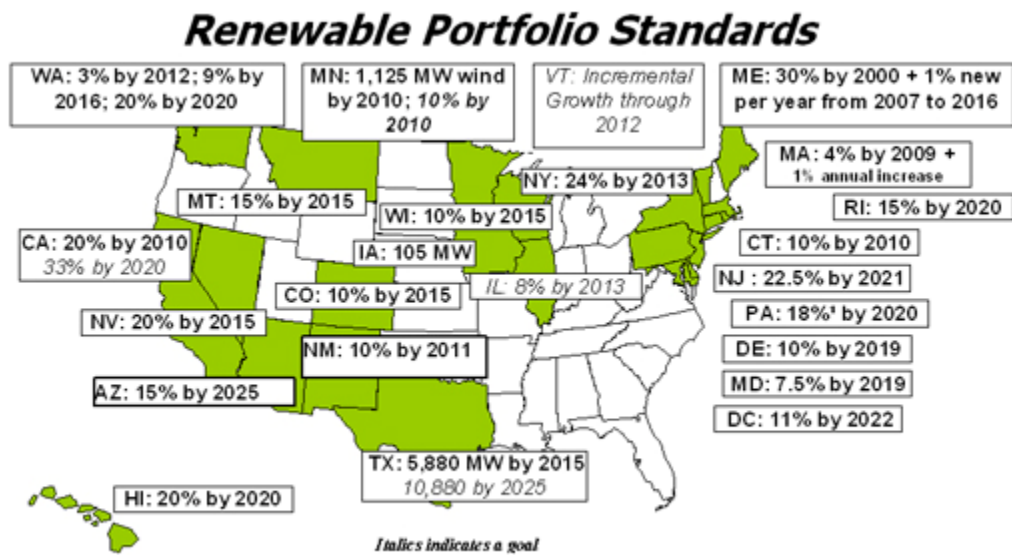
Price of Carbon: WRI Report

Commodity	Market	Currency	Prices (\$/tonne)
Allowance	EU ETS	EUA	\$15 -18
	Chicago Climate Exchange	CFI	\$2-4
	RGGI	tbd	\$2-4
Credit	CDM	CER	\$3-12
	JI	ERU	\$3-12
	Voluntary	VER	\$1-3

Renewable Energy Credits

Generally U.S. companies developing renewable energy projects may be able to set-up and obtain Renewable Energy Credits (RECs), which is the prevalent offset crediting mechanism in many states. RECs are required by many states in the United States, who have developed and mandated Renewable Energy Portfolio Standards (RPS). Renewable

Portfolio Standards require that certain percentage of a utilities overall, or new generating capacity, or energy sales must be derived from renewable resources. RECs are tradable units that represent the commodity formed by the environmental attributes of a unit of renewable energy from the underlying electricity. Under most programs, one REC would be equivalent to the environmental attributes of one MWh (Mega Watt Hour) of electricity from a renewable generation source. Most of the states in the United States have adopted some sort of Renewable Portfolio Standard or a Carbon amendment, while others have legislated stricter RPS requiring higher amounts of RECs from fossil burning electric utilities. Generally states or electric utilities issue “Request for Proposals” to meet their RPS commitment. RECs do not have a certification process like CERs or have any national standards. States in the US that have developed RPS define what are considered eligible attributes. However, there have been policy differences in RPS by state or region, such as who owns the RECs. The average price of RECs is \$1 to \$3 for voluntary and mandatory RPS respectively.



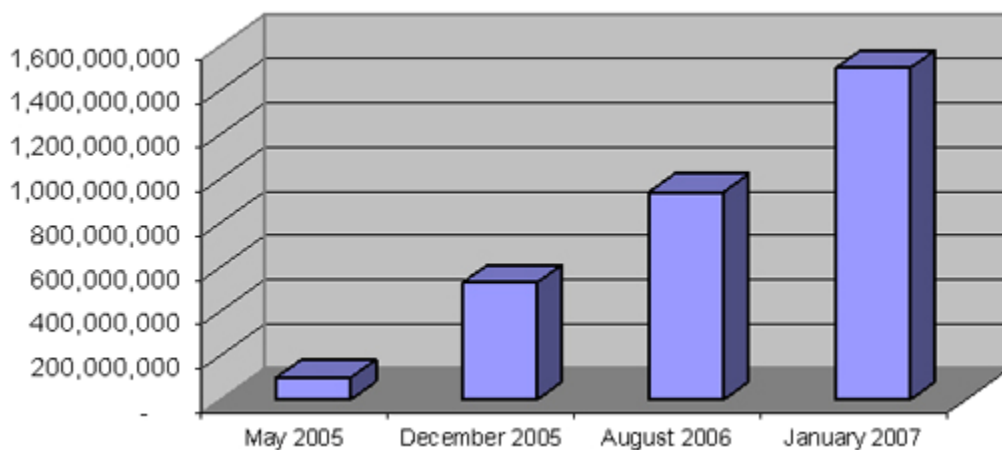
Kyoto Protocol and Clean Development Mechanism

In contrast to RECs, the system for carbon credits called Certified Emission Reductions (CERs) is distinctly different, with well established procedures under the Kyoto Protocol. However, U.S. companies or investors can trade CERs, or invest in projects that develop these marketable carbon credits or offsets. The Kyoto Protocol requires industrialized countries which signed the Protocol, called Annex B countries, to achieve certain greenhouse gas (GHG) emission reduction targets during the first commitment period, 2008 to 2012. The Kyoto Protocol established the Clean Development Mechanism (CDM) under the auspices of the United Nations Framework Convention on Climate Change (UNFCCC) in December 1997. CDM was established to facilitate the implementation of greenhouse gas (GHG) emission reduction projects, and lower the cost for emission reductions for industrialized countries, while at the same time assisting developing countries in achieving technology transfer and sustainable development.

