

Forest Carbon Offsets



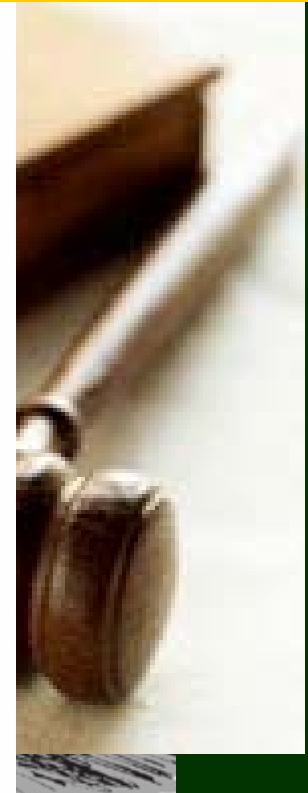
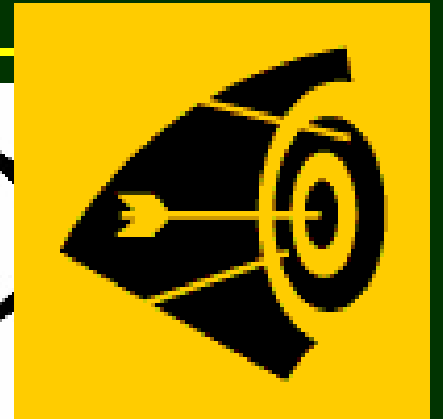
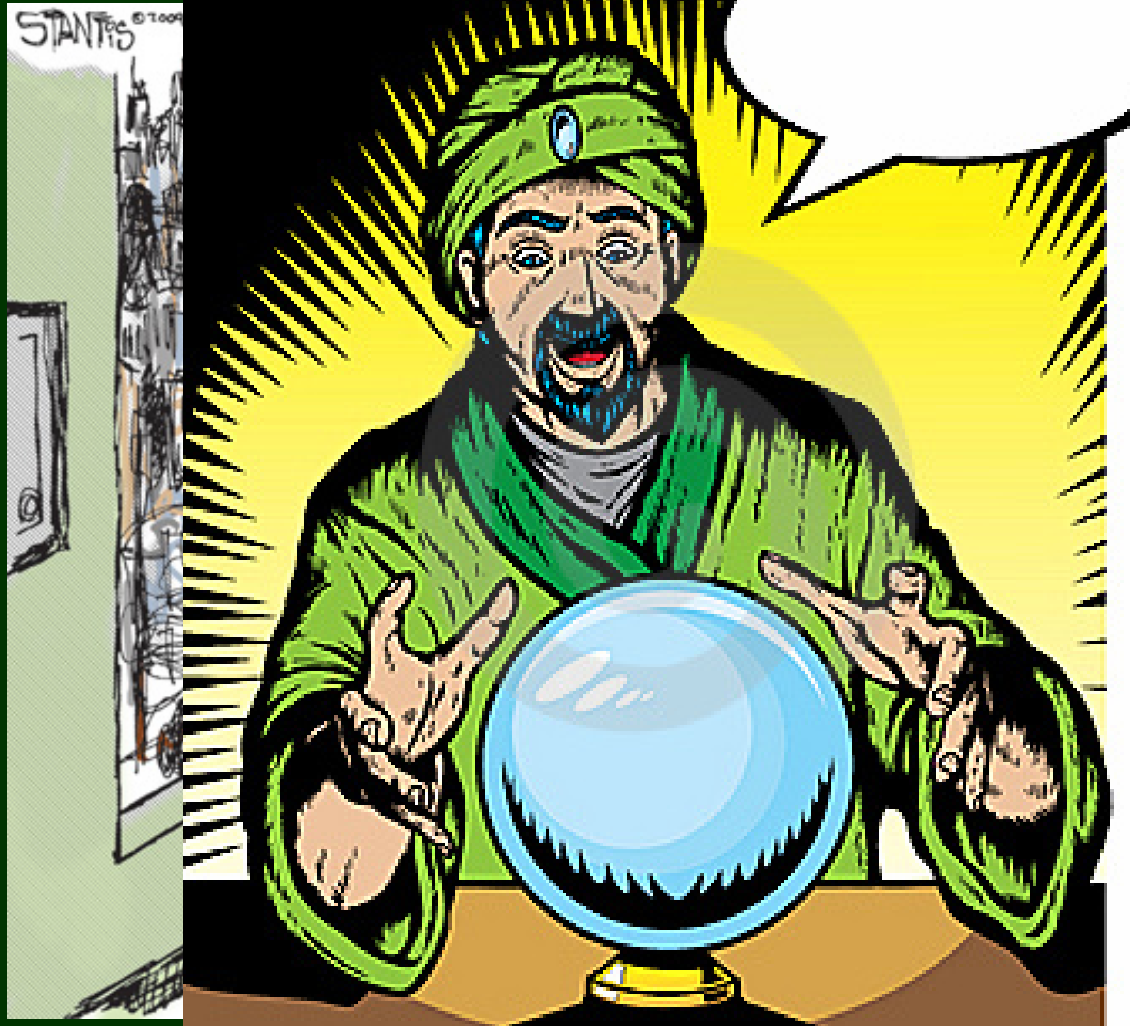
Paul Roth
Chief – Inventory & Analysis Section
DCNR – Bureau of Forestry
Allegheny SAF Summer Meeting
June 25, 2010

