

THE KATOOMBA GROUP'S

Ecosystem Marketplace

 new carbon finance

Forging A Frontier

State of the Voluntary Carbon Markets 2008

SPONSORED BY

ECO SECURITIES


evolution
MARKETS INC.


mgm INTERNATIONAL

 APX



STERLING
PLANET

 EQUATOR
PEOPLE • FORESTS • CARBON • WATER
ENVIRONMENTAL

CANTORCO₂e
energy • environment • innovation

 Blue Source
A Leading Climate Change Portfolio

BAKER & MCKENZIE

Forging a Frontier:

State of the Voluntary Carbon Markets 2008

A report by Ecosystem Marketplace & New Carbon Finance

Katherine Hamilton, Milo Sjardin, Thomas Marcello, Gordon Xu

8th May 2008

Contributors:

Ricardo Bayon, Allison Shapiro, and Steve Zwick

Acknowledgments:

This report is a compilation of the insights of a wide range of individuals across several continents. It would not be possible without the 150 individuals who shared valuable information about their organizations. This report has also required time and financial support from dozens of people who generously gave of their time, energy and resources to make this possible. They include, in no particular order: Sara Bushey, Lori Bird, Howard Gould, Martijn Wilder, Lauren Kimble, Joe McGurk, Evan Ard, Marco Monroy, Joel Riciputi, Philippe Ambrosi, Eron Bloomgarden, Alison Carr, Josh Margolis, Sean Carney, Marcus Krembs, Bhavna Prasad and Anja Kollmuss. Thank you also to the staff at Forest Trends and New Carbon Finance.

About Ecosystem Marketplace and New Carbon Finance

Ecosystem Marketplace, a project of the non-profit Forest Trends, is a leading source of information on environmental markets and payment schemes for ecosystem services. In particular, we are interested in market-based approaches to the conservation of water-related ecosystem services, carbon sequestration, and the myriad benefits of biodiversity. Our publicly available information sources include annual reports, quantitative market tracking, weekly articles, daily news, and newsletters designed for different payments for environmental services stakeholders. We believe that by providing solid and trustworthy information on prices, regulation, science, and other market-relevant issues, we can help markets for ecosystem services become a fundamental part of our economic and environmental systems, helping give value to environmental services that have, for too long, been taken for granted.

Ecosystem Marketplace's Carbon Program and work on the voluntary carbon markets is supported by the United Kingdom's Department for International Development (DFID), the Blue Moon Fund, Citigroup, and Rockefeller Brothers' Fund.

New Carbon Finance is the leading provider of information, analysis and insights into the North American, European and global carbon markets. New Carbon Finance constantly strives to provide the most accurate projections of future carbon market prices using proprietary fundamental analysis and models. The research underlying this report provides a crucial quantitative platform that will substantially enhance the understanding of the fast moving voluntary carbon market.

New Carbon Finance is a service of New Energy Finance. New Energy Finance is a specialist provider of financial information and associated services to the renewable energy and energy technology industry and its investors. The combination of New Energy Finance and New Carbon Finance brings together a truly global research resource with over 100 full time staff with permanent research bases in the UK, US, China, South Africa, Brazil, India and Australia as well as a wide range of associates and contact networks.

<p>New Carbon Finance 415 Madison Avenue New York, NY 10019 info@newcarbonfinance.com www.newcarbonfinance.com www.newenergyfinance.com</p>	<p>Ecosystem Marketplace 1050 Potomac St., NW Washington, DC 20007 info@ecosystemmarketplace.com www.ecosystemmarketplace.com www.forest-trends.org</p>
---	--

