

State of the Carbon Market

Highlights from 2009, perspectives 2010-2020



ECC, August 2010

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Highlights – Carbon Markets 2009

In 2009, the carbon market endured its most challenging year to date in 2009!

- The global crisis negatively impacted the demand and supply sides of the carbon market. As industrial output plummeted, the demand for carbon assets fell.
- Supply side: financial crisis spurred financial institutions and private investors to deleverage and redirect their positions away from risky investments and towards safer assets and markets.
- Capital inflow to developing countries fell dramatically - many project developers found it impossible to lock in finance and project origination effectively ground to halt.
- Global GDP declined by 0.6% in 2009 and yet the carbon market demonstrated resilience. The total value of the market grew 6% to US\$144 billion by year's end with 8.7 billion tCO₂e traded.
- The EU ETS (EU Emissions Trading Scheme) remained the engine of the carbon market – 82% of the total market value.
- Market consolidation accelerated as financial players that had weathered the economic storm chose to acquire undervalued portfolios rather than engage in project origination. Many players have also exited the market or significantly reduced their activities.
- Inconclusive outcome from Copenhagen climate conference.
- Likelihood that policymakers will be able to reach a legally binding agreement next December in Cancun is diminishing.

*Findings from the World Bank

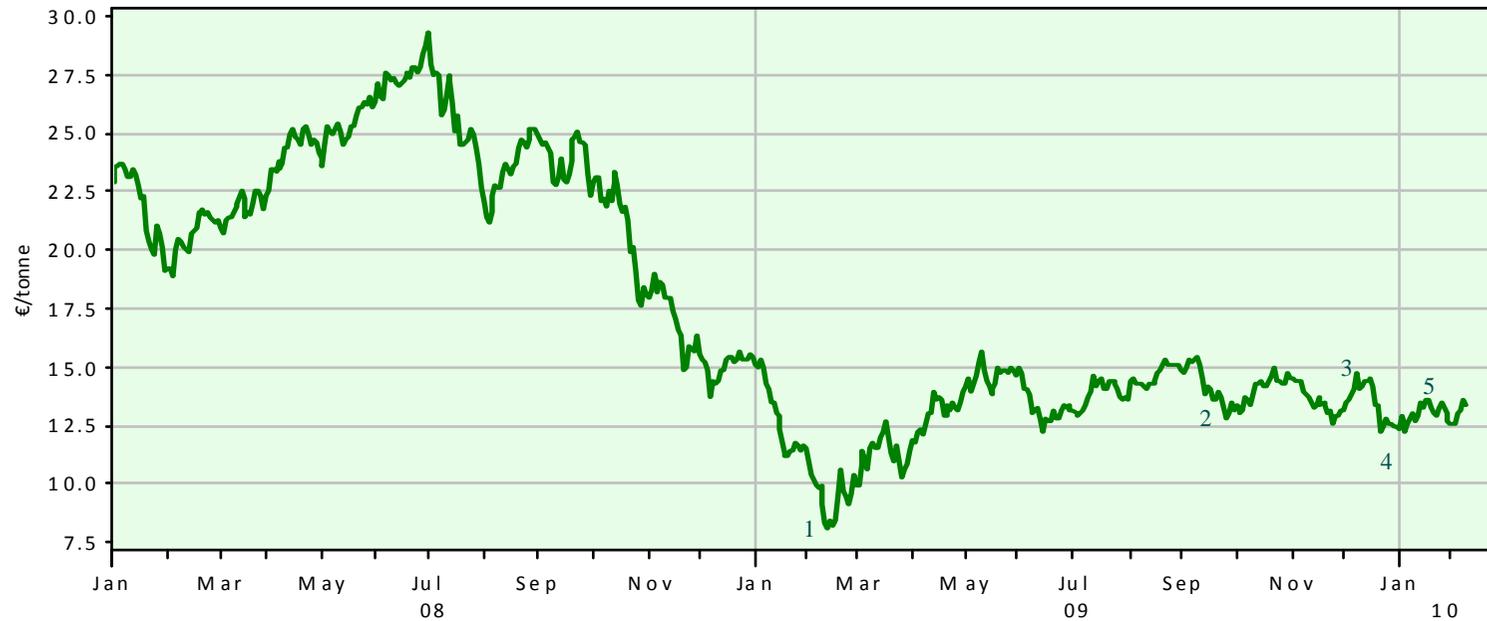
Carbon market at a glance, volume and values, 2008-2009

Despite global crisis carbon market grew 6% in value in 2009.