Overview

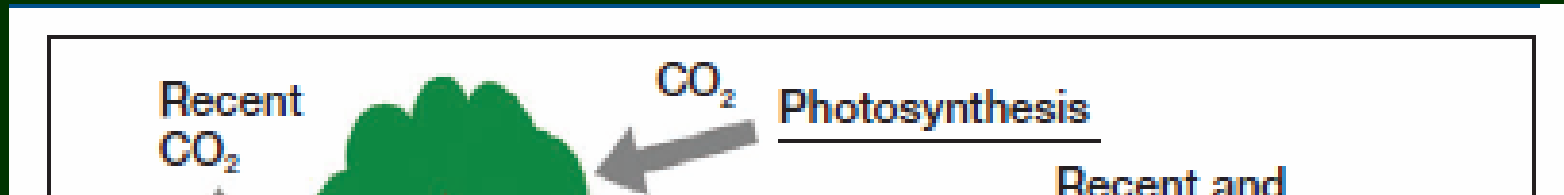
- What is it?
- Why is it important in Pennsylvania?
- Forest offsets in a global context
- Market opportunities/examples

Overview

STANTIS © 2000

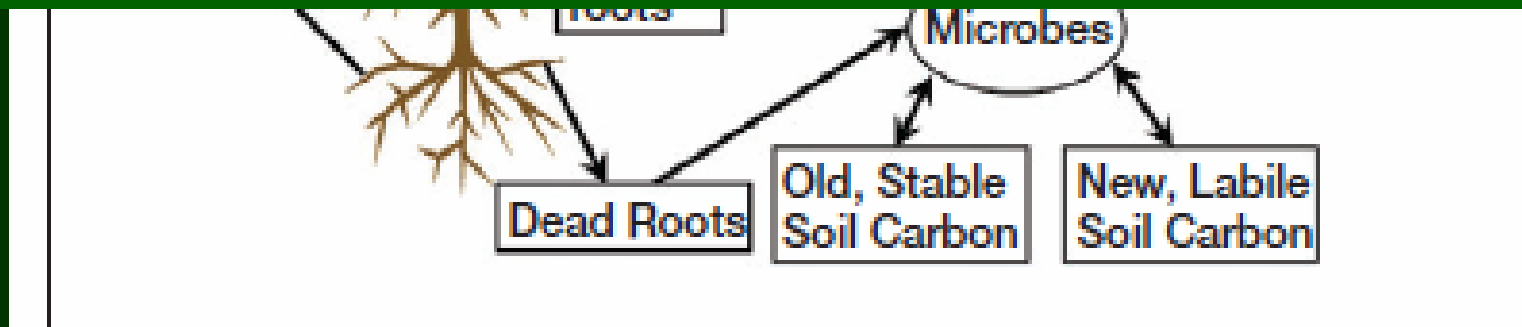


What is a Forest Carbon Offset?



Where's the carbon?

- Live & dead trees @ 60%
- Soil & forest litter @ 40%



Why is it Important in PA?

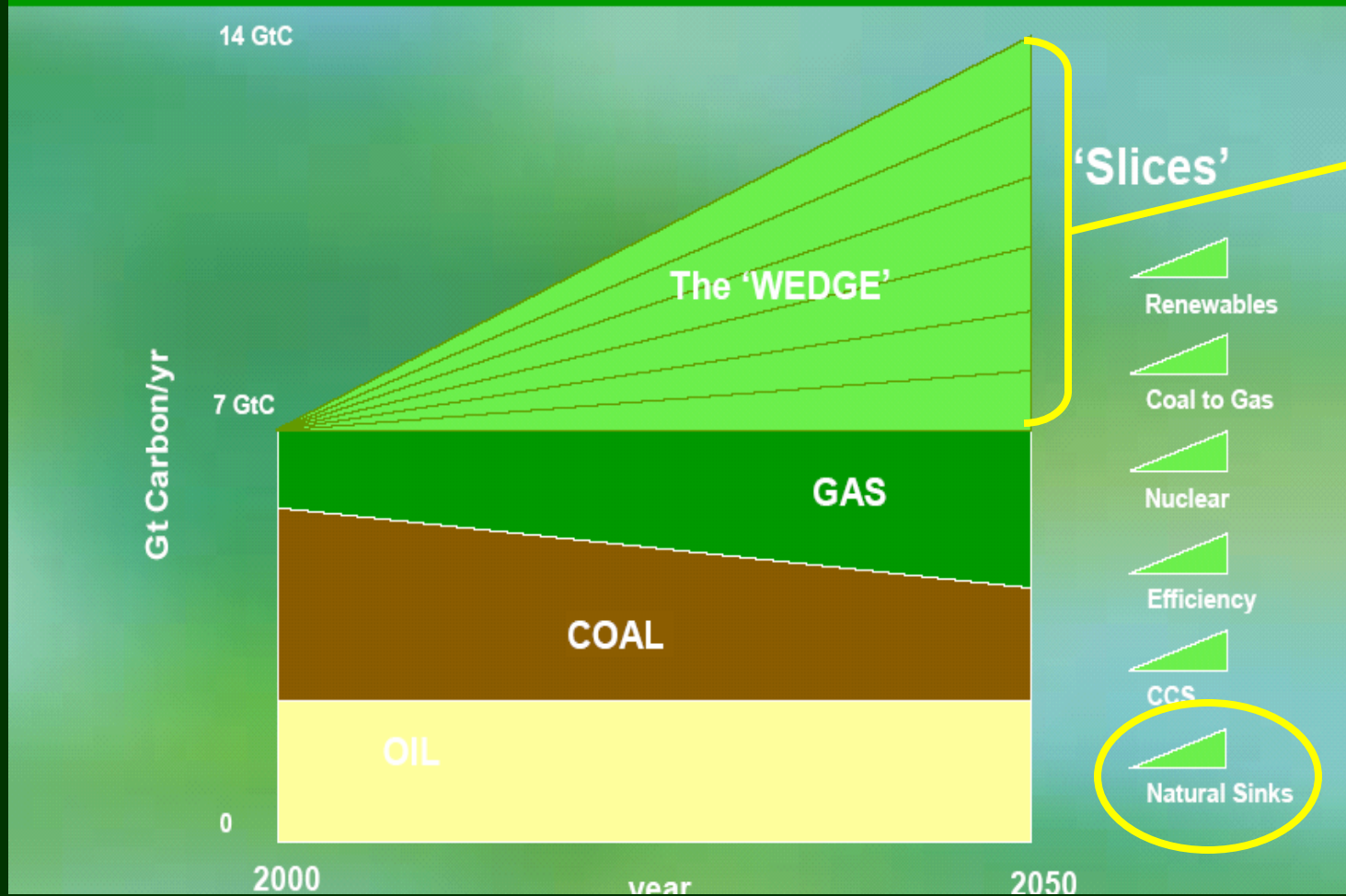
- PA has 17 million acres of forests!
- According to USDA US Forest Service - Forest Inventory & Analysis: Forests within PA sequesters between 15 to 17 million tons annually
- Market opportunities have and continue to emerge for forestry and agriculture