Copyright and Disclaimer

© **New Carbon Finance is a service of New Energy Finance Ltd, and Ecosystem Marketplace is a project of Forest Trends Association.** This document was prepared and based upon information supplied to New Carbon Finance and Ecosystem Marketplace by participants in a market survey conducted by both parties. Neither New Carbon Finance nor Ecosystem Marketplace represents or warrants the accuracy, suitability or content of the survey responses or the results of that survey as set out herein. It is the sole responsibility and obligation of the reader of this report to satisfy himself/herself as to the accuracy, suitability and content of the information contained herein. New Carbon Finance and/or Ecosystem Marketplace (such terms taken to also include their respective affiliates, officers, directors, partners and employees) make no warranties and shall have no liability to the reader for any inaccuracy, representation or misrepresentation set out herein. The reader further agrees to hold both New Carbon Finance and Ecosystem Marketplace harmless from and against any claims, loss or damage in connection with or arising out of any commercial decisions made on the basis of the information contained herein. The reader of this report is strongly advised not to use the content of this report in isolation but to take the information contained herein together with other market information and to formulate his/her own views, interpretations and opinions thereon. The reader is strongly advised to seek appropriate legal and professional advice before entering into commercial transactions.

Glossary

AB 32	Assembly Bill 32: California's Global Warming Solutions Act
ACG	Asia Carbon Group
CARB	California Air Resources Board
CATIE	Centro Agronómico Tropical de Investigación y Enseñanza
CER	Certified Emission Reduction
CCAR	California Climate Action Registry
CCBA	Climate, Community, and Biodiversity Alliance
CCB	Climate, Community, and Biodiversity Standards
CCX	Chicago Climate Exchange
CCFE	Chicago Climate Futures Exchange
CFTC	Commodities Futures Trading Commission
CDM	Clean Development Mechanism
CFC	Chlorofluorocarbon
CFI	Carbon Financial Instrument
CNN	Carbon Neutral Network
CO ₂	Carbon dioxide
Defra	Department for Environment, Food and Rural Affairs (UK)
ECCM	Edinburgh Center for Carbon Management
ECIS	European Carbon Investor Services
ECX	European Climate Exchange
EM	Ecosystem Marketplace
ERT	Environmental Resources Trust
EU ETS	European Union Emission Trading Scheme
ERU	Emission Reduction Unit
FTC	US Federal Trade Commission
GHG	Greenhouse Gas
GE	General Electric
GWP	Global warming potential
IIED	International Institute for Environment and Development
JI	Joint Implementation
KWh	kilowatt hour
LULUCF	Land Use, Land Use Change and Forestry
MAC	California Market Advisory Committee
MtCO ₂ e	Millions of tonnes of carbon dioxide equivalent
MWh	megawatt hour
NCF	New Carbon Finance
NGAC	New South Wales Greenhouse Abatement Certificate
NGO	Non- governmental Organization
NO _x	Nitrogen oxide
N ₂ O	Nitrous oxide
NREL	US National Renewable Energy Laboratory
NSW GGAS	New South Wales Greenhouse Gas Abatement Scheme
OTC	Over-the-Counter (market)
PG&E	Pacific Gas & Electric
REC	Renewable energy credit
RGGI	Regional Greenhouse Gas Initiative
SO ₂	Sulfur dioxide
tCO ₂ e	Tonne of carbon dioxide equivalent
TREC	Tradable renewable energy credit
UNFCCC	United National Framework Convention on Climate Change
US EPA	United States Environmental Protection Agency
VER	Verified (or Voluntary) Emission Reduction
VCS	Voluntary Carbon Standard
VCU	Voluntary Carbon Unit
WBCSD	World Business Council for Sustainable Development
WCI	Western Climate Initiative
WRI	World Resources Institute
WWF	World Wildlife Fund

Executive Summary

Over the past two years, numerous writers and analysts have likened the voluntary carbon markets to the “wild west.” In 2007 market trends highlight that this frontier has become a settlement zone. Customers are increasingly savvy about the opportunities and pitfalls in the carbon offset domain and stakeholders are aggressively working to forge the rules of the game and structures to enable smooth transactions.

While interest in carbon offsets and, in turn, the growth of the voluntary carbon markets has accelerated dramatically, quantitative data regarding these markets has been sorely lacking. With the goal of filling a significant information gap, last year Ecosystem Marketplace and New Carbon Finance teamed up to undertake a comprehensive, quantitative analysis of the voluntary carbon markets. The result was our first annual *State of the Voluntary Carbon Markets 2007*. The report answered fundamental questions about the size, players, project types, prices, and transaction volumes of the voluntary markets.

