

# Voluntary Carbon Market

## Introduction and Opportunities for the Pacific Islands

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CDM capacity building workshop in Fiji – 1<sup>st</sup> November 2011



# Presentation Overview

- **Introduction to Voluntary Carbon Markets**
  - What is the Voluntary Carbon Market?
  - Advantages / Issues
  - Buyers / Sellers
  - Project and prices
  - Standards and registries
- **Opportunities in the Pacific**
  - Advantages of Pacific VER projects
  - Project Types
  - Essentials for project development

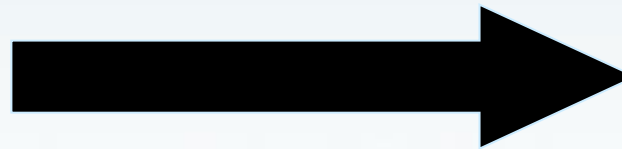


# Carbon market structure

## COMPLIANCE Market

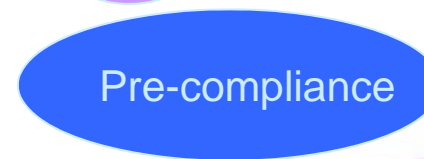


Australia, EU,  
Canada, Japan,  
New Zealand, USA



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## VOLUNTARY market



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# What is being traded?

- Emissions reductions
- Measured in tonnes of Carbon Dioxide (CO<sub>2</sub>)
- Usually the unit: **tCO<sub>2</sub>** is used
- Also called offsets or
- Verified or Voluntary Emission Reductions (VER)



# What is the Voluntary Market?

- Transactions in the voluntary carbon markets are not required by regulation, but are instead driven by companies and individuals that take responsibility for offsetting their own emissions as well as entities that purchase “pre-compliance” offsets.
- They co-exist with compliance markets that are driven by regulated caps on GHG emissions
- There are two types of voluntary market: cap-and-trade and offset



# Voluntary Cap-and-Trade

- Cap-and-Trade (a limit on emissions of countries, regions, sectors)
- Successful mandatory cap-and-trade examples: SO<sub>2</sub> (US), European Trading Scheme (EU ETS)
- There are no voluntary cap-and-trade markets functioning at present but a number of countries and regions of the world are considering them
  - e.g. California, USA



# Chicago Climate Exchange (CCX)

- Established 2003 as a voluntary Membership-based Cap-and Trade system in the US
- Many US companies participated in anticipation of US Federal Climate Change Bill
- When Bill failed in 2009 oversupply of allowances caused the price of allowances to crash (US\$0.05)
- The CCX cap-and-trade system ended in December 31, 2010



# Voluntary Offset Market

Offset Market made up of two main types of buyers:

- Purely voluntary buyers
- Pre-compliance buyers





# Purely voluntary buyers

- Organisations, companies or individuals not subject to mandatory emission reductions
- Purchase CO<sub>2</sub> emission credits and remove them from the market
- In order to offset their own emissions
- E.g. Offsetting a return flight Suva-Sydney or offsetting annual emissions of a 4x4
- Motivation = ethical thinking or corporate social responsibility (CSR)



# Pre-compliance buyers

- Companies buying credits in anticipation of a mandatory market being established in the future
- Buying now = lower price
- Many national / regional mandatory compliance programmes not functioning yet but encouraging pre-compliance buyers e.g. California's forest-friendly cap-and-trade program will start in 2012