The Goal

stabilization wedge



Silver
Buckshot



Forest Offset Strategies

1. Avoiding deforestation
2. Afforestation/Reforestation
3. Management strategies for forests
 - Decreasing carbon loss
 - Increase forest growth
 - Thinning to reduce fire threat
4. Wood/biomass energy
5. Wood products/processes
6. Urban forests

Registries

Registries

Two kinds:

– Emissions

- Quantifies green house gases, expressed as CO₂e or carbon dioxide equivalents, emissions into the atmosphere from defined sources

– Offsets

- Quantifies the amount certain activities remove carbon dioxide from the atmosphere

Emissions Registries

- The Climate Registry
- REGGI – Regional Greenhouse Gas Initiative
- 1605(b) – Federal Guidelines
- Kyoto Protocol

Offset Registries

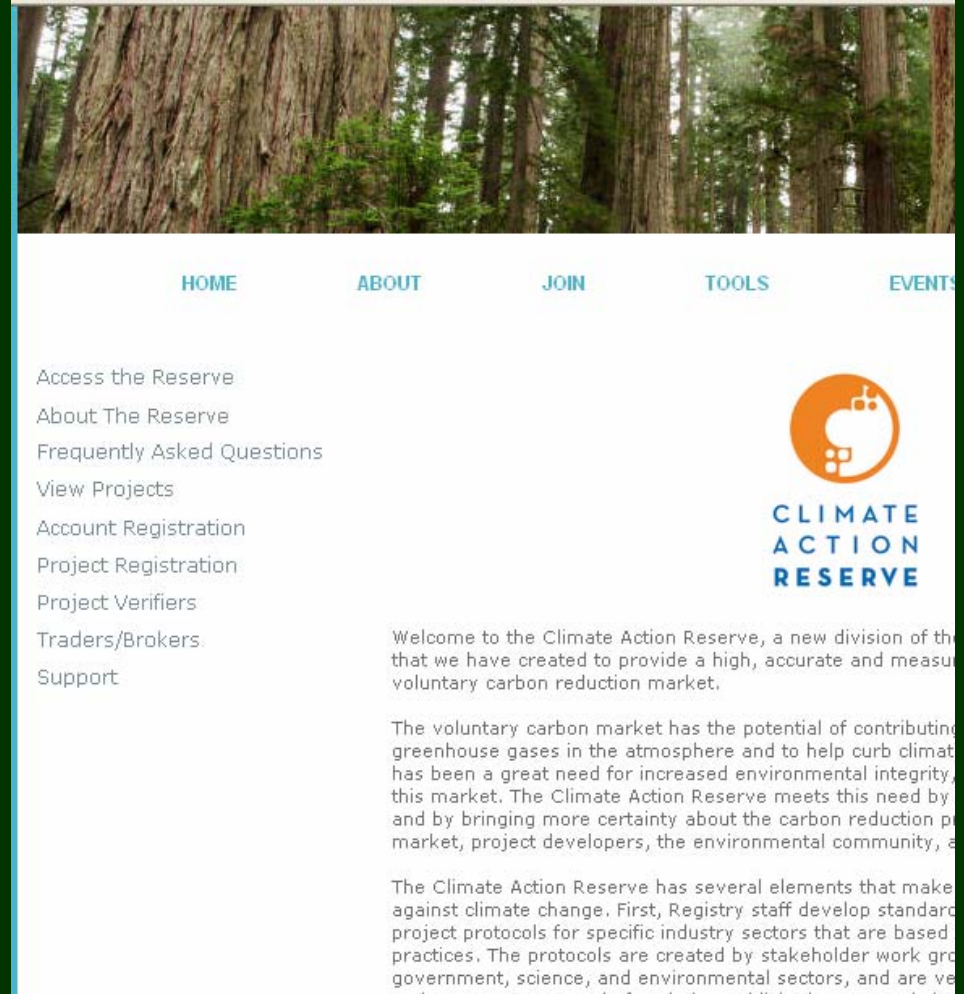
- The Climate Action Reserve
- Voluntary Carbon Standard
- The Gold Standard
- Chicago Climate Exchange
- Climate Trust
- REGGI

Key Components of Offset Registries

- Reporting
 - *Project* level versus *Entity* level
- Eligible projects
- Carbon pool categories
- Project start date
- Project location
- Accuracy/Sampling
- Additionality
- Permanence
- Leakage
- Monitoring
- Transparency

The Climate Action Reserve

- **Eligible Projects**
 - Reforestation
 - Improved Forest Management
 - Avoided Conversion
 - Urban Forestry
- **Carbon Pools**
 - Above ground living
 - Below ground living
 - Understory/Shrubs
 - Standing Dead
 - Dead and Down
 - Litter
 - Soil
 - Wood Products



