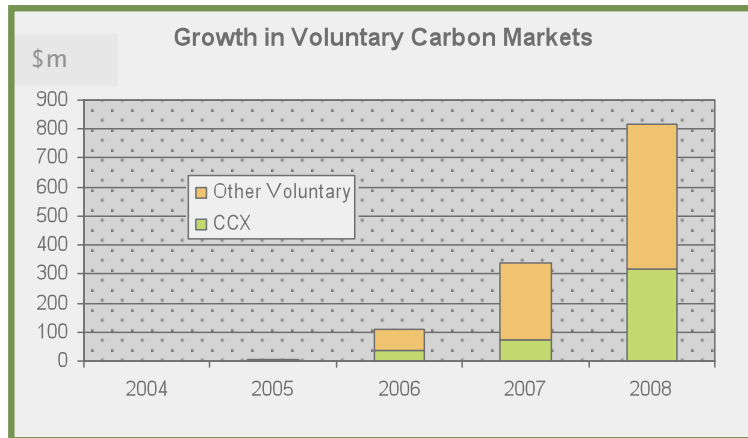




Voluntary Carbon Markets

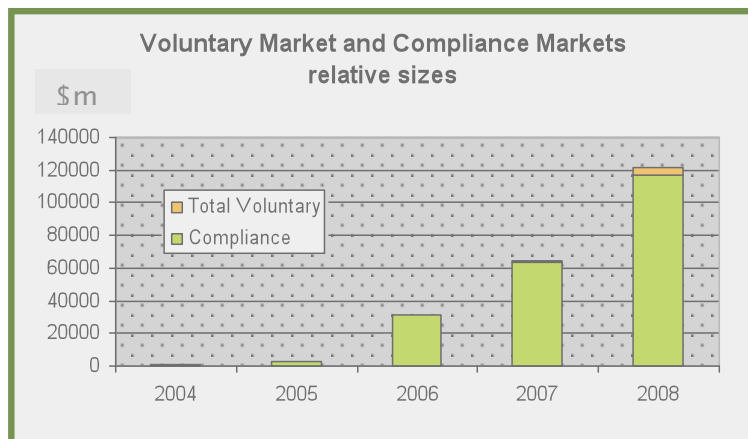
1. Size and growth path

They are small but growing....



Voluntary markets have grown at >200% growth rates since their inception in 2005. Growth in 2009 is expected to moderate substantially.

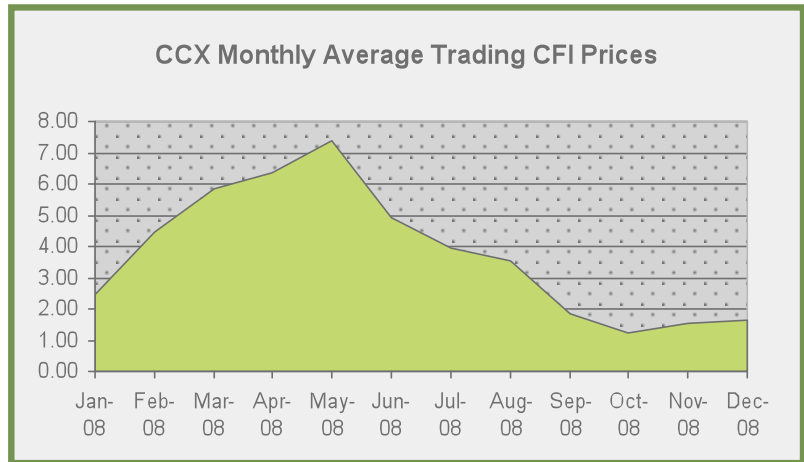
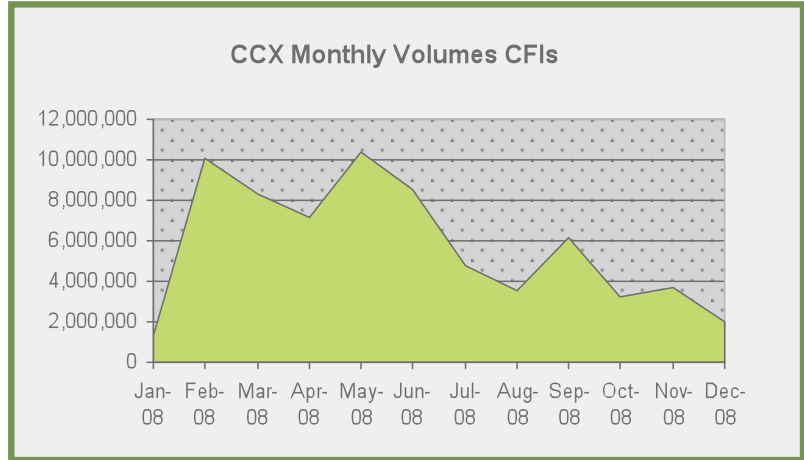
But very small compared to the compliance markets....



In 2008, the voluntary markets accounted for less than 1% of the Compliance Markets. EUETS accounted for 98% of the compliance Market.