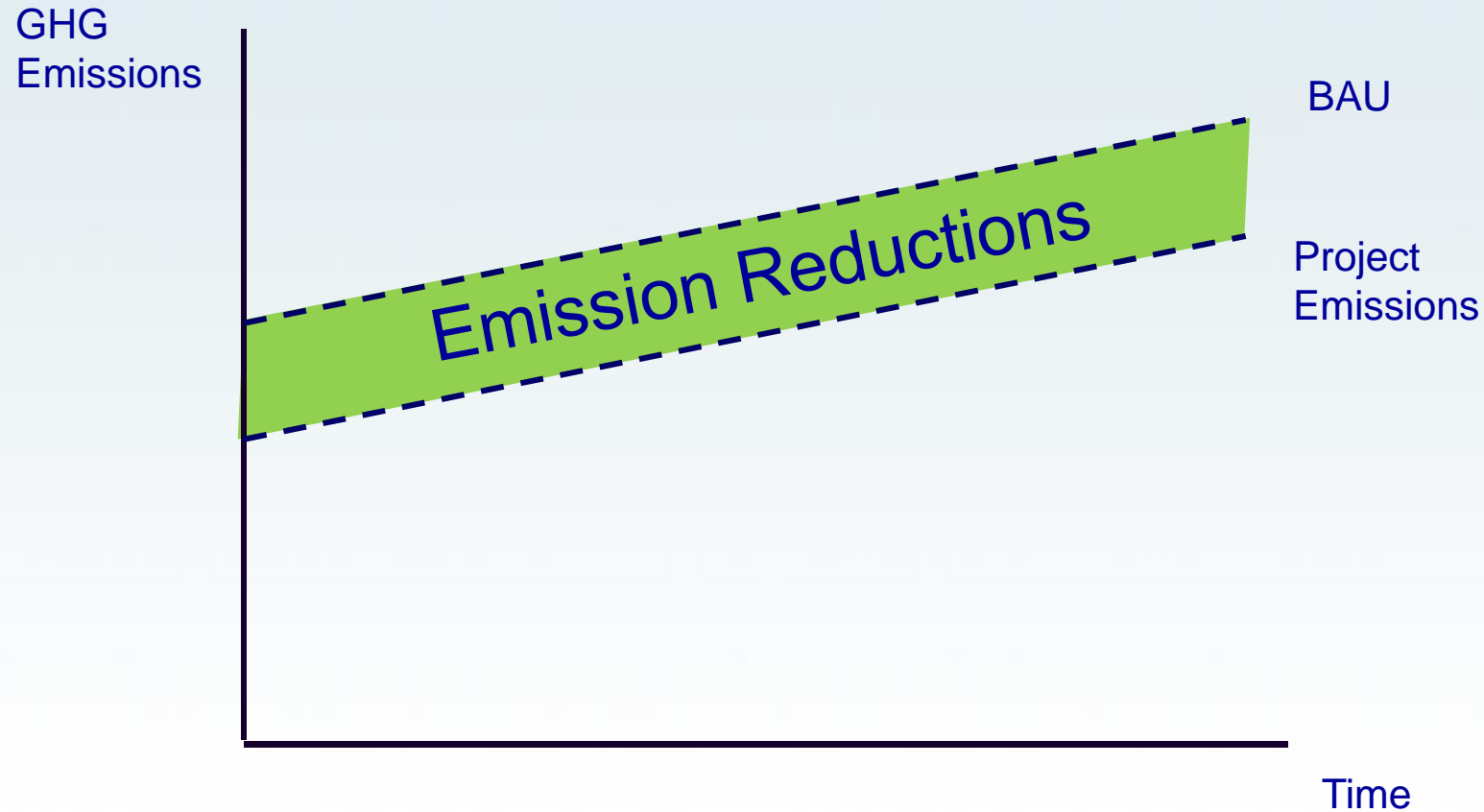


# Voluntary Market

- Uses Carbon Credits
  - Generated through a project based system
  - Uses a Baseline – Project Emissions
  - Similar to CDM procedures (many projects use same methodologies)
  - Additionality verified by independent third party
- The volume of carbon credits transacted *voluntarily in 2010 represents less than a 0.3% share of the global carbon markets*



# Emission reduction principle



Projects that reduce or avoid carbon emissions are the source of credits in the voluntary carbon markets



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# Voluntary vs. Compliance

	Voluntary	Compliance
Commodity	VER	CER
Price	Variable accordingly with standard and project (typically ~ USD2-6)	Higher (~ USD11)
Coverage	Voluntary / worldwide	Annex 1 countries
Market size	Smaller	Larger
Volume	2009: 98 MtCO <sub>2</sub> 2010: 131MtCO <sub>2</sub>	2009: 7,437 MtCO <sub>2</sub> 2010: 6,692 MtCO <sub>2</sub>
Regulation	No formal regulation	UNFCCC EB
Methodologies	CDM, Verified Carbon Standard (VSC), Gold Standard and others	Approved by EB
Independent Third Party	CDM DOEs and others	DOEs and EB