The screenshot shows the website interface for the Climate Action Reserve. At the top, there is a navigation menu with links for HOME, ABOUT, JOIN, TOOLS, and EVENTS. Below the menu is a list of links: Access the Reserve, About The Reserve, Frequently Asked Questions, View Projects, Account Registration, Project Registration, Project Verifiers, Traders/Brokers, and Support. To the right of this list is the Climate Action Reserve logo, which consists of an orange circle containing a white stylized tree and the text "CLIMATE ACTION RESERVE" in blue. Below the logo, there is a paragraph of introductory text: "Welcome to the Climate Action Reserve, a new division of the that we have created to provide a high, accurate and measu voluntary carbon reduction market." Below this, there is another paragraph: "The voluntary carbon market has the potential of contributing greenhouse gases in the atmosphere and to help curb climat has been a great need for increased environmental integrity, this market. The Climate Action Reserve meets this need by and by bringing more certainty about the carbon reduction p market, project developers, the environmental community, a". At the bottom, there is a third paragraph: "The Climate Action Reserve has several elements that make against climate change. First, Registry staff develop standar project protocols for specific industry sectors that are based practices. The protocols are created by stakeholder work gro government, science, and environmental sectors, and are ve".



“quality assurance for the world's carbon market”

[About the VCS](#) [Programs & Methodologies](#) [Projects & Registries](#) [Documents](#) [Verification](#) [Contact us](#)

About the VCS

The VCS Program provides a robust, new global standard and program for approval of credible voluntary offsets.

VCS offsets must be real (have happened), additional (beyond business-as-usual activities), measurable, permanent (not temporarily displace emissions), independently verified and unique (not used more than once to offset emissions).

Program objective

- Standardize and provide transparency and credibility to the voluntary offset market.
- Enhance business, consumer and government confidence in voluntary offsets.
- Create a trusted and tradable voluntary offset credit, the Voluntary Carbon Unit. (VCU)
- Stimulate additional investments in emissions reductions and low carbon solutions



See also



Save The Date!
Gold Standard Academy March 24-26
in Geneva.
All welcome.

For more information, please click
here.

The Gold Standard is a certification company that neither sells nor consults companies on carbon sales. To buy credits, or to find a carbon firm able to help you get started, please visit our **Marketplace section**.

The Gold Standard in a nutshell:



Rationale

How do you know that an emissions reduction project is a good investment, makes a genuine reduction in CO2 emissions as well as being beneficial to the host country and sustainable development? [more »](#)



Objectives

The Gold Standard helps the CDM to achieve its twin objectives. [more »](#)



Benefits

Since the Gold Standard was designed upon consultation with all relevant stakeholders you can be sure that applying it will be of benefit for yourself, regardless of your motivation. [more »](#)

"The FECORALSA project in Honduras is a

▶ ABOUT CCX

▶ MEMBERSHIP

▶ MARKET

▶ OFFSETS

Quick Links:

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→ [Resources and Fees](#)

→ [Member List](#)

→ [News](#)

→ [Investor Information \(LSE:CLE.L\)](#)

Affiliated Exchanges:

→ [European Climate Exchange \(ECX\)](#)

→ [Insurance Futures Exchange \(IFEX\)](#)

→ [Montréal Climate Exchange \(MCE\)](#)

→ [Tianjin Climate Exchange \(TCX\)](#)

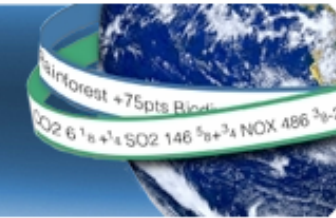
→ [Envex](#)



CCX Congratulates its Members

Industrial leaders achieving verified emission reductions since 2003

→ [Read More](#)



Exchange Overview

Welcome to CCX: We are a financial institution whose objectives are to apply financial innovation and incentives to advance social, environmental and economic goals through the following platforms.



Chicago Climate Exchange (CCX) is North America's only cap and trade system for all six greenhouse gases, with global affiliates and projects worldwide. [\(learn more\)](#)



Chicago Climate Futures Exchange (CCFE) is a landmark derivatives exchange that currently offers standardized and cleared futures and options contracts on emission allowances and other environmental products. CCFE is a wholly owned subsidiary of CCX. [\(Visit CCFE's website\)](#)

Market Overview

CCX CCFE ECX

June 24, 2010

Updated end of day.

Total Daily Electronic Volume: 0 mt CO2

CCX CFI	CLOSE	CHANGE
CFI 2003	\$0.10	\$0.00
CFI 2008	\$0.10	\$0.00
CFI 2010	\$0.10	\$0.00

To view all listed contracts click [here](#).

CCX CFI Vintage 2010

(Quoted in mt CO2)