Carbon market at a glance				
	2008		2009	
	Volume (MtCO ₂ e)	Value (US\$ million)	Volume (MtCO ₂ e)	Value (US\$ million)
Allowances Markets				
EU ETS	3,093	100,526	6,326	118,474
NSW	31	183	34	117
CCX	69	309	41	50
RGGI	62	198	805	2,179
AAUs	23	276	155	2,003
Subtotal	3,278	101,492	7,362	122,822

Source: State and Trends of the Carbon Market 2010, World Bank

Key events in the carbon markets 2009 - 2010



2009

- **Feb 12** Carbon price low for 2009 (€ 8.27/t) [1]
- **Mar 24** UK auctions 4m EUA
- **May 5** Carbon price peak for 2009 (€15.63/t)
- **June 4** UK auctions 4.2m EUA
- **July 9** UK auctions 4.2m EUA
- **July 26** Waxman-Markey climate change bill passes US Congress
- **Aug 6** Munich Stock Exchange announces it will start trading carbon from October 2009
- **Sep 10** UK auctions 4.2m EUA
- **Sep 22** Premier Hu Jintao announces China's carbon intensity to be reduced by 2020 by a "notable margin". PM Hatoyama announces Japan's carbon emissions to be cut by 25% on 1990 levels by 2020 [2]
- **Sep 23** EU Court rules Poland and Estonia do not need to reduce their industrial carbon allowances
- **Oct 6** International Energy Agency delivers baseline emissions data for Copenhagen
- **Oct 8** UK auctions 4.2m EUA

- **Nov 26** US announces carbon cut target of 17% on 2005 by 2020. China announces carbon intensity to be reduced by 45% on 2005 by 2020
- **Dec 2** Australian Senate rejects government's carbon bill – including proposals for an ETS
- **Dec 3** Poland and Estonia industrial carbon quotas judgement by European Court appealed by EC
- **Dec 7** Copenhagen Climate Conference begins [3]
- **Dec 19** Copenhagen ends in disappointment [4]

2010

- **Jan 7** UK auctions 4.9m EUA
- **Jan 31** Copenhagen Accord deadline for submissions of national emissions reductions targets [5]
- **Feb 4** UK auctions 4.4m EUA
- **Feb 10** Announcement that Japan's ETS likely to be delayed until 2012

EU ETS in 2009

- The EU ETS (EU Emissions Trading Scheme) remained the engine of the carbon market – 82% of the total market value.
 - Futures trades continued to account for the bulk of the market with 73% share.
 - Spot trades swelled on the back of cash constraint EU companies monetizing allowance to raise capital.
 - Option Markets. Sophistication also increased in the options market, which grew 70% to 420 million tons.
 - Kyoto offsets (mainly CERs) fell one third to US\$18 billion
- The EU ETS was also marked by controversy during 2009:
 - “carousel” Value-added Tax (VAT) fraud in countries like France and the United Kingdom
 - “recycling” of surrendered CERs added to the challenges faced by the European ETS.
 - Ironically these controversies provide evidence that the emissions market is maturing and becoming mainstreamed within the European economy. Entities don’t seek out loopholes in insignificant markets and fraudsters do not focus on small businesses.
- Carbon prices fell and rebounded signs of recovery along with the prices of mature energy commodities - suggests the market is both efficient and rational.
- EU ETS is the only scheme that currently promises to reduce emissions after 2012 (up to 2020).