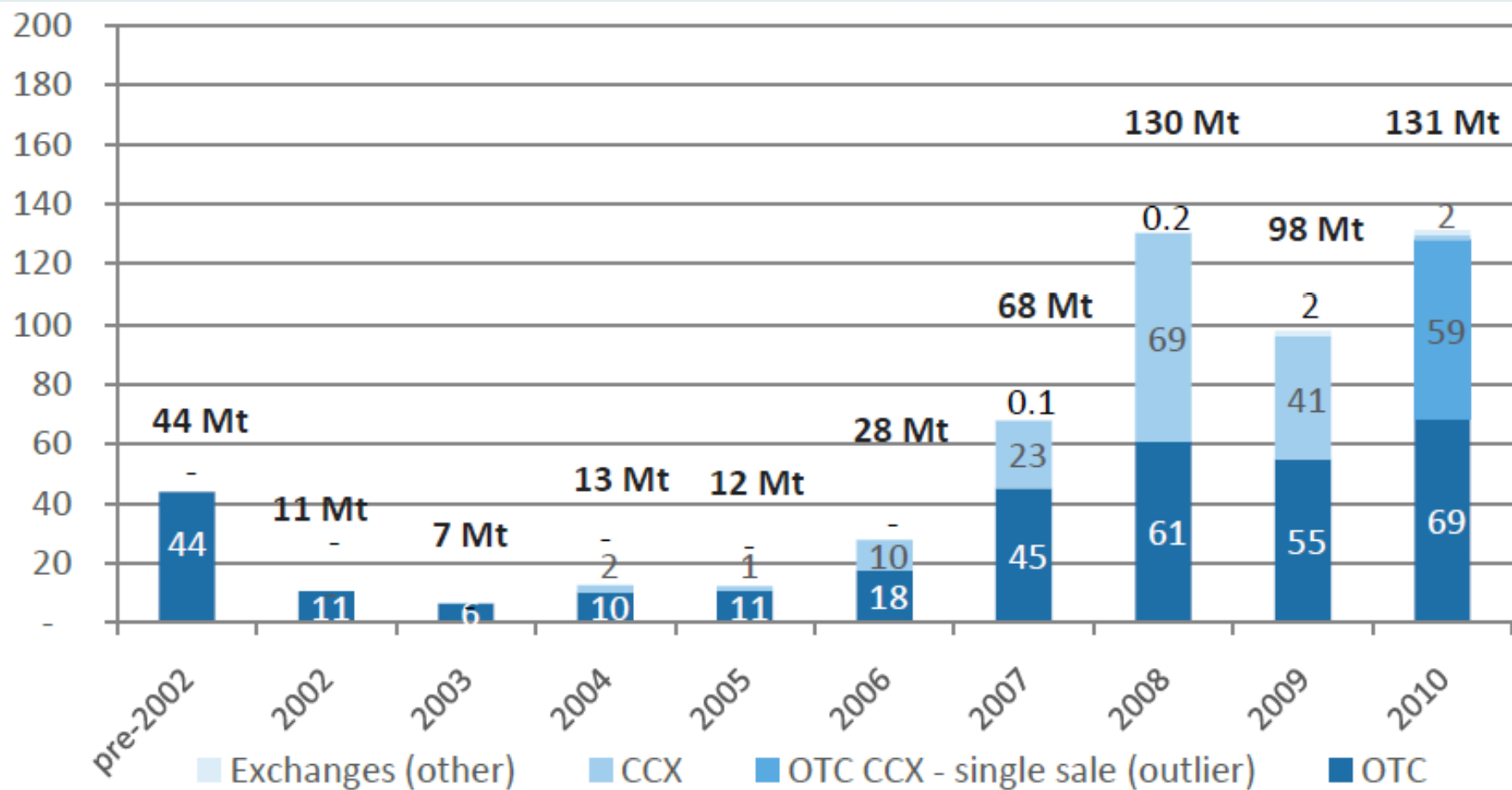


# (Notes from previous slide)

- VER: voluntary emission reduction name varies accordingly with the standard
- Price: generally lower than CERs as CERs can also be used in the voluntary market. Their quality (additionality) higher - certified by the DOE and EB
- Volume: difficult to estimate as there are approximately 20 standards and the transactions are not always public neither are they done through a registry. However, a substantial decrease is expected to have happened in 2010



# Growth of Voluntary Carbon Markets



Source: Ecosystem Marketplace, Bloomberg New Energy Finance.

Notes: Based on 153 survey respondents. Annual totals may not equal sum of categories due to rounding.

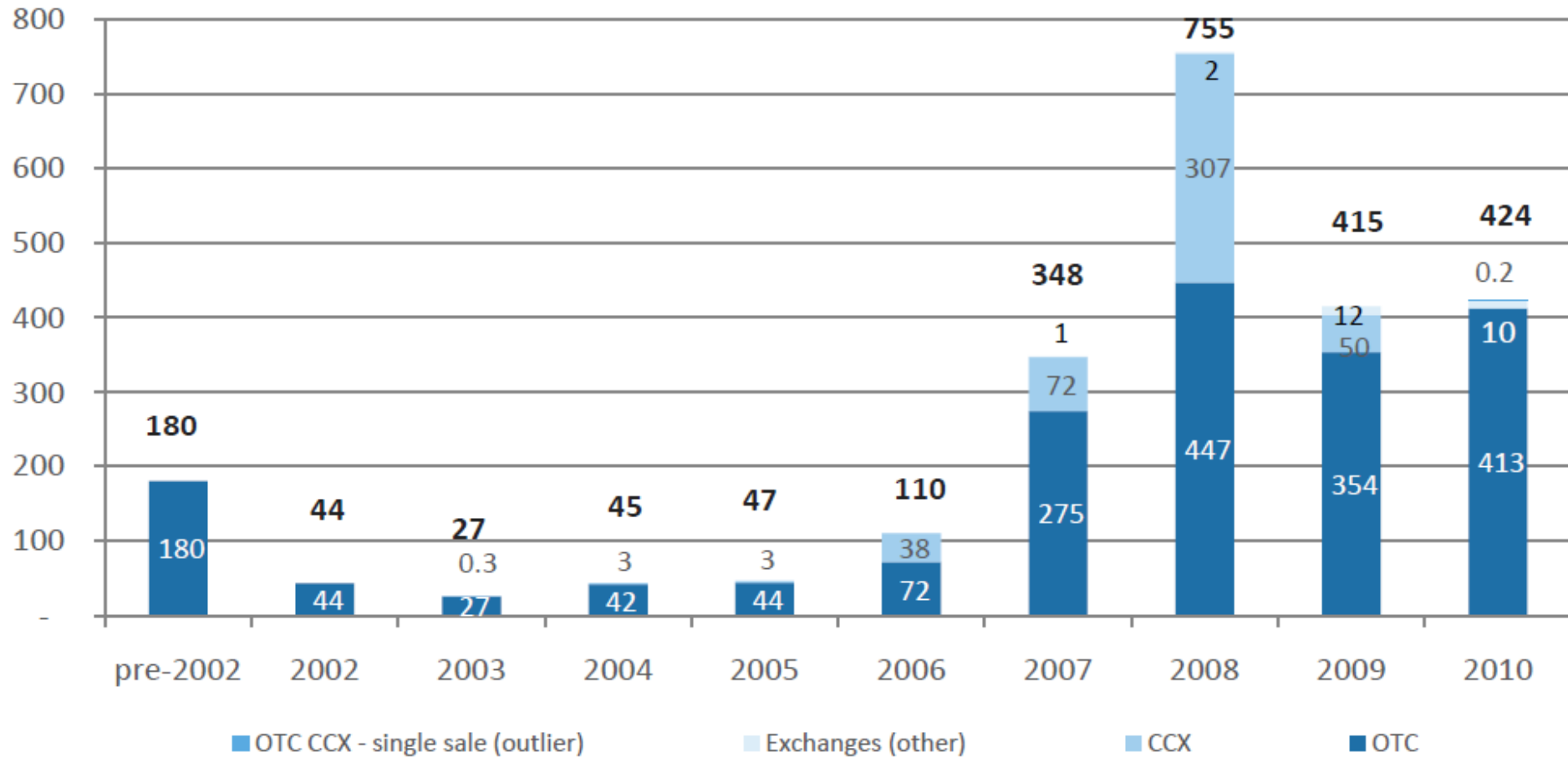


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# Value of the Voluntary market

US\$ Millions



Source: Ecosystem Marketplace, Bloomberg New Energy Finance.  
Notes: Based on 125 survey respondents.