The answers to these questions are becoming increasingly important to market actors ranging from community land owners in the developing world to bankers and carbon traders in the world’s financial capitals. While the voluntary carbon markets may not be as large or profitable as their regulated brethren, voluntary markets have proven themselves to be innovative, nimble—and controversial. These often misunderstood voluntary carbon markets represent consumer demand for action on climate change and have the potential to be an immediate resource as the international community struggles to implement a fully effective climate change framework. In addition, in some cases they’re even setting the stage for future developments in the regulated markets (e.g. voluntary markets have been transacting deals in avoided deforestation since before 1990, while the Kyoto carbon markets are just now beginning to consider how they may eventually deal with the issue of avoided deforestation).

To understand how the voluntary carbon markets work, and how this report is structured, it is critical to know that the voluntary carbon markets can be divided into two distinct components: the Chicago Climate Exchange (CCX) and a more disaggregated over-the-counter (OTC) market. CCX is a structured and closely monitored cap-and-trade system that organizations join voluntarily. Outside of CCX, one finds a wide range of voluntary transactions that are not driven by an emissions cap, and do not, for the most part, trade on a formal exchange. Throughout the report we refer to this mass of transactions as the over-the-counter (OTC) market. Because this OTC market transacts on a highly fragmented deal-by-deal basis, it is extremely difficult for stakeholders to both track and navigate. It is for this reason that Ecosystem Marketplace and New Carbon Finance have invested considerable resources in conducting this market-wide quantitative survey and analysis of the OTC market.

This second annual report, *Forging a Frontier: State of the Voluntary Carbon Markets 2008*, is based on transaction data collected from 150 organizations, including project developers, wholesalers, brokers and retailers, selling carbon credits to voluntary buyers. It also includes transaction data gleaned from several carbon credit registries in the OTC market.

Gold Rush? Volumes and Values

This year we tracked **42.1 million tonnes** of carbon dioxide equivalent (MtCO₂e) transacted on the OTC market in 2007. Combined with the **22.9 MtCO₂e** transacted on the CCX in 2007, we were able to confirm a total volume of **65.0 MtCO₂e** transacted in the voluntary carbon market in 2007. Relative to the volumes observed in 2006, this represents a tripling of transactions for the OTC market, from the 14.3 MtCO₂e traded in 2006, and more than doubling of volumes on the CCX.¹ Since this report is fully based only on completed and confirmed transactions, these volumes should be considered conservative. In other words, the actual volume of credits transacted in the voluntary market is without a doubt higher than this amount.

¹ Last year we accounted for 13.4 MtCO₂e transacted on the OTC market in 2006. Because we were able to gather information from additional suppliers this year, we’ve now accounted for 14.3 MtCO₂e transacted on the OTC market in 2006.

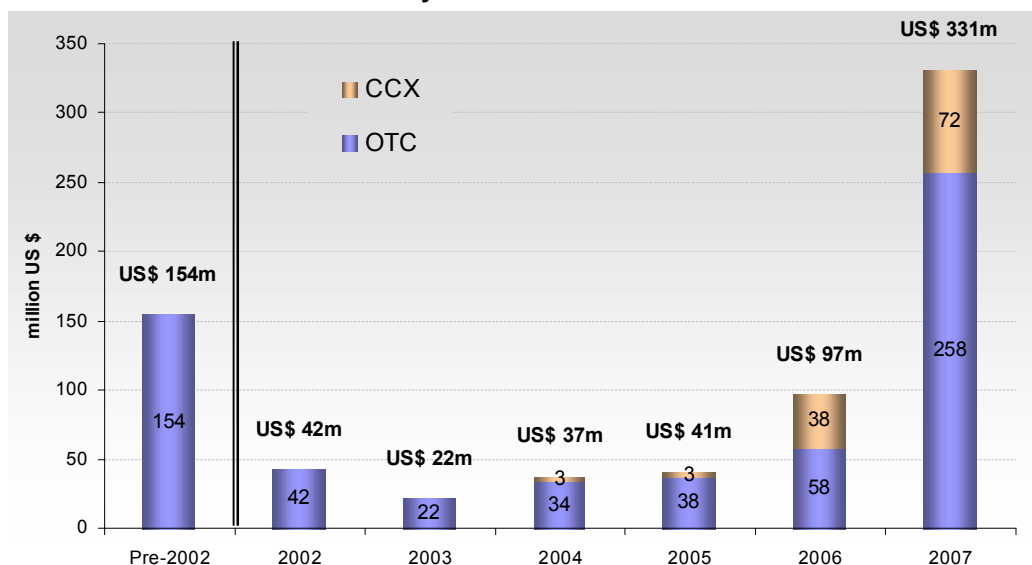
Transaction Volumes and Values, 2006 and 2007¹

