

# How to develop voluntary carbon market projects

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## *VER Concept*

Voluntary Emission Reduction (VER) is a type of carbon offset exchanged in the voluntary or 'Over-the-Counter' (OTC) market for carbon credits. It's usually created by projects which have been verified outside of the Kyoto Protocol.

1 VER = 1 tonne of CO<sub>2</sub>e emissions.

VERs may be developed and calculated in compliance with one of several VER standards. These set out rules defining how emission reductions are measured. At a minimum, all VERs should be verified by an independent third-party.

## *Why entity or individual buy VER*

- ◆ Entity and individuals voluntarily compensate for their emissions or provide an additional contribution to mitigating climate change.
- ◆ Benefits of purchasing VER
  - Carbon neutral or less carbon emission activity
  - Contribution to environment
  - Social responsibility
  - Reputation
  - Awareness for environment and sustainable development
  - Preparation for future emission reduction regulation
  - Contribution for poverty reduction

## *VER Buyers*

The VER buyer mainly contains industry company, governments, NGOs/organizations and individuals:

- ◆ Industry company
  - Green office
  - China Paper Industry company purchase VER from hydro power project to realize carbon neutral
- ◆ Governments
  - Some Governments invest to offset the GHG emissions in the big events;.
- ◆ NGOs/organizations
  - FIFA - 2010 World Cup
- ◆ Individuals

- Carbon neutral travel- air flight
- Pacific Gas & Electric Co gives customers the option to pay extra to offset their electricity emissions

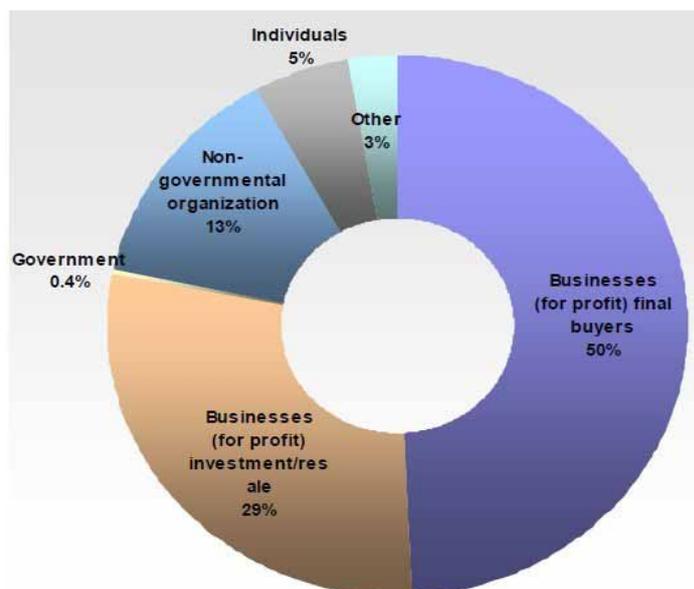
## *VER Buyers' transaction volume*

In 2007, NGOs stepped up demand from 2% to 13% of credits transacted. This increase in demand matches NGO's desires to "walk the talk" by offsetting emissions from airline travel, electricity use, and other activities. Alternatively, the decreased demand from governments (from 12% to 0.4%) is somewhat perplexing, as it is known that numerous government agencies began their offset purchases in 2007.

In 2007 individuals purchased 5% of credits on the OTC market. While their market share may be small, the number of credits purchased by individuals equals a relatively large number of transactions. This is because the credit size of individual purchases tends to be relatively small. For example, one retailer described his organization's average sale as around 10tCO<sub>2</sub>e. An individual offsetting a round-trip flight between London and New York City would purchase roughly offsets equal to 3tCO<sub>2</sub>e.

The relatively large number and diverse range of buyers in OTC market compares to the regulated markets, or even the CCX(The Chicago Climate Exchange), is a unique and intriguing attribute of this market. This diverse demand represents thousands of entities seeking to voluntarily mitigate their personal, organizational, event, and other GHG emissions.

Companies are also increasing starting to offer carbon offsets to individual customers bundled with other goods, or as an incentive to purchase goods from a specific supplier.