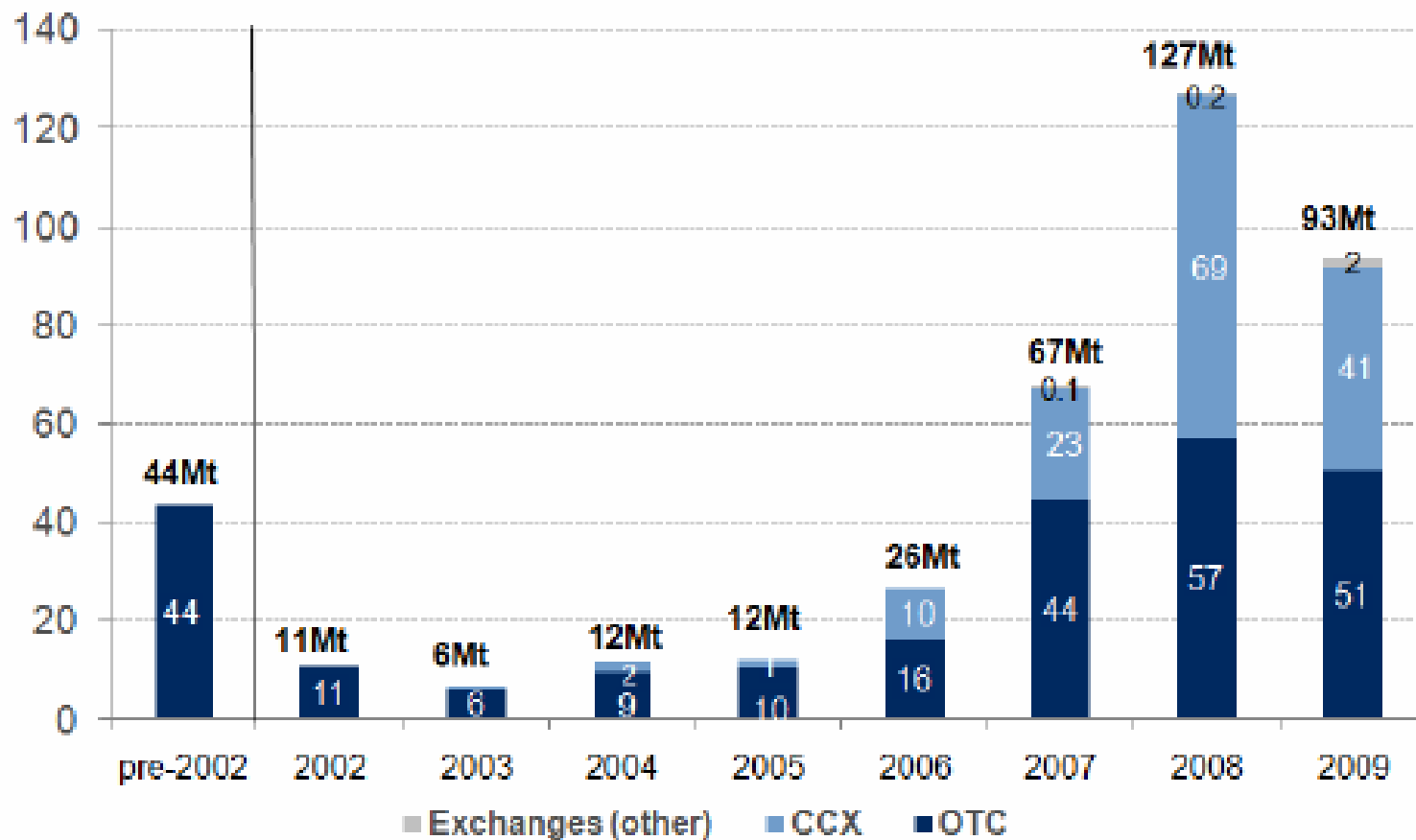


Global Transactions & Offset Market Shares

Offset Market Shares

- The market is being driven by:
 - “Over the Counter” (OTC) Voluntary Offset Credit demand
 - And international CO₂ reduction protocols (Kyoto)

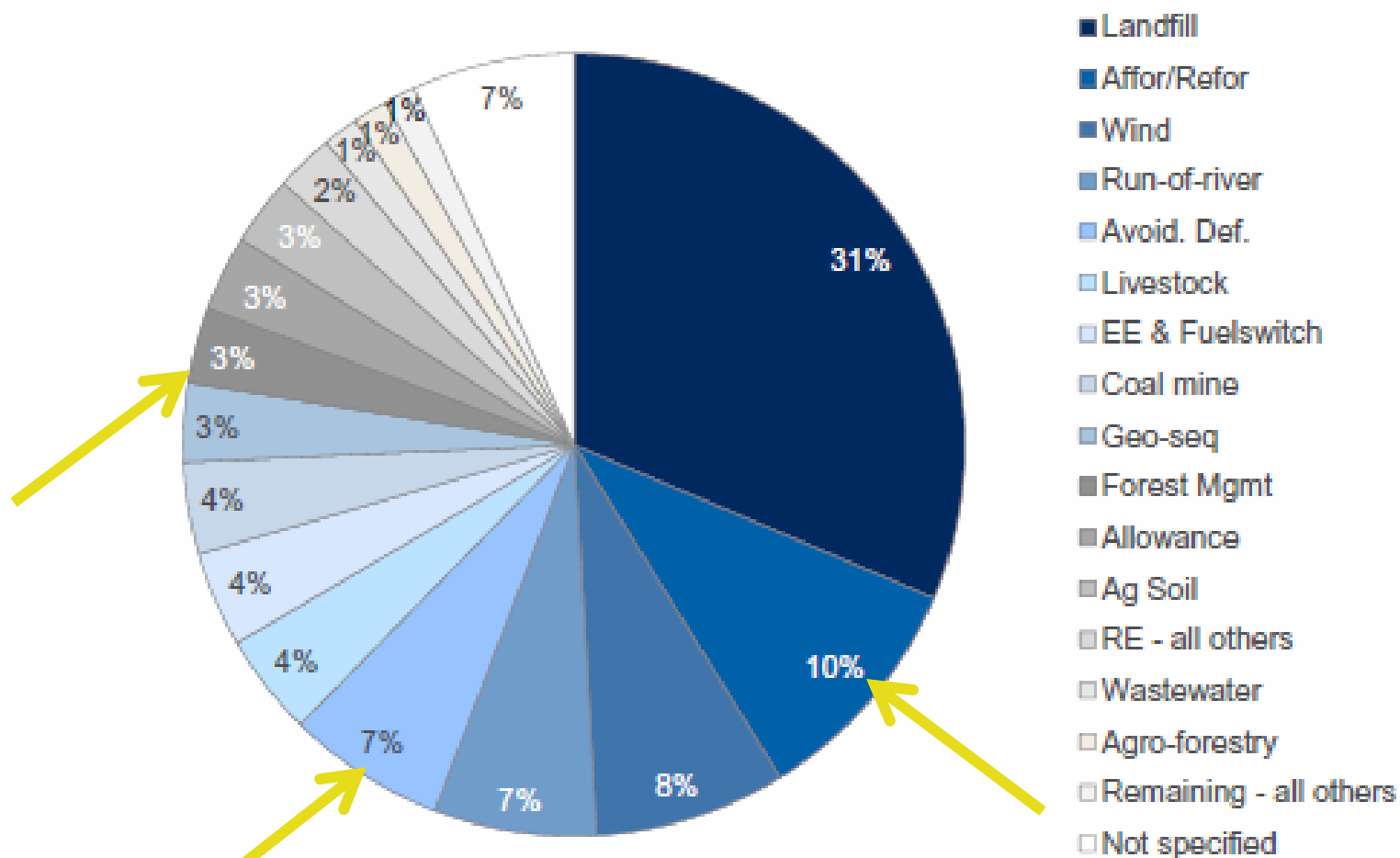
Figure 1: Transaction Volume Growth for the Voluntary Carbon Markets