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# Advantages: Voluntary vs. CDM

- Less bureaucratic / reduced cost
- Cheaper to generate credits
- Flexibility and Innovation - niche/new sectors not covered by CDM
- Can contribute more to sustainable development
- Value for co-benefits: environmental & social contributions
- Easier to register forestry projects



# Some issues / constraints for the Voluntary market

- Generally lower price (but not always)
- Quality assurance
- Transparency
- Many different buyers – market is changing
- Many standards and registries: can be confusing
- Market is still small – just 0.3% of the global carbon market



# Voluntary Market: Buyers

- Who buys carbon credits?

Companies, NGOs and individuals

- For?

- Offsetting activities and products (travel, books, music festivals)

- Pre-compliance with mandatory schemes

- Why?

- Competitive advantage: Public relations, Branding, Corporate Social Responsibility
- Investment/Resale



# (Notes from previous slide)

- Corporate social responsibility
- The OTC market is driven by both “purely voluntary” and “pre-compliance” buyers. Purely voluntary buyers purchase credits to offset their individual or organization’s emissions and are driven by ethical or corporate social responsibility (CSR) motivations. Hence, the demand curve for these purely voluntary VERs has similarities with other “citizen consumer” ethical purchases such as for Fair Trade or organic products.
- Pre-compliance buyers purchase VERs for one of two purposes: to purchase credits that they might be able to use for future compliance at a comparatively low price or to sell them at a higher price to entities regulated under a future mandatory cap-and-trade scheme. Entities that are likely to be regulated make up the first category, while companies with the second goal are typically intermediaries.



# Voluntary Market Buyers

- Business for profit
  - Retirement, voluntary offset
  - Resale to voluntary buyers
  - Pre-compliance motive
  - Resale to pre-compliance buyers
- Governments (retirement, voluntary offset)
- NGOs/non-profit organizations
  - Retirement, voluntary
  - Resale
- Individuals (retirement, voluntary offset)



# Voluntary Market Suppliers

- Project Developers: Develop GHG emissions-reduction projects and sell the VERs
- Wholesalers: Only sell offsets in bulk and often have ownership of a portfolio of credits.
- Retailers: Sell small amounts of credits to individuals or organizations, usually online, and might have ownership of a portfolio of credits.
- Brokers: Do not own credits, but facilitate transactions between sellers and buyers.



# Voluntary Market: Project types

## ■ The Top Three

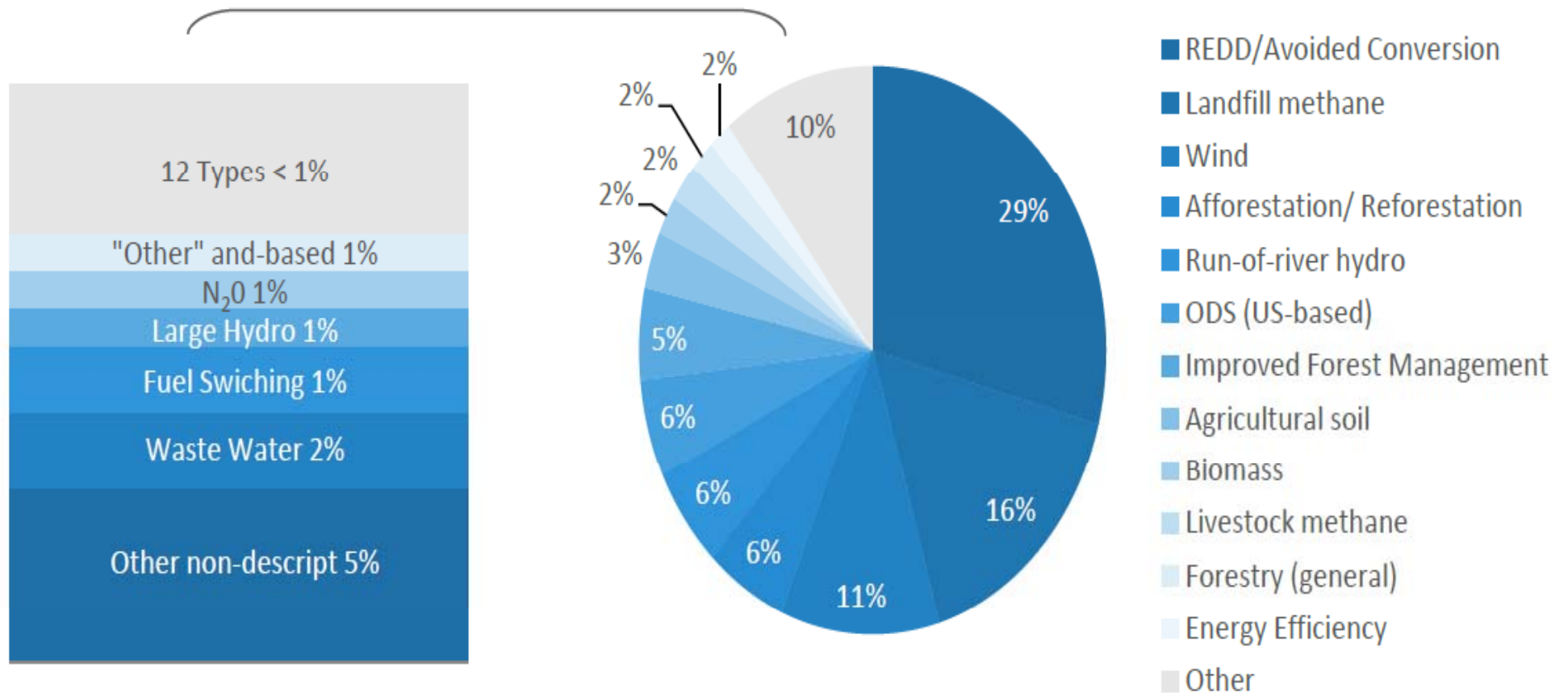
2009	2010
Landfill methane	REDD* / Avoided Conversion
Afforestation / Reforestation	Landfill methane
Wind	Wind