Markets	Volume (MtCO ₂ e)		Value (US\$million)	
	2006	2007	2006	2007
Voluntary OTC Market	14.3	42.1	58.5	258.4
CCX	10.3	22.9	38.3	72.4
Total Voluntary Markets	24.6	65.0	96.7	330.8
EU ETS	1,104	2,061	24,436	50,097
Primary CDM	537	551	5,804	7,426
Secondary CDM	25	240	445	5,451
Joint Implementation	16	41	141	499
New South Wales	20	25	225	224
Total Regulated Markets	1,642	2,918	31,051	63,697
Total Global Market	1,667	2,983	31,148	64,028

Source: Ecosystem Marketplace, New Carbon Finance, World Bank

Of the 42.1 MtCO₂e of credits traded on the OTC market in 2007, respondents were only able to confirm that **10.7 MtCO₂e** were directly destined for retirement. According to this number, 25% of the total traded volume was used to directly offset emissions and was not sold as a resale investment. The remaining 75% of the volume merely changed hands and could be resold in the future. However, because a significant percentage of sales brokers or suppliers could not confirm whether credits were retired, this number should be considered conservative. It is likely that in practice, more transactions ended in retirement. For example, by looking at the type of buyers reported by respondents it seems as though only 29% of transacted volumes were sold to customers with the intention of selling them again in the future. By deduction, the other 71% of credits would be used directly for retirement.

Transaction Values on the Voluntary Carbon Market²



Source: Ecosystem Marketplace, New Carbon Finance

According to the price and volume data collected in this survey we estimate the international OTC market to be worth \$258 million in 2007. Together with the CCX, which was valued at \$72.4 million, the global voluntary markets were worth a total of \$331 million in 2007. This

¹ Where numbers do not add up in this and other tables, values reflect rounded numbers.

² Note: Values for years prior to 2006 were derived by using transacted volumes and an average price equal to the 2006 average: \$4.1/tCO₂e. As the average prices prior to 2006 are not known, this is merely an estimate. Volume for 2007 based on 118 data points.

value is approximately 240% greater than our 2006 market value (\$97 million, revised upwards from \$91 million as a result of data received this year) and therefore represents more than a tripling of the market size from 2006 to 2007.

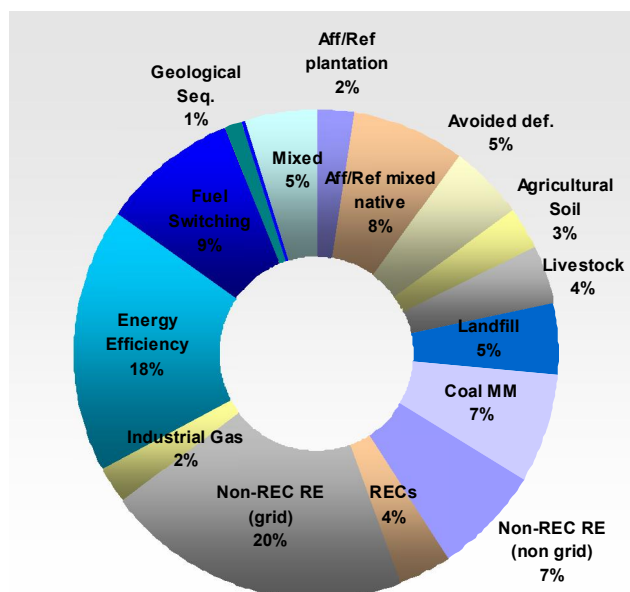
Despite this rapid growth, the voluntary carbon markets remain only a small fraction of the size of the regulated markets (c.2.2%), which according to the World Bank transacted 2,918 MtCO₂e in 2007. That said, the voluntary markets did experience a higher (volume) growth rate of 165% compared to 71% in the regulated markets.