CDM allows a wide range of GHG reduction projects including energy efficiency, fuel switching, forestation, transportation, and renewable energy such as wind, solar, hydro, geothermal and waste biogas. The development and operation of qualified CDM projects produces Certified Emissions Reductions (CERs) for the actual amount of GHG reduction achieved in the host developing country. CERs can provide significant financial benefits for CDM project development and investment.

CERs Certification Process

Here is a brief summary of steps involved in the certification process for CERs in a developing country. An application for national approval of the project needs to be prepared and submitted to the Designated National Authority (DNA), an agency identified by the CDM Kyoto Protocol process in the host country. The DNA ensures that the project complies with national sustainable development criteria and local environmental requirements. The Project Design Document (PDD) is prepared and submitted to the Designated Operational Entities (DOE), a third party verification and validation company accredited by the UNFCCC. The PDD is developed using a specific format recommended by the CDM Executive Board, which includes a detailed description of the project, GHG emission reductions, baseline methodology, crediting period, monitoring methodology, environmental impacts, and stakeholder comments. Validation of a project is then carried out by the DOE. This could be done in parallel with the assessment by the host country DNA. Once the CDM Executive Board completes the review and registers the project, it can start operations and accumulate GHG reductions as CERs. After the project is operational, all activities and data documented during the monitoring stage are used for the subsequent verification and issuance of CERs. Data quality audits and performance reviews need to be conducted. DOE verifies and certifies the emissions reductions on an annual or biennial basis. Once the GHG reductions are verified and certified, CERs are issued by the Executive Board.



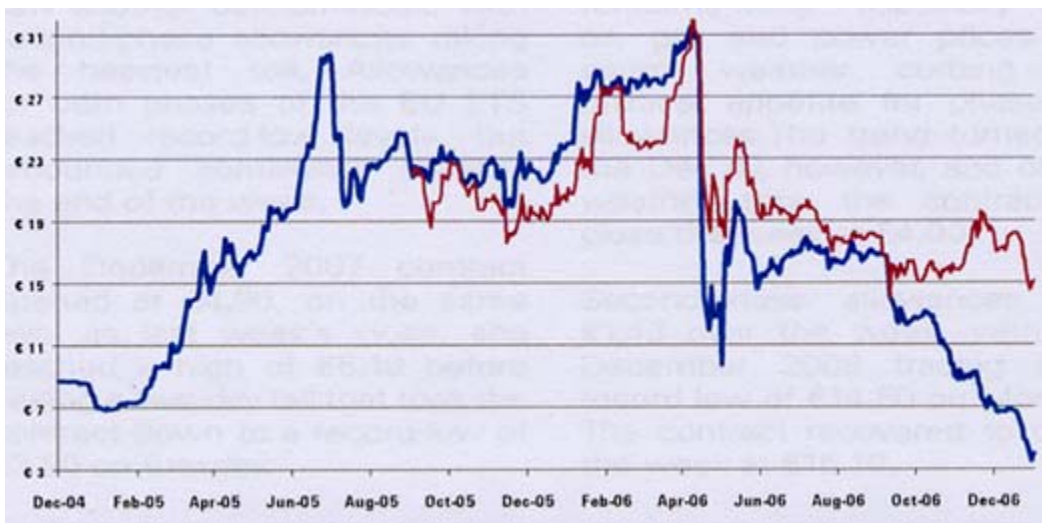
Expected CERs by 2012

Presentation by James Grabert, UNFCCC Secretariat,
At EUEC 2007: Electric Utilities Environmental Conference - January 22, 2007, Tucson,
Arizona, USA.

Conclusion

Carbon Credits as Certified Emission Reductions obtained from CDM projects in developing countries are bought, sold and traded by companies, governments, carbon funds and others in industrialized countries needing the credits to meet their Kyoto Protocol commitments. Renewable energy projects not only provide a funding mechanism through CERs for cost effective GHG reductions, and marketable carbon credits, but also provide technology transfer to developing countries, and reduce their dependence on foreign oil imports.

In the first nine months of 2006, the carbon market grew to nearly \$22 billion, more than doubling in value of \$11 billion recorded in 2005. The EU allowance prices peaked in April 2006 at 31 Euros for the over the counter market and then crashed with a current downward trend now at an all time low of 3 Euros in January 2007.



EU Allowance Prices for January 2007 - OTC Market 3 Euros

Presentation by Trygve Røed-Larsen, dr philos, Det Norske Veritas

At EUEC 2007: Electric Utilities Environmental Conference - January 22, 2007, Tucson, Arizona,



About Prabhu Dayal, Ph.D.

Dr. Prabhu Dayal, is founder and president of C TRADE, an international renewable energy development company, headquartered in Tucson, Arizona, USA since 1998. C TRADE is currently developing several projects to be qualified and certified as CERs. C TRADE Philippines, designs, develops and installs anaerobic biogas digesters for methane gas production recovered from pig and poultry manure, and then used for electric power generation at several large farms. Visit C TRADE at www.ctrade.org.

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