\*Reducing Emissions from Deforestation and Forest Degradation



# Project types - 2010

% Market Share



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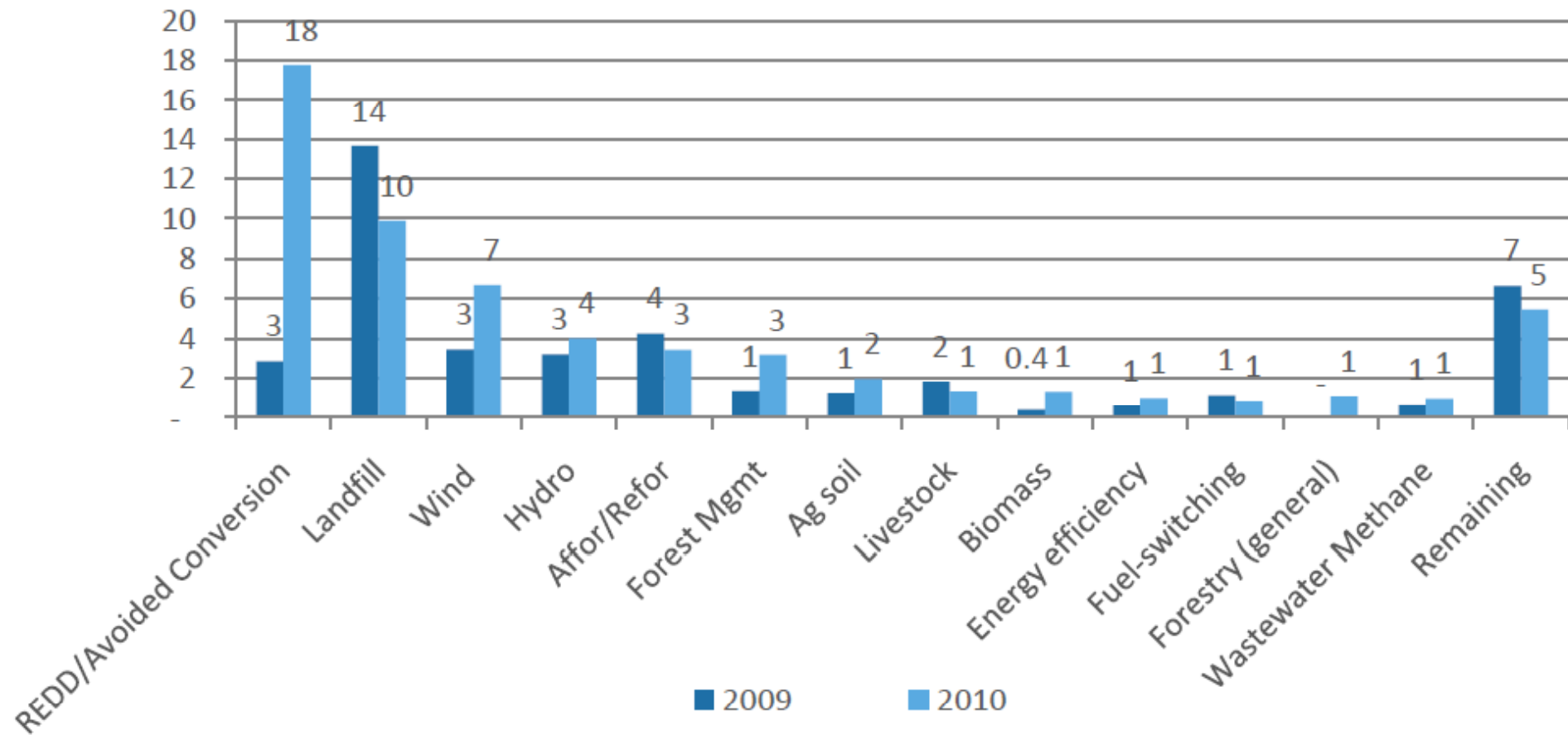
# Other Voluntary market project types

- Run-of-river Hydro
- Agricultural soil
- Improved Forest management
- Livestock methane
- Energy efficiency
- Biomass
- NEW - Bicycle sharing!



Figure 13: Transaction Volume by Project Type, 2009 vs. 2010

MTCO<sub>2</sub>



Source: Ecosystem Marketplace, Bloomberg New Energy Finance.

Notes: Based on 608 observations.