Origin of an Offset

The sources of offset credits in the voluntary markets are extremely diverse, with numerous project types holding important slices of market share. In the OTC market, renewable energy (31%), energy efficiency (18%), and methane destruction (16%), and forestry land based projects (18%) were the most dominant project types in 2007. This is somewhat different to 2006 when the top three project types were forestry (37%), renewable energy (32%), and industrial gas projects (20%). The biggest difference is a significant decline in renewable energy projects sold. The decline in popularity of industrial gas projects reflects the consumer demand for project types with sustainability benefits attributes, which HFC projects are lacking. Generally, OTC market consumers are orientating to less-controversial and “charismatic” project types that have public appeal. However, not all OTC market consumers are driven by these motivations. As noted above, some companies (representing 29% of the volume supplied in 2007), particularly those in the United States, are also investing in carbon offsets with the hope of potentially selling them, for compliance purposes.

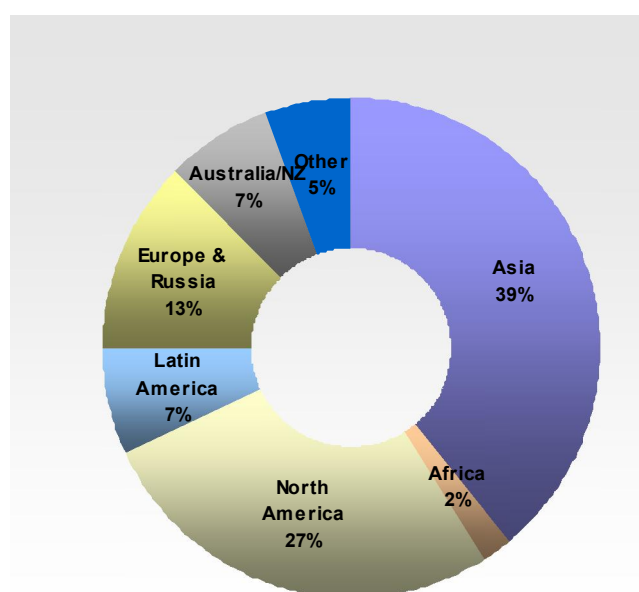
For the CCX, we were only able to obtain data for project type and location of offset credits for credits issued to date, rather than those actually sold in 2007. The CCX, between its launch in 2003 and December 2007 issued the most credits from soil carbon (46%), coal mine methane (30%), and landfill methane (9%) and therefore represents a significantly different project type breakdown than the OTC market. Because carbon credits are more commoditized on the CCX the ‘story behind the credit’ is generally less relevant on the exchange.

Transaction Volume by Project Type, OTC 2007



Source: Ecosystem Marketplace, New Carbon Finance

Transaction Volume by Project Location, OTC 2007



Source: Ecosystem Marketplace, New Carbon Finance

In 2007 there was also a major shift the primary location of project activity in the OTC market, with Asia, Europe (including Russia) and Australia increasing the number of credits sold, while North America, Latin America maintained the number of credits sold and the number of credits