*Findings from the World Bank

EU ETS Trade Mechanics

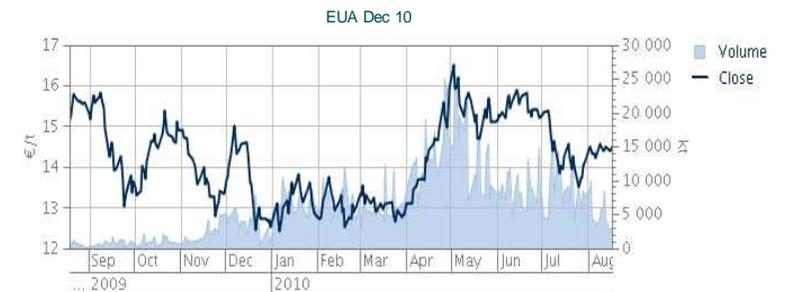
No energy investment decision is taken without considering the price of CO₂

- EU ETS instruments:

- **EUA** (European Union Allowance) → high liquidity
- **CER** (Certified Emission Reduction) → moderate liquidity
- **ERU** (Emission Reduction Unit) → illiquid
- EUAs are allocated a/o auctioned to installations, CERs & ERUs are Kyoto Offsets, derived from abatement projects
- Compliance participants can use all 3 instruments for compliance within EU (but CERs & ERUs only up to a ceiling of ~15% of allocation of EUAs)
- Penalty for non compliance € 100 Euro/tonne

- Market transparency:

- Emission Rights are listed on various Exchanges, bilateral transactions are mirroring the exchange contract specs
- Average traded daily volume ~20 million emission rights, value some € 200-300 million daily
- Ample market liquidity; bid/ask spread ca. 5-10ct
- Standard Clipseize 10.000 EUAs or CERs



Source: Point Carbon

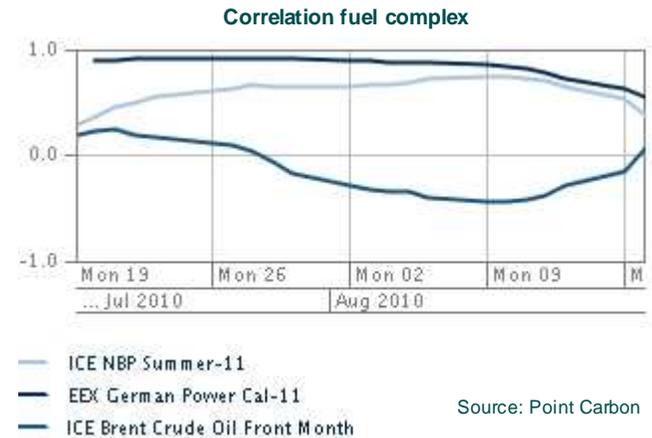
EU ETS Price Drivers

The fuel complex largely determines the CO₂ price

- Price drivers
 - Relative gas-to-coal prices & power price
 - Weather circumstances
 - Economic output
 - Regulatory decisions

- Contract Expiry by physical delivery:
 - Spot: immediate cash and physical settlement
 - Forward: expiry 1st Dec 2010, 1st Dec 2011, 1st Dec 2012
 - Calendar & Instrument swaps (EUAs vs CERs)
 - Physical settlement via the Registry Account of trade-participants

- Market participants:
 - Allocated companies: Power Generators, Steel, Cement, Paper & Pulp, Glass & Ceramics
 - Non-Allocated entities: Financial investors, Carbon funds, Hedge funds, Commodity traders



EU ETS – Putting on the balance



Pros	Cons
<ul style="list-style-type: none">■ Main goal of reducing emissions was achieved.■ Monthly volumes increased by a factor of 2 since the start of Phase II (2008).■ Market responds logically to fundamental signals; weather, news, allocations and fuel prices.■ European power companies began to fully integrate the cost of carbon into their investment decisions and include more low-carbon technologies.■ The ETS provides assurance to utilities that there will be a long-term carbon price■ Europe's ETS has promoted the development of low-carbon projects worldwide by allowing CERs into the system.	<ul style="list-style-type: none">■ High price volatility of carbon assets might discourage investment in low-carbon/emission reduction.■ Concern has arisen that European industrial companies could choose to relocate their operations outside the ETS rather than reduce emissions.■ Creation of windfall profits in case the allowances are not auctioned.■ Some support governmental intervention in the cap and trade market to maintain the price of carbon assets at a level sufficient to incentivize industry to reduce emissions

North America

- The Regional Greenhouse Gas Initiative (RGGI), only mandatory cap-and-trade scheme in the US, grew almost 10-fold to US\$2.2 billion.
- The senate will wait until at least mid-September to debate on carbon legislation –
- The window of opportunity for passing a federal climate legislation in 2010 is closing fast.