Source: New Carbon Finance, Ecosystem Marketplace

## *Benefit for selling VER*

The project participant could benefit from selling VER:

- ◆ Receive additional revenue from carbon reduction by the project, and create a more attractive investment return;
- ◆ Participant carbon emission reduction activity;
- ◆ Be familiar with international procedure of carbon emission measurement and assessment;
- ◆ Practice international management standard

## *Technologies for the VER project*

Eligible technology in the voluntary market, such as :

- ◆ Afforestation and reforestation
- ◆ Renewable energy: Wind, Hydropower, Solar Power, etc.
- ◆ Biomass electricity generation
- ◆ Animal and agricultural methane destruction
- ◆ Landfill gas capture and utilisation
- ◆ Coal mine methane utilisation
- ◆ Industrial gases and industrial energy efficiency

The different technology has big impact on VER transaction price.

## *VER project source*

VERs are derived from project-based emissions reductions:

- ◆ Pre-registration CDM project: project already operate but have not registered as CDM
- ◆ Project purely developed based on VER standard: VCS, GS etc.
- ◆ Small-scale, community-driven projects

The CDM projects which have already been operational for a period of time, but due to e.g. political uncertainty, changes in CDM-level or host country regulations, have not yet been registered with the CDM Executive Board. As the crediting period for CERs may only commence after successful registration, projects which have been operational prior to this do not have the opportunity to commercialise their emissions reductions, despite real and verifiable reductions. These may, however, be sold in the voluntary market. There is also a "special situations", refer to technologies or methodologies for emissions reductions which have not yet been approved in the compliance regime, typically in the sectors of land use change and forestry, carbon capture storage, transport including biofuels.

In addition, there is a variety of small-scale, community-driven projects which simply have insufficient resources to satisfy the strict requirements and specialised consultancy services required for the CDM project cycle. These projects thus opt for the lower cost option of VERs.

## *VER project development steps*

- ◆ Select suitable VER project technology
- ◆ Select VER standard
- ◆ Check VER requirement
- ◆ Develop VER project on the standard
- ◆ Transaction and deal VER

## *Main Voluntary carbon offset standards*

### **American Carbon Registry (ACR) Standards**

The American Carbon Registry (ACR) is a non-profit enterprise of Winrock International, founded in 1996 as the GHG Registry by the Environmental Defense Fund and Environmental Resources Trust. It currently has three published standards, ACR Standard v2.1, Forest Carbon Project Standard v2.1 and Livestock Waste Management Standard v1.0, and numerous methodologies published and under development. ACR also accepts offsets verified to its own standards that use Clean Development Mechanism (CDM) methodologies and other (select) ACR-approved methodologies from the VCS and Climate Leaders programs. While serving primarily as a voluntary and US pre-compliance offsets registry, ACR also functions as a voluntary emissions-reporting registry.

### **Chicago Climate Exchange (CCX) Offsets Program**

The Chicago Climate Exchange (CCX) operated a voluntary and legally binding cap-and-trade program with an offsets component from 2003 through 2010. The CCX cap-and-trade program formally concluded as scheduled in December 2010 with all verification and compliance activities to be complete by the fall of 2011. In 2011, the CCX launched the distinct Chicago Climate Exchange Offsets Registry Program for voluntary emission reductions (VERs) that is set to run for 2011 and 2012. Although the CCX has its own set of protocols for offset projects, projects that vary from or do not meet a specific protocol (such as CDM projects) may be approved on a case-by-case basis by a standing committee of industry experts. The CCX will maintain a registry for offsets based on the existing registry.

### **The Gold Standard for VERs**

The Gold Standard is a certification standard managed by a non-profit foundation based in Geneva that certifies renewable energy and energy efficiency carbon offset projects in both the compliance and voluntary markets. All projects must demonstrate real and permanent GHG reductions and sustainable development benefits that are measured, reported and verified. The Gold Standard was conceived in 2001 and established in 2003 by WWF and other non-governmental organizations (NGOs). The Gold Standard is now supported and endorsed by 70 NGOs worldwide. It maintains a registry specifically for Gold Standard VERs (managed by NYSE Blue) and a project database for Gold Standard-verified CDM and Joint Implementation (JI) credits.