Source: Ecosystem Marketplace, Bloomberg New Energy Finance.

Note: CCX bilateral trades included in the OTC volume.

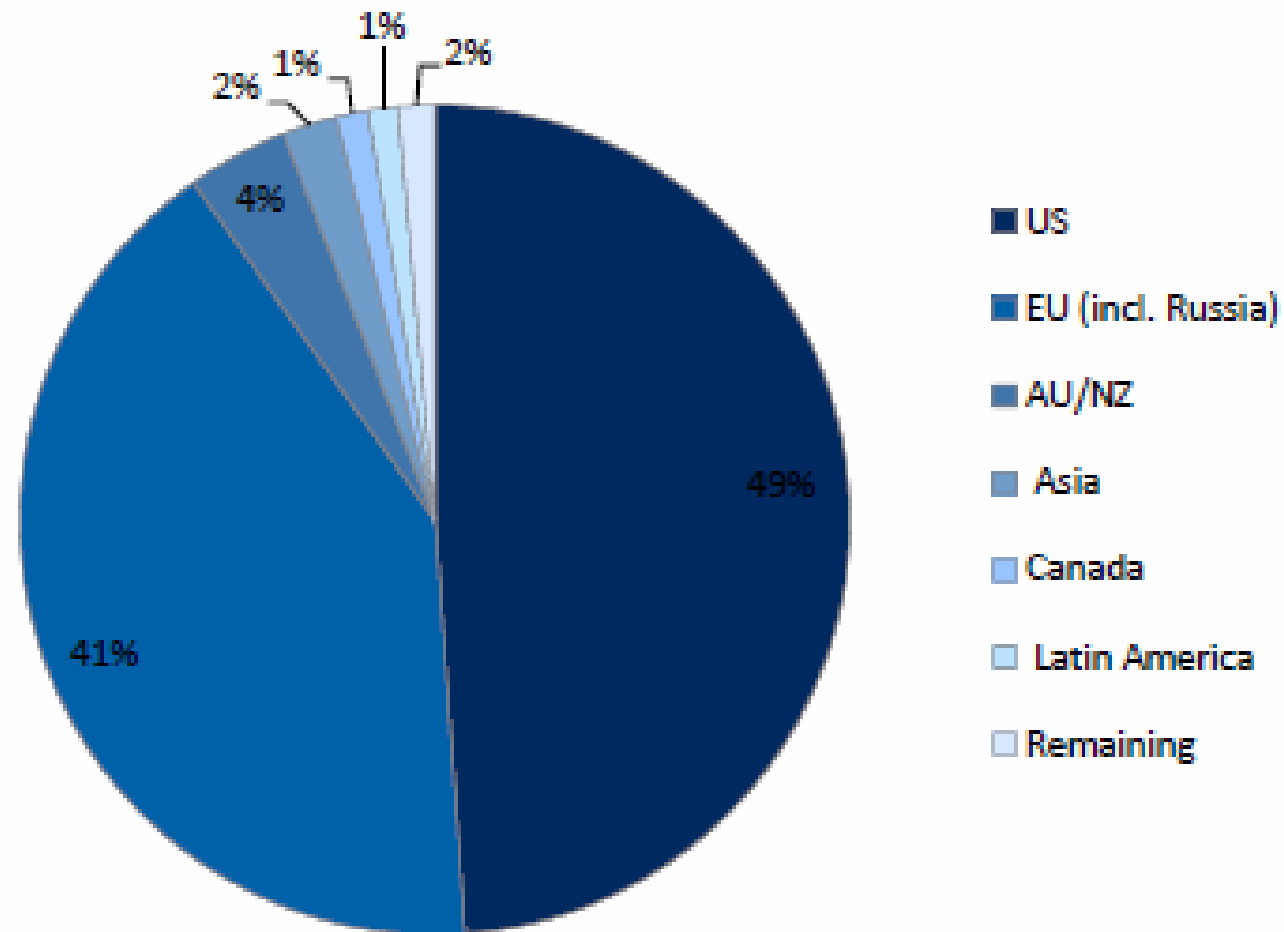
Figure 2: Transaction Volume by Project Type, OTC 2009



Source: Ecosystem Marketplace, Bloomberg New Energy Finance.