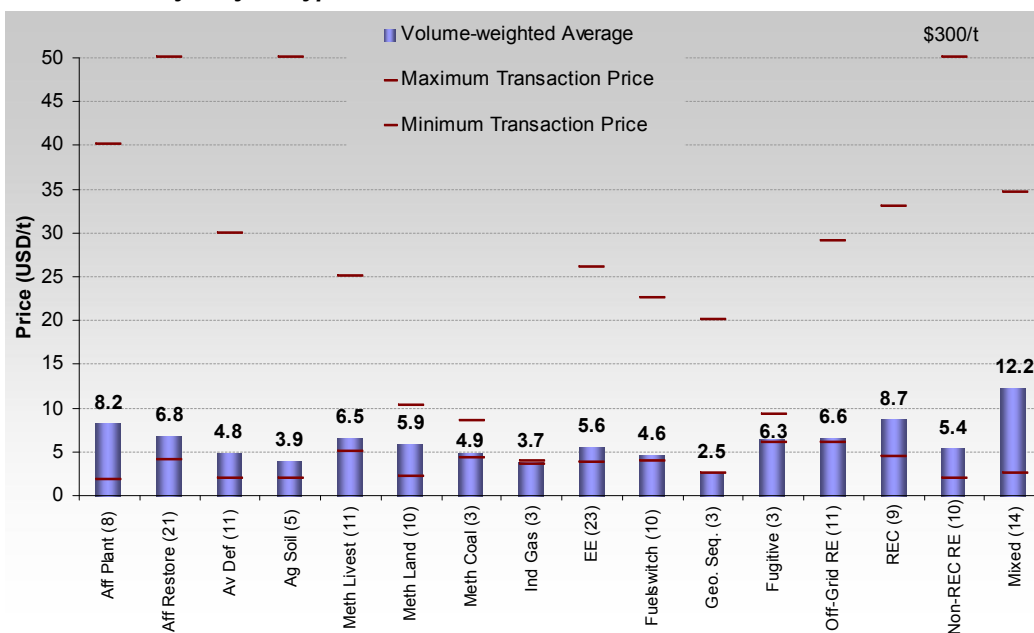
coming out of Africa actually decreased. Asia's share of projects has increased to 39%, up from 22% in 2006, Europe's has risen to 13% from just under 6% in 2006, and Australia has increased from 3% to 7%. Meanwhile, while producing the same number of credits, North America's share has fallen from 43% to 27% and Latin America's from 20% to 7%. In some cases, this shift reflects a move in 2007 to originate VERs from projects waiting to be approved under the Clean Development Mechanism (CDM), but that have already begun operations and are generating emission reductions. As most CDM project activity is based in Asia, in particular China and India, the pre CDM VER origination route has followed this pattern.

Credit Prices

According to this survey, the range of prices for credits in the OTC market again showed huge variation ranging from \$1.80/tCO₂e to one particularly high transaction at \$300/tCO₂e. The volume weighted price of credits transacted in the OTC market in 2007 however increased by 50% compared to 2006, rising from \$4.1/ tCO₂e to \$6.1/ tCO₂e. One of the main causes of this price increase is the significant contraction in the share of low value industrial gas projects in 2007. On the CCX, the (weighted) average price was nearly half the OTC figure at \$3.15/tCO₂e with prices falling within a narrower range of \$1.62/tCO₂e to \$4.20/tCO₂e.

The prices of other project types have shown no clear direction between 2006 and 2007, although there is consistency in the types of credits that the market values most highly. Forestry projects, in particular those involving afforestation/reforestation, have remained some of the highest priced project types across 2006 and 2007 with weighted average prices of \$6.8 to \$8.2/ tCO₂e. Methane projects also continue to be valued highly with weighted average prices in 2007 of around \$6.0/ tCO₂e, as do renewable energy projects with prices of around \$7-8/ tCO₂e. The lowest-priced credits continue to originate from industrial gas projects (\$3.70/ tCO₂e), and geological sequestration (\$2.50/tCO₂e).

Credit Prices by Project Type, OTC 2007



Source: Ecosystem Marketplace, New Carbon Finance. Note: Numbers in parentheses indicate number of data points. The weighted average prices in this chart are not directly comparable with the price chart in last year's report. This chart shows the weighted average prices across the value chain, whereas last year's chart showed only prices from retailers, which are higher than the value chain average.

Customers: Going Green or Making Green?

In terms of demand for OTC voluntary offset credits, survey respondents (excluding CCX and several brokers) cited private businesses as purchasing 80% of credits on the OTC.. As noted above, around 50% of credits were purchased by private businesses for retirement (ie to actually offset emissions), and 29% were purchased for investment/resale. Non-governmental organizations (NGOs) accounted for 13% of demand of credits transacted, and individuals

purchased approximately 5%. Remarkably, governments were only responsible for 0.4% of the purchases.