Both prices and volumes on the CCX have followed the general state of the economy.....



- Points to note**
- Volumes and prices fell from the first half to the second half of 2008
 - The spike in volume in September led to almost 50% drop in price as positions were unwound around the peak of the financial crisis
 - The prices improved from November onwards (a trend that continued into January 2009). See commentary below

2. What are the reasons for voluntary markets?

Three reasons -

- There is a market at both the corporate, governmental and individual level for carbon offsets. These credits are bought for a mixture of image and personal reasons.
- No compliance markets in the Geographical Area
In the absence of a US compliance market, a number of standards have emerged to enable CO2 reduction projects to become economically viable through the resultant credit income stream
- They go further than Compliance Standards
In its purest form, an offset project provides additional, verifiable, permanent and



non-reversible CO2 reductions. Period. Some standards go further and include other elements such as sustainability and positive social attributes.

3. Why so many standards?

- Evolution. Market demand led to the creation of carbon offsets. Over time, buyers and sellers learned more and realized the need for standards to reinforce the quality message. Recognized standards add to the value of the credits.
- Geography. Some standards emerged over a restricted geographical area. The standards bodies felt that other standards did not meet their requirements.
- Technologies. Some standards are limited in the scope of offset technologies covered.
- Going beyond pure Carbon Reductions. Providing verifiable social benefits such as job creation, education, and technological transfer within the standard.
- I can do better. The debate over the quality of carbon credits is a long way from complete. With increasing public scrutiny and lessons learned from experience, we can expect to see both refinements to existing standards and more new standards evolve.

4. Scope and Applicability of Standards

Standard	Supporters	Registry	Size (Note 1)	Geography	Methodologies	3rd Party Verification	Scope						Market Price Range (Note 2)
							Ind. Gas	Forestation Land use	Renewables	Methane Capture	Energy Efficiency	Fuel switch	
Chicago Climate Exchange (CCX)	Climate Change Plc	Exchange	4	Global	Own	Yes	Yes	Yes	Yes	Yes	+	-	1
California Climate Action Registry (CCAR)	State of California	Yes	2	US	Own	Yes		Yes		Yes			3
Voluntary Carbon Standard (VCS)	IETA	Expected Q1 2009	3	Global	CDM and CCAR	Yes	Excl. new HFC	Yes	Yes	Yes	Yes	Yes	2
Gold Standard **	WWF, SSN	Yes	2	Global	CDM	Yes			Yes		Yes		4
VER+ **	TUV Sud	Yes	3	Global	CDM	Yes	Yes	Yes	Yes	Yes	Yes	Yes	2
Voluntary Offset Standard (VOS)	Financial Industry	No. Exact status of Standard unclear		Global	CDM	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Unclear
Climate, Community and Biodiversity Standard (CCBS) **	Climate, Community and Biodiversity Alliance (CCBA)	No	1	Global	Own	Yes		Yes					4
Plan Vivo **	Bio climate Research and Development	No	1	Developing Countries	Own	No		Yes					4
Carbon Fix **	German Non Profit. Accredited under UNFCCC	Yes	1	Developing Countries	Own			Yes					4



Note 1. The size of each standard is an assessment of the amount of offsets issued each year under the standard. 4=Largest, 1=Smallest.

Note 2. Market Price Range. Carbon prices over the last 12 months have been volatile, however a clear price hierarchy has emerged.

- Market Price Range 1 Lowest
- Market Price Range 4 Highest

* The CCX can accept these projects on a case by case basis.

** These Standards go further than measuring the Carbon offsets. They all have additional co-benefits such as excluding projects with high chances of adverse impacts (Large hydroelectric power proposals that could involve displacing communities), or the projects must include an element of sustainability and or community enrichment.

5. What they are worth?

Chicago Climate Exchange (CCX).

The CCX is unique in two ways –

1. It has its own exchange where its own brand credits (CFIs) can be bought and sold. This gives excellent liquidity and price transparency. Its website shows daily prices and volumes for all vintages 2003 to 2010. Total volumes of transactions in 2008 varied from a low of 1.4m in January to a high of 10.3m TCO₂e in May. No other voluntary carbon standard has transactions volumes at this level. Total 2008 volumes were almost 70m TCO₂e. This accounted for approximately 50% of all voluntary carbon market transactions during the year.
2. It has its own voluntary compliance system. Effectively companies enroll in a voluntary cap and trade system. They voluntarily set up annual caps and either buy or sell CFIs to meet this cap. This effectively generates another market. Large organizations such as Ford, Dow, Dupont, Motorola have signed up over the last couple of years.

Prices during 2008 varied from \$1.00 to over \$7. Prices above \$6 lasted for three months and can be explained by the expectation of carbon friendly Presidential Candidates (McCain and Obama) after Super Tuesday. The end of the Lieberman Warner Boxer Climate Bill on Capital Hill in early June made the CFI price fall to more representative levels.