### **The Verified Carbon Standard (VCS)**

The VCS was first launched as the Voluntary Carbon Standard in November 2007 by The Climate Group, the International Emissions Trading Association, the World Economic Forum and the WBCSD to bring standardization to the voluntary offset market. The current version

of the standard is VCS Version 3, released in March of 2011. VCS projects can use methodologies approved under the CDM and the Reserve, as well as VCS methodologies approved through the VCS methodology approval process. The VCS infrastructure includes a Project Database that provides public access to information on validated projects and Verified Carbon Units (VCUs) and three approved VCS registries: Markit, Caisse des Dépôts and NYSE Blue.

### The Panda Standard

The Panda Standard is the first standard tailored to the Chinese market and focused on agriculture, forestry and other land use (AFOLU). Founded by The China Beijing Environment Exchange (CBEEEX) and BlueNext, and co-founded by the China Forestry Exchange and Winrock, the Standard requires that all projects must be located within the People’s Republic of China. Aimed at developing China’s market readiness and providing an investment vehicle to early domestic movers, the Panda Standard selected two pilot projects in order to inform its development with field inputs and domestic data collection. At the 16th Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) in Cancun, the Panda Standard partners released its draft AFOLU specifications.

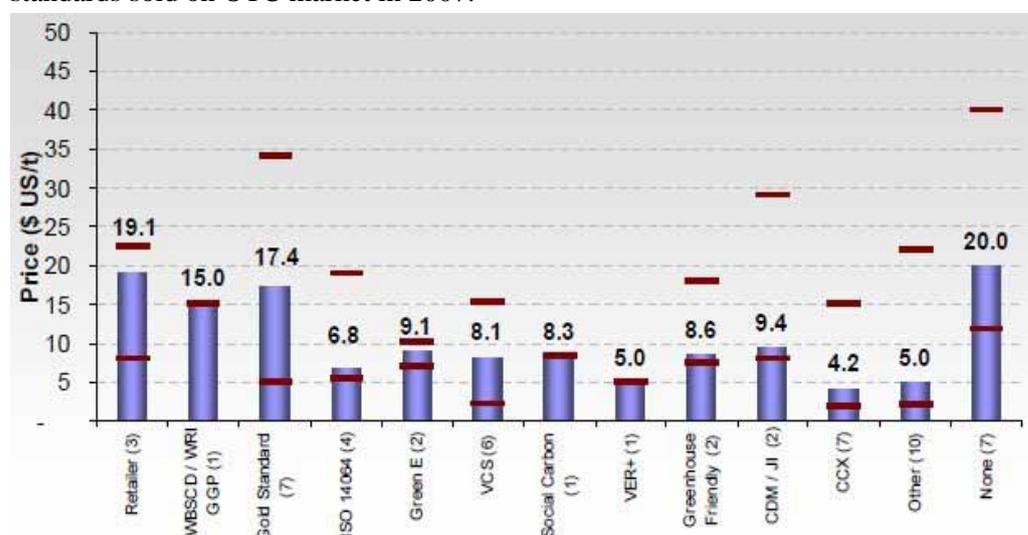
## How to choose VER standard

These standards for voluntary carbon offset have their own baseline assessment, additionality assessment, verification, issuance method and registration system. When choose the methodology, we should consider the following tips:

- ◆ Develop purpose and the buyer’s demand, for example:
- ◆ Transaction in Chicago Climate Exchange, choose the CCX standard
- ◆ Transaction in Europe Market, choose the GS, VCS standard

## Transaction price on different standards

The price premium of various standards is a critical question for many suppliers in the marketplace. The following figure shows the price ranges of credits verified to the various standards sold on OTC market in 2007.