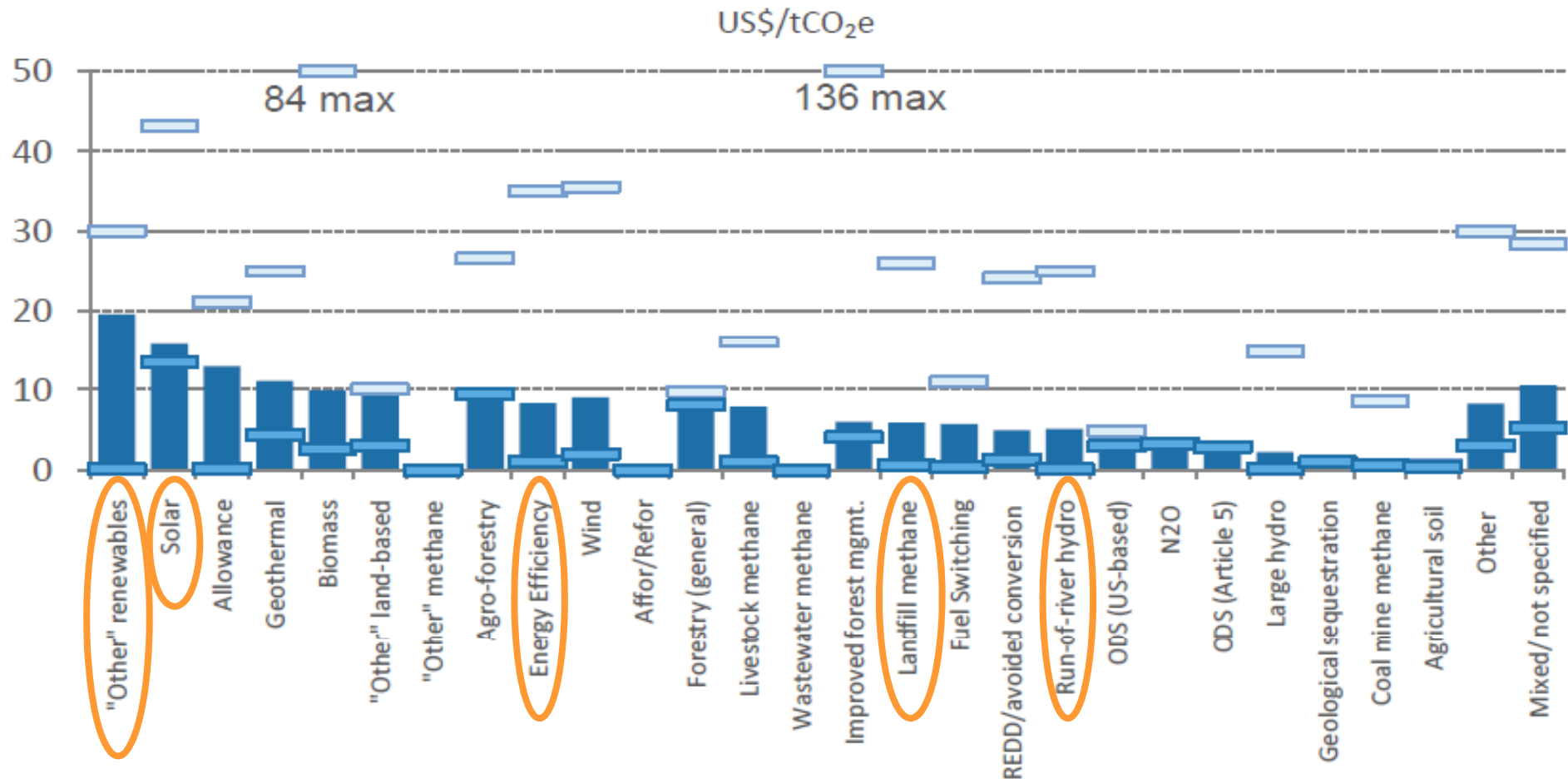
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# Voluntary Carbon Credits: Price

- Higher price for premium credits
- Average US\$ 6/tCO<sub>2</sub>

Figure 15: Average Credit Price and Price Range by Project Type, OTC 2010



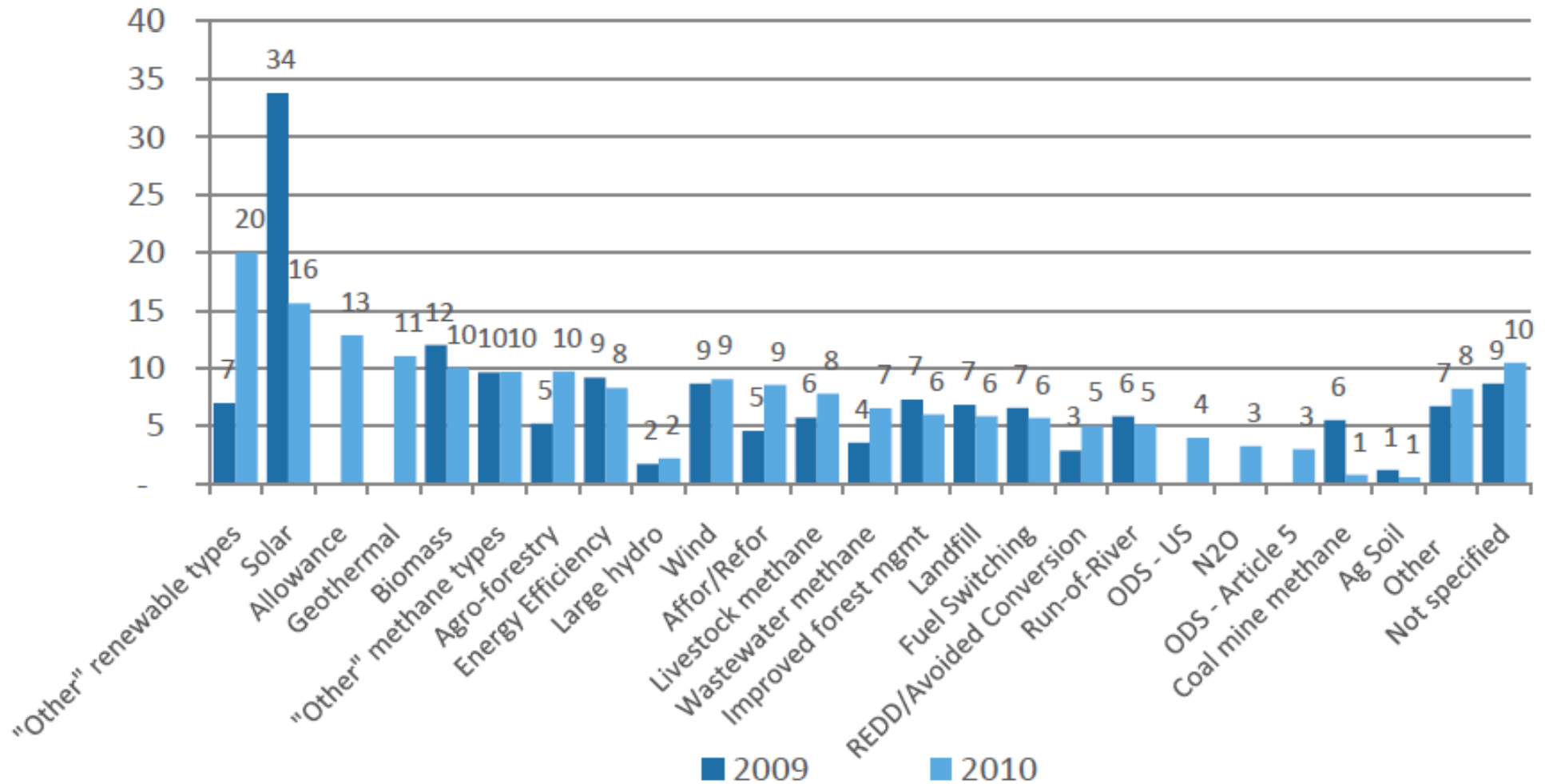
# Price related to Project characteristics