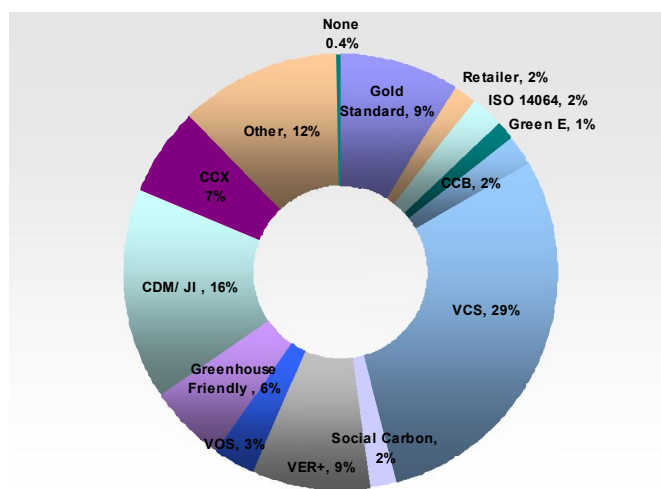
This year's survey has also highlighted a significant shift in the location of voluntary buyers. According to our survey respondents 34% of credits were sold to buyers in North America in 2007. This is in contrast to 2006 when 71% of credits were destined for buyers in North America. The demand has been picked up by Europe which represented 47% of the volume bought in 2007 (up from 28% in 2006), and Australia and New Zealand which now represent 8% of buying activity (up from 1% in 2006). The weighty number of credits purchased by Europeans clearly signals that a strong compliance market, such as the EU Emissions Trading Scheme, does not necessarily need to be a threat to the development of the voluntary market.

Corporate responsibility and public relations/branding efforts were cited (again) as the most common motivations behind carbon offset purchases. Also, similar to last year's survey, price and convenience were noted as being the least important factors when buying offsets whereas considerations such as additionality, certification, reputation and environmental and social benefits matter the most. Consumer emphasis on these latter considerations explains the appeal of "charismatic" projects such as renewable energy, energy efficiency and forestry/land use.

2007: Year of the Standard

In 2007, concerns about the quality of offset credits transacted on the voluntary carbon markets were a key issue. A range of articles in the mainstream press highlighted various quality issues (in particular, the importance of additionality) in the market. In response, suppliers embraced a range of tools for producing high quality credits and proving their legitimacy. Case in point: the emergence of standards and registries was one of the most noticeable trends in 2007. We were not able to obtain information on verification to a specific standard in a large percentage of transactions, but we believe that as much as 50% of the transactions conducted in 2007 involved credits verified to a specific third party standard. The Voluntary Carbon Standard, CDM, CCX, VER+ and Gold Standard were cited as the most frequently used standards.

Transaction Volume by Standard Used, OTC 2007



Source: Ecosystem Marketplace, New Carbon Finance

In a similar vein, an increasing, but still limited, number of suppliers have begun using carbon credit registries. The majority of credits transacted were not listed in OTC registries but rather were registered under the CDM and the CCX. The Blue Registry was cited as the most frequently utilized OTC registry.

2008 and Beyond

As for what the future holds, the first several months of 2008 have continued to build on the trends established in 2006 and 2007. Our observation is that the market will continue to grow at a rapid pace. For example, the CCX has already reported 180% growth in the first quarter of 2008 and is on its way, if current growth is maintained, to reaching 80 MtCO₂e traded this year. We also expect the OTC also to continue its 2007 growth rate. With more and more companies establishing offset strategies and preparing for inevitable carbon legislation in

countries where federal legislation does not yet exist, traded volumes in 2008 could easily exceed the 150 MtCO₂e level.

In parallel with increased transactions it is already clear that stakeholders will continue to build market infrastructure, such as standards and registries. Responding to a survey question on the standards they planned to use in 2008, suppliers' top choices were the Voluntary Carbon Standard, the Gold Standard, the VER+, and the Climate, Community, and Biodiversity (CCB) Standard. Numerous respondents also cited plans to utilize credit accounting registries in 2008. In a select number of cases, investors are now already building exchanges for the "OTC" market, which could further change the shape of this frontier market.

We look forward to continuing to track this dynamic marketplace and presenting you with detailed information in next year's annual *State of the Voluntary Carbon Markets* report.