## *Key issues for transaction price*

The VER transaction price depend on the Supply and Demand in the market, VER standard, VER project technology, VER hosting country, Transaction volume, Transaction vintage, Transaction mode

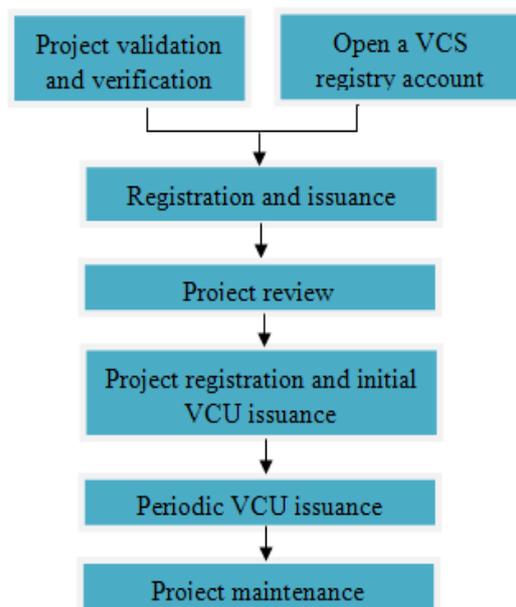
## *VER project general requirement*

The VER buyer pays attention on the following issues:

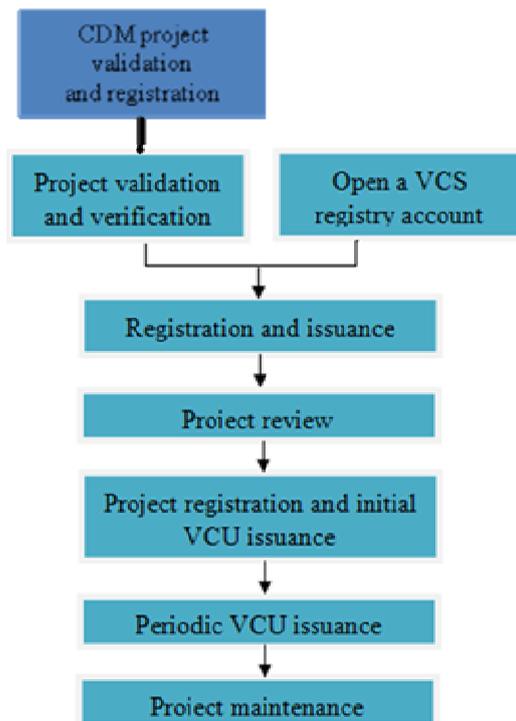
- ◆ Environmental sound technology
- ◆ Positively impact on the economy, health and welfare of the local community hosting the project
- ◆ Contribution to sustainable development
- ◆ Meets relevant requirements by selected specific standards

## *VER project development procedure*

The VER project development procedure is similar to CDM project development procedure, but shall follow the specific standard. Following is the example of pure VCS project development procedure:



The Pre- CDM VER development procedure:

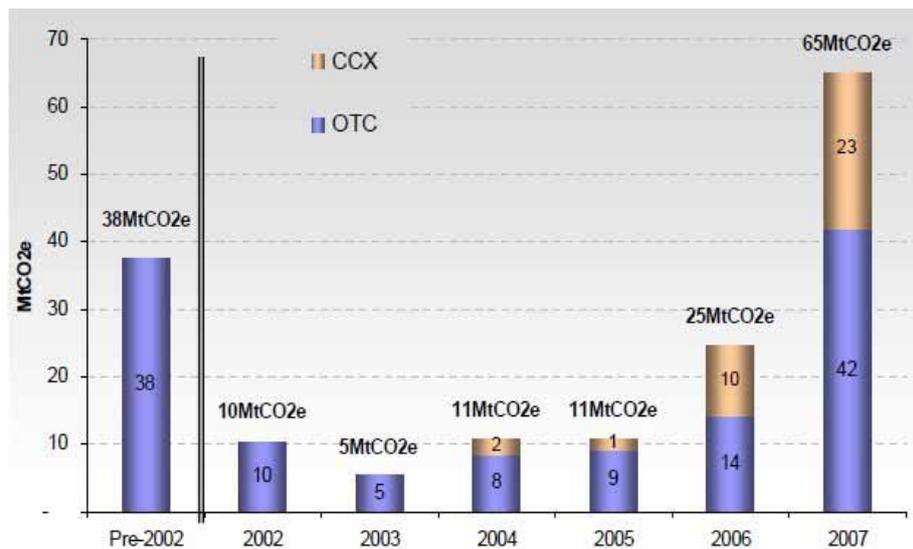


### *Transaction mode*

The voluntary carbon offsets could be transacted through Over-the counter(OTC) market, Voluntary market exchanges and platforms. It also could be transacted through the legally binding platform-CCX(Chicago Climate Exchange) which closed in 2010.