Figure 48: Transaction Volume by Customer Location, OTC 2009

% of Market Share

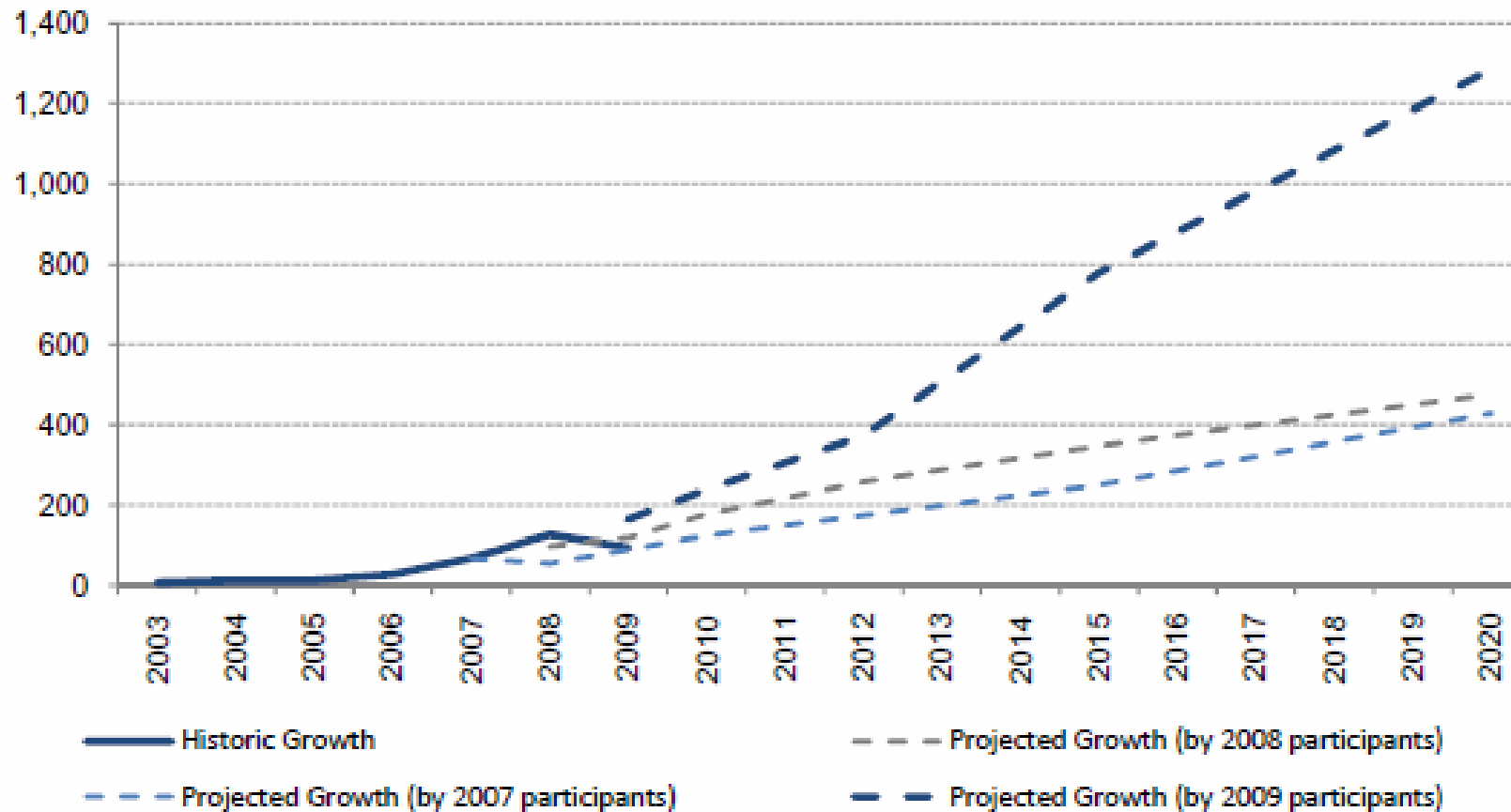


Source: Ecosystem Marketplace, Bloomberg New Energy Finance.

(1) Based on 110 survey respondents.