- Project **type** is one of the most significant factors influencing price
- Two of the highest average prices: Solar (\$16/tCO<sub>2</sub>e) and biomass projects (\$10/tCO<sub>2</sub>e).
- Medium: (\$4-8/tCO<sub>2</sub>e) forestry, run-of-river hydro and landfill
- Lowest: large hydro (\$1.7/tCO<sub>2</sub>e) and agricultural soil credits (\$1.2/tCO<sub>2</sub>e).



Figure 16: Average Credit Price by Project Type, OTC 2009 vs. 2010

US\$/tCO<sub>2</sub>e



Source: Ecosystem Marketplace, Bloomberg New Energy Finance.

Note: 2009 figures based on 326 observations, 2010 figures based on 461 observations.



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# Price related to Project characteristics

- Project **location** can also influence
- Project environmental impacts
- Contribution to local community – social impacts
- Project size
- Which Standard used e.g. Gold Standard or VCS for renewables, Plan Vivo for Forestry, SOCIALCARBON for projects with social benefits



# Australia & New Zealand: Markets around the corner

- Australia:
  - National Carbon Offset Standard (NCOS)
  - Carbon Farming Initiative (CFI)
- New Zealand:
  - New Zealand Emissions Trading Scheme (NZ ETS)
  - Permanent Forest Sink Initiative (PFSI)



# Existing Standards

- Voluntary Carbon Standard (VCS): CDM & own meth
- Gold Standard: uses CDM meth
- CAR: own meth
- VER+: CDM & new meth
- CCB: CDM meth
- GHG Protocol: generic guidelines
- ISO14064: generic guidelines
- SOCIALCARBON

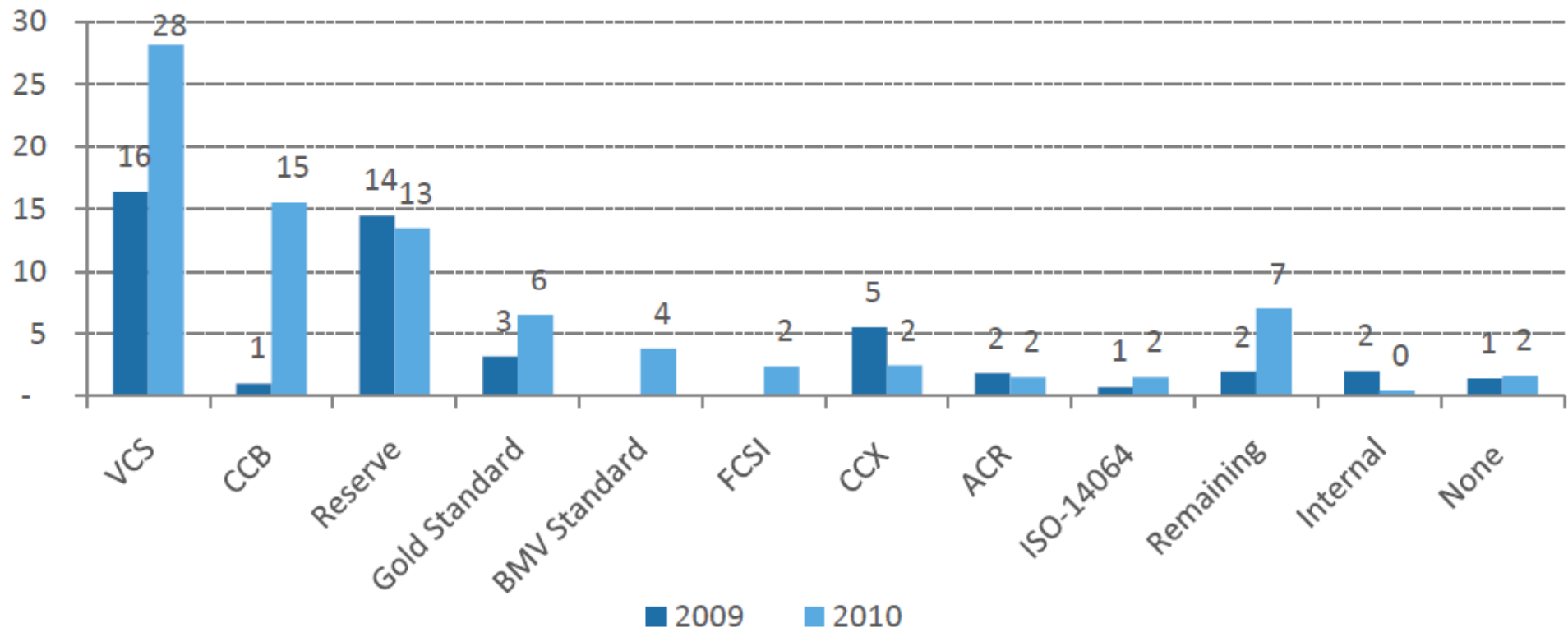




# Standards – Market Share

Figure 26: Transaction Volume by Primary and Secondary Standard, OTC 2009 vs. 2010

MtCO<sub>2</sub>e



Source: Ecosystem Marketplace, Bloomberg New Energy Finance.  
 Note: 2009 data based on 320 observations, 2010 data based on 676 observations.



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# Forest-based Standards

- Plan Vivo: project specific meths
  - CarbonFix
  - BMV Standard
  - Forest Carbon Standard International
- *Forest-exclusive standards made up one third of all active standards in 2010*

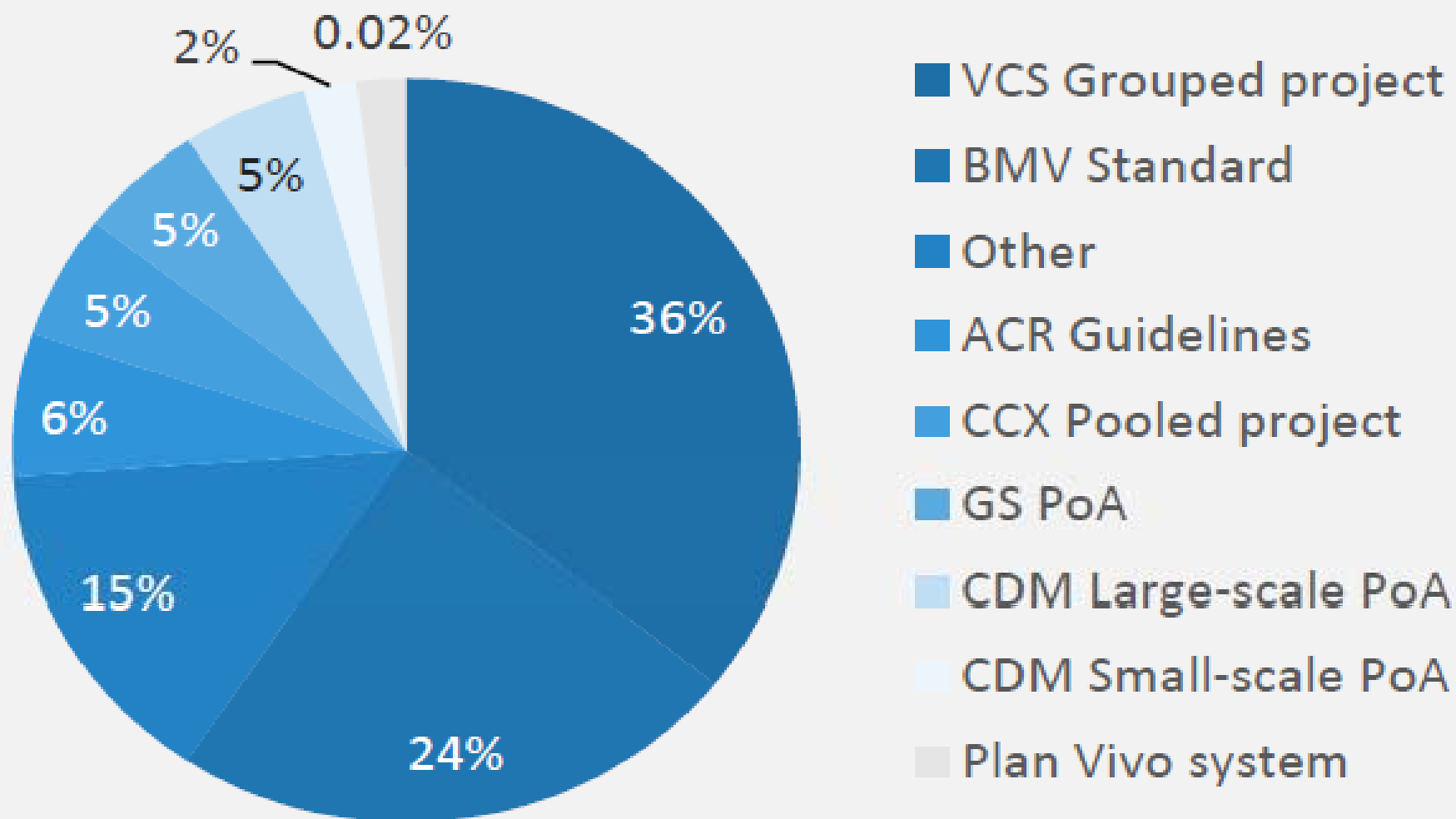


# Voluntary Standards – Programme of Activities (PoA)

- Buyers want to support small-scale community-based activities
- Impact on Climate AND Communities
- High risks and costs
  
- Aggregation Guidelines
  - VCS Grouped Project Guidelines
  - Gold Standard Voluntary PoA



Figure 24: Programmatic or Project Grouping Guideline Use, 2010



Source: Ecosystem Marketplace, Bloomberg New Energy Finance.