California Climate Action Reserve, Gold Standard, Voluntary Carbon Standard, VER+

These credits are bought and sold in over the counter trades, either through large transactions between Corporations and the project developers, or Retailers buying credits for subsequent resale. No exchange currently trades these credits. These credits achieve premium prices for a number of reasons:



- A perception for high quality credits (All)
- A strong market within California for Californian sourced Credits (CCAR)
- Strong formal and informal links to potential upcoming compliance regimes such as the Western Climate Initiative. This adds to the quality perception. (CCAR)
- Including other co benefits such as “Does not Harm” and excluding projects with potential adverse (non CO2e) impacts (Gold Standard, VER+)
- Some commendably well oiled PR machines

Prior to the Lehman Bankruptcy in September 2008 these credits were trading in the following ranges per TCO2e

- CCAR \$10 to \$12
- Gold Standard. \$12 to \$15
- VCS \$6 to \$8
- VER+ \$6 to \$8

Discussions with Brokers indicate that currently prices are trading at a 30% to 50% discount to the above prices.

CCBS, Plan Vivo, Carbon Fix

These forestation and land use projects are very specialized. Credits can be bought on line through their websites or through some brokerages. Overall volumes are very small compared to the other Standards listed above.

Reference 1 indicated these standards were expecting prices of credits in 2009 to be in the \$14 to \$30 range. It is reasonable to assume that these niche projects will command a premium price, but they are expected to be adversely affected by the difficult economy in the same way as other credits discussed.

CERS have been trading from 11 to 25 Euros over the same time period.

7. Prediction for the future

To predict what is likely to occur in the voluntary markets in 2009, it is necessary to understand a little more about both the supply and demand side.

Demand Side

Demand for voluntary market credits (2007 data) was as follows:

- Corporations - 78%
- NGOs - 13%
- Individuals - 13%
- Government - 1%



In recent years there have been a number of high profile corporations who committed to carbon neutrality. These companies have included large banks (HSBC, Barclays UK), consumer products (Nike, Marks and Spencer), and internet companies (Yahoo and Google). Since the turmoil in financial markets started in the fall of 2008 we have been unable to find any large corporation that has made the carbon neutrality commitment. It seems reasonable to assume there will be few in any new corporations willing to make such new commitments in 2009. Some of the companies who have already made the commitment did so with a start date in the future. Assuming these corporations are still in sound financial shape we can expect some upward growth at least from them.

An important element of the corporate buyers is those who have some customer carbon neutrality plan – airlines and some utilities. These companies offer their customers the option of paying a slight premium for their flight or electricity to offset their footprint. This demand for credits is likely to fall in 2009 as consumers become increasingly cash strapped.

In 2009, on the demand side we see the following occurring

- Few if any companies coming forward with carbon neutral commitments. There is some inertia in the system from companies with deferred commitments – for example they made an obligation in 2007 to be carbon neutral from 2009.
- Consumers being less ready to buy into corporate and direct offsetting programs.
- NGOs will suffer revenue tightening along with the rest of the economy, so it is unlikely to see any increase here (if any).
- Government. We may see some increase in purchases from Government, depending on the shape of upcoming legislation in the first half of 2009.
- Although we have been unable to identify any TARP money going into any of the companies that have made the carbon neutral commitment, there will be pressure on Banks like HSBC to keep their promises.
- Corporations who have made the carbon neutrality commitment may become less determined to find the highest quality credits – effectively mimicking the trading down we are seeing the consumer do as they move from Target to WalMart. This is likely to put pressure on premium credits such as the Gold Standard.

Supply Side

The supply of voluntary market credits has been driven by a number of factors

- Awareness of the spectacular year on year growth in the market.
- Expectation of an upcoming cap and trade system in the US – project developers want to get their feet wet before the legislation comes.



- Delays in the UN. A number of projects have been approved to a voluntary standard while they are going through the CDM approval process, providing project developers with some earlier cash inflows.
- Relatively high prices – Carbon above \$10/ton can make a lot of marginal projects come to life.
- Projects once approved, produce credits for a number of years, in some cases beyond 10 years, with minimal incremental annual costs. This ratchet effect results in (at least for the next few years) supply from a previous year continuing into the next year to be joined by new projects.

Headwinds for 2009

- The fall in the value of carbon in the last few months has put a lot of marginal projects on hold.
- The drying up of credit making it harder for projects to get financed.

Our predictions for 2009

- Overall voluntary market growth as measured in TCO₂e will slow considerably as fewer new corporations and consumers elect to follow the carbon neutral path. The likely increase from Governmental Departments will not offset this.
- Corporations requiring voluntary credits will become more price conscious reducing demand for premium credits
- Although new offset projects coming onto the market will slow, the ratchet effect of existing projects will keep the baseline as 2008 and supply will continue to increase from projects in the pipeline coming on stream.
- We can expect to see less projects being initiated.
- The slow down in demand, increasing supply and general economic condition of buyers will result in a continuing fall in market prices, especially at the premium end of the market. This may however benefit the lower priced credits more than otherwise would be expected.
- Overall market volumes will decrease as liquidity providers de leverage their positions.

Reference 1 <http://www.carbonpositive.net/viewarticle.aspx?articleID=1295>
Forestry Carbon Standards 2008. Eduard Merger