Figure 50: Supplier-Projected Growth in the Voluntary Carbon Markets

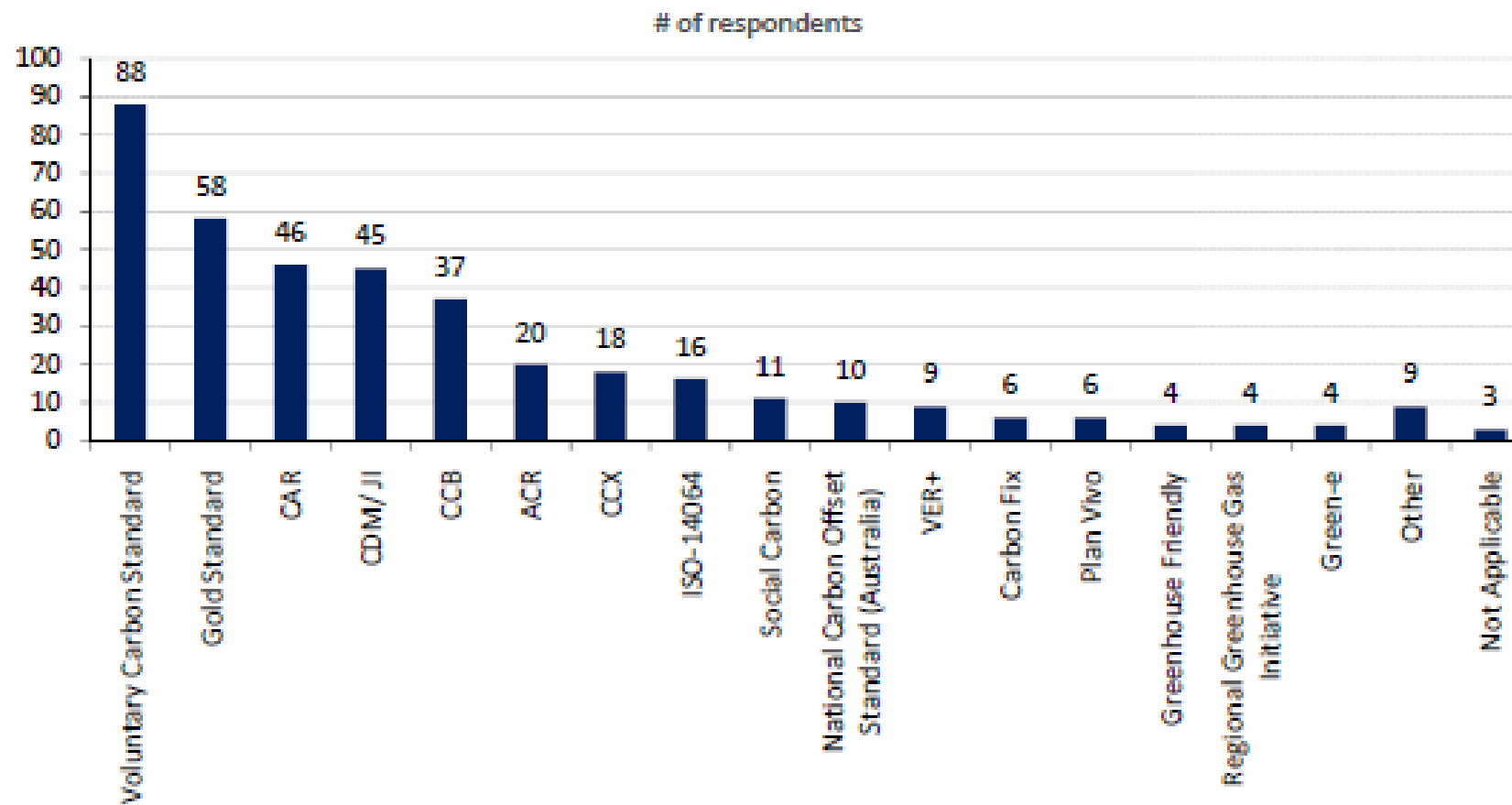
MtCO₂e



Source: Ecosystem Marketplace, Bloomberg New Energy Finance.

Based on 136 survey respondents

Figure 51: Standards Suppliers Intend to Use in 2010

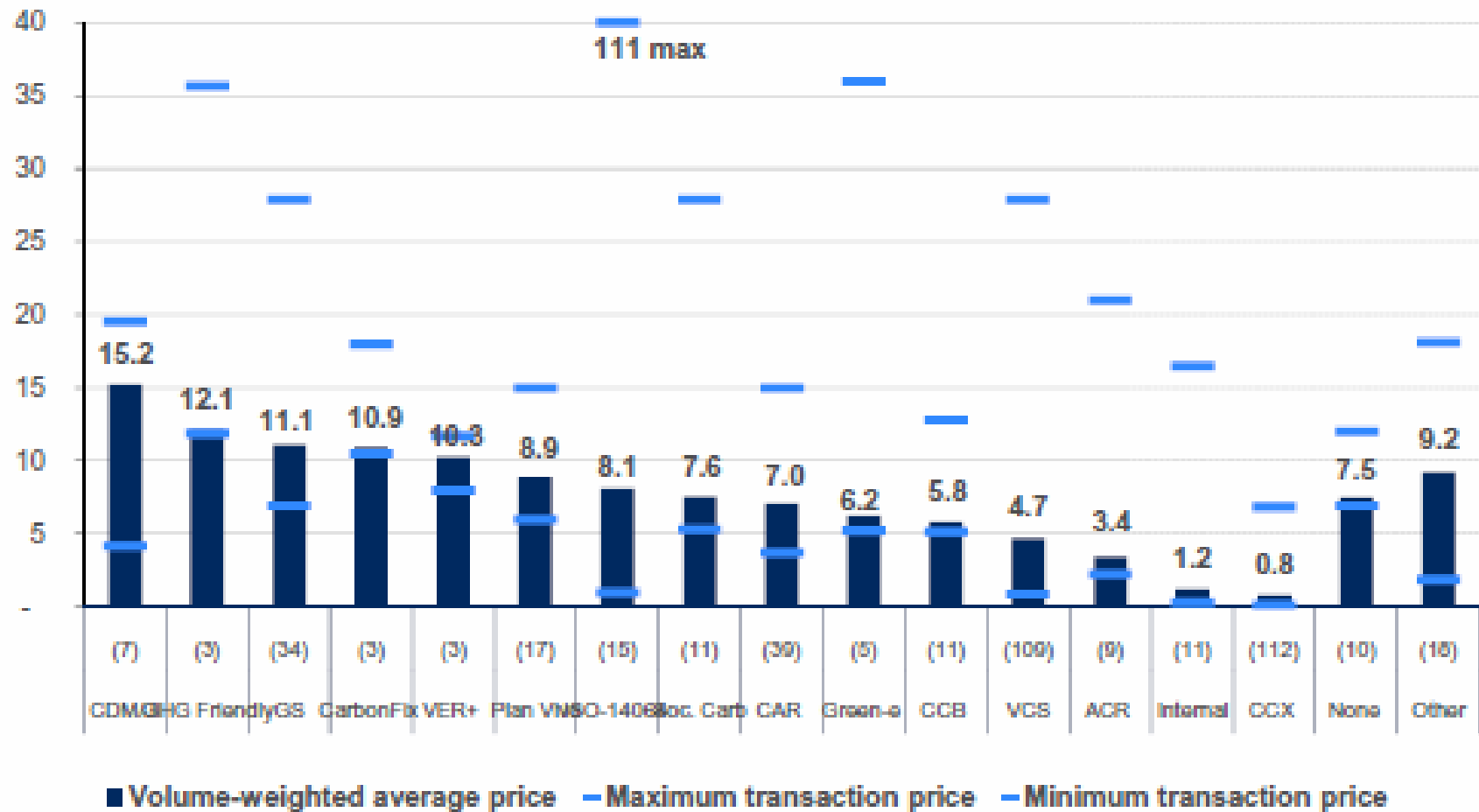


Source: Ecosystem Marketplace, Bloomberg New Energy Finance.

Based on 129 survey respondents

Figure 40: Average Price by Standard, OTC 2009

US\$/tCO₂e



Source: Ecosystem Marketplace, Bloomberg New Energy Finance.

Note: Based on 417 observations.

Interrelationships