### *Transaction volume of different mode*

There is a total volume of 65.1MtCO<sub>2</sub>e transacted in the voluntary carbon markets in 2007. About a third of this volume, 22.9MtCO<sub>2</sub>e, was exchanged on the CCX. A confirmed 42.1 MtCO<sub>2</sub>e were transacted in the OTC market. As illustrated in the following figure, the voluntary carbon markets transaction volume increased 165% in 2007. This growth is led by a doubling of volume on the CCX and more than tripling on the OTC market.



Source: *New Carbon Finance, Ecosystem Marketplace*

## Transaction Platforms

### Carbon Trade Exchange (CTX)

The CTX is the world's first online electronic platform for spot trading VERs. Bid and offer information is made available and trades are cleared instantaneously. In addition, the exchange offers complete project information for all member participants via the Markit registry account that's tied to their CTX membership. CTX and Markit launched this link between the registry and platform in March 2010. Late last year, CTX signed agreements with the Gold Standard and ACR to offer the third-party standards' credits to exchange members. In spring 2011, CTX formally launched an interface with Westpac bank as the first bank partner to support transactions end-to-end.

### China Beijing Environmental Exchange (CBEEEX)

CBEEEX was launched in August 2008, sponsored by China Beijing Equity Exchange, the New Energy Investment Ltd. of China National Offshore Oil Corp., China Guodian Corp., and China Everbright Investment Management Corp. CBEEEX offers its members – who include domestic and international entities – services including legal consulting, auctioning and Internet bidding. CBEEEX accommodates trading of most international VERs, including VCS, Gold Standard and Panda Standard credits.

### Tianjin Climate Exchange (TCX)

In September 2008, the Tianjin Climate Exchange (TCX) formally launched as a joint venture between China National Petroleum Corporation Assets Management, the Tianjin Property Rights Exchange and the Chicago Climate Exchange (now ICE). TCX was created to service Tianjin Binhai New Area's local energy intensity scheme – the Tianjin Energy Efficiency Market – and hosts GHG and other major pollutant credits on its exchange. The exchange's voluntary credit initiatives focus on VER trades and comprehensive carbon neutral services for any entity complying with national regulations and policies.

### **Climex**

Launched in 2003 as an emissions-trading auction platform, Climex entered the market in October 2007 as the first platform to execute VER auctions. In 2008, Climex hosted the first exchange-traded transaction of Gold Standard credits, and was the first exchange to integrate registry transfers into VER auctions. In April 2009 it was also the first exchange to offer a “reverse auction” for VERs. In May 2011, Climex announced that it would continue to accommodate VER auctions, even as it shut the doors on its spot trading services.

### **Montréal Climate Exchange (MCeX)**

The Montréal Climate Exchange (MCeX) is a joint venture between the Montréal Exchange and ICE, created in 2006 to provide an electronic trading platform for companies to trade emissions offsets and help industry meet their own reduction targets. Futures contracts on Canadian CO<sub>2</sub>e units were first listed on the Exchange in May 2008. A federally mandated emissions trading program that would utilize these contracts – for which the initial compliance year was expected to be 2010 – has not yet been approved.

### **World Green Exchange**

The World Green Exchange, launched in 2008, provides the platform for RGGI auctions and has partnered with Gold Standard, Markit, SOCIALCARBON Standard and the CSA. In early 2009, World Green Exchange re-branded itself as a “shopping mall” for carbon credits that provides a detailed view of all available projects searchable by over ten criteria. Last year, World Green Exchange was tapped for an exclusive agreement with a Brazilian market maker to sell over 15 MtCO<sub>2</sub>e reducing emissions from deforestation and degradation (REDD) credits certified by the BMV Standard.