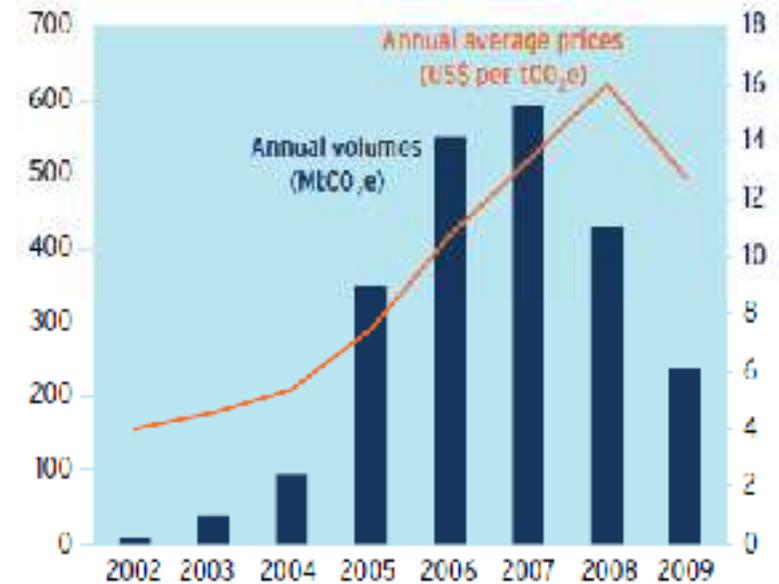
North American Carbon Market

	Volume (MtCo2e)		Value (million US\$)	
	2008	2009	2008	2009
RGGI	61.9	805.2	198.2	2,178.6
Alberta	3.4	4.5	33.5	60.8
CCX	69.2	41.4	306.7	49.8
Voluntary Offset Market	15.4	29	104.1	143.4
Total	149.9	880.1	642.5	2,432.5

Source: State and Trends of the Carbon Market 2010, WorldBank

Clean Development Mechanism (CDM) in 2009

- China remained the largest CDM seller, although Africa and Central Asia increased their share.
- CDM contracted severally, by 59%, to US\$2.7 billion.
- Structural issues hobbled the CDM market. It now takes over 3 years for the average CDM project to make its way through the regulatory process and issue its first CER.
- For the second year in a row, the level of activity of CERs declined substantially
- Project origination ground to a halt during 2009 due to lack of finance and global crisis.



Source: State and Trends of the Carbon Market 2010, World Bank

*Findings from the World Bank

Other Initiatives

- In 2009 New Zealand passed a climate change bill and became the first country outside Europe to adopt a mandatory ETS.
- Australian domestic trading scheme is on hold.
- Japan is considering establishing a mandatory ETS, but opposition is growing fuelled by concerns about costs to the economy.
- While plans for a national Japanese mandatory ETS are under development, the Tokyo metropolitan area launched its own mandatory cap and trade scheme.
- Brazilian policymakers are considering introducing a domestic cap and trade scheme, primarily covering the energy, transport, industrial and agribusiness sectors.
- In China, 3 voluntary environmental exchanges were established in Beijing, Tianjin and Shanghai in 2008 through private sector collaborations with approval from municipal governments.
- Republic of Korea implemented a project-based emission reduction program operated by the government.

*Findings from the World Bank

Post-2012, where are we heading to?

- No agreement was reached in Copenhagen last year and the window of opportunity to reach an international agreement by the end of 2010 in Cancun is closing.
- The U.N.'s climate agency has for the first time detailed contingency options if the world cannot agree a successor to the Kyoto Protocol, whose present round expires in 2012 with no new deal in sight.
- EU is more than ever the engine that drives a post-2012 framework. It has already committed to cut emissions further by up to 20% or even 30% of 1990 emissions by 2020 and EU ETS has no sunset clause.
- Post-2012 framework alternatives being discussed:
 - Continuing Kyoto
 - Regional schemes and some links among regions.
 - New international agreement
 - Extension of Kyoto/Kyoto mechanisms and new agreement after a couple of years
 - No agreement