### **Markit Registration**

A global online registry that helps provide transparency and credibility to environmental markets ensuring provenance and singularity of carbon, water and other biodiversity credits, certificates and units.

### **Africa Carbon Credit Exchange (ACCE)**

The Africa Carbon Credit Exchange (ACCE) is an African-owned and -managed marketplace established in 2009 by Lloyds Financials Limited to help enable Africa’s participation in the global carbon markets. Products and services include the Trading Platform; the Green Knowledge Institute for building of technical and financial expertise; and the Low Carbon Africa Fund Portfolio that provides financing and technical expertise to jump-start low-carbon projects with offset potential. Currently the Exchange is working with brokers in Uganda, Rwanda, Kenya, Togo, Senegal and Zambia to establish a pan-African network that will develop a steady supply of credits for the trading platform.

### **The Africa Carbon Exchange (ACX)**

The Africa Carbon Exchange (ACX) is the newest African-owned and –managed marketplace for environmental commodities and derivatives, soft launched in March 2011. Based in

Nairobi, the exchange aims to further unlock Africa's potential for carbon market participation and provide a one-stop-shop for emission reduction or sequestration projects. The ACX trading system includes the ACX Registry, the ACX Trading Platform and the Clearing and Settlement Platform. Although the exchange is still testing its wings, trading is expected to begin before long.

#### **Caribbean Basin Climate Exchange (CBCX)**

The Caribbean Basin Climate Exchange (CBCX) is a platform launched by the Dominican Institute for Integral Development (IDDI) to encourage carbon market participation in the Dominican Republic (both CDM and voluntary). CBCX services include project identification, project development, training, consulting, carbon credit generation and issuance. It aims to identify opportunities and stimulate investment in renewable energy projects and other clean technologies with the potential to reduce GHG emissions.

#### **The Green Exchange (GreenX)**

The Green Exchange (GreenX) is a consortium of banks, brokers, trading firms, and exchanges approved by the US Commodity Futures Trading Commission as a designated contract market in July 2010. The GreenX environmental marketplace provides electronic trading and clearing of commodity-based futures and options contracts through CME Clearing. In February 2010, GreenX added Reserve futures and options contracts to its list of environmental contracts that are currently listed for trading, alongside EUAs, CERs, Regional Greenhouse Initiative (RGGI) allowances, NO<sub>x</sub> and SO<sub>2</sub> futures and options emissions allowances. In 2011, GreenX is one of several infrastructure providers currently developing exchange contracts for ARB-approved offsets under the Reserve.

#### **The Santiago Climate Exchange (SCX)**

The Santiago Climate Exchange (SCX) was formally launched in April 2011, in cooperation with Latin American financial services group Celfin Capital, *Fundación Chile* (a nonprofit foundation launched more than 30 years ago by the Chilean government and technology giant ITT) and 10 other partners from the private sector. SCX will list projects that conform to a number of internationally recognized voluntary standards as well as offsets recognized under the Kyoto Protocol's CDM. Offsets listed on the exchange will also come from all sectors. In May 2011, *Fundación Chile and the VCS announced their partnership to develop local carbon markets expertise and SCX hopes to launch trading in summer 2011.*

### ***Voluntary market projects vs. CDM market***

	<b>Voluntary</b>	<b>CDM</b>
Commodity	VER	CER
Price	Lower	Higher
Coverage	Voluntary / worldwide	Annex 1 countries
Market size	Smaller	Larger
Regulation	Follow the different standards	UNFCCC EB
Methodologies	CDM and others standards	Approved by EB

### *Advantages for VER project development*

- ◆ Less bureaucratic and more efficient
- ◆ Less costly
- ◆ New sectors not covered by CDM
- ◆ New technologies not covered by CDM
- ◆ Better contribution impact on sustainable development
- ◆ Feasibility of forestry projects
- ◆ Relative simple procedure to generate credits

### *Challenges for VER project development*

- ◆ Unstable market demand
- ◆ Small market
- ◆ Lower VER price
- ◆ Quality: certainty of additionality
- ◆ Transparency
- ◆ Number of standards
- ◆ Volume of VER project
- ◆ Relative high transaction price against revenue for small scale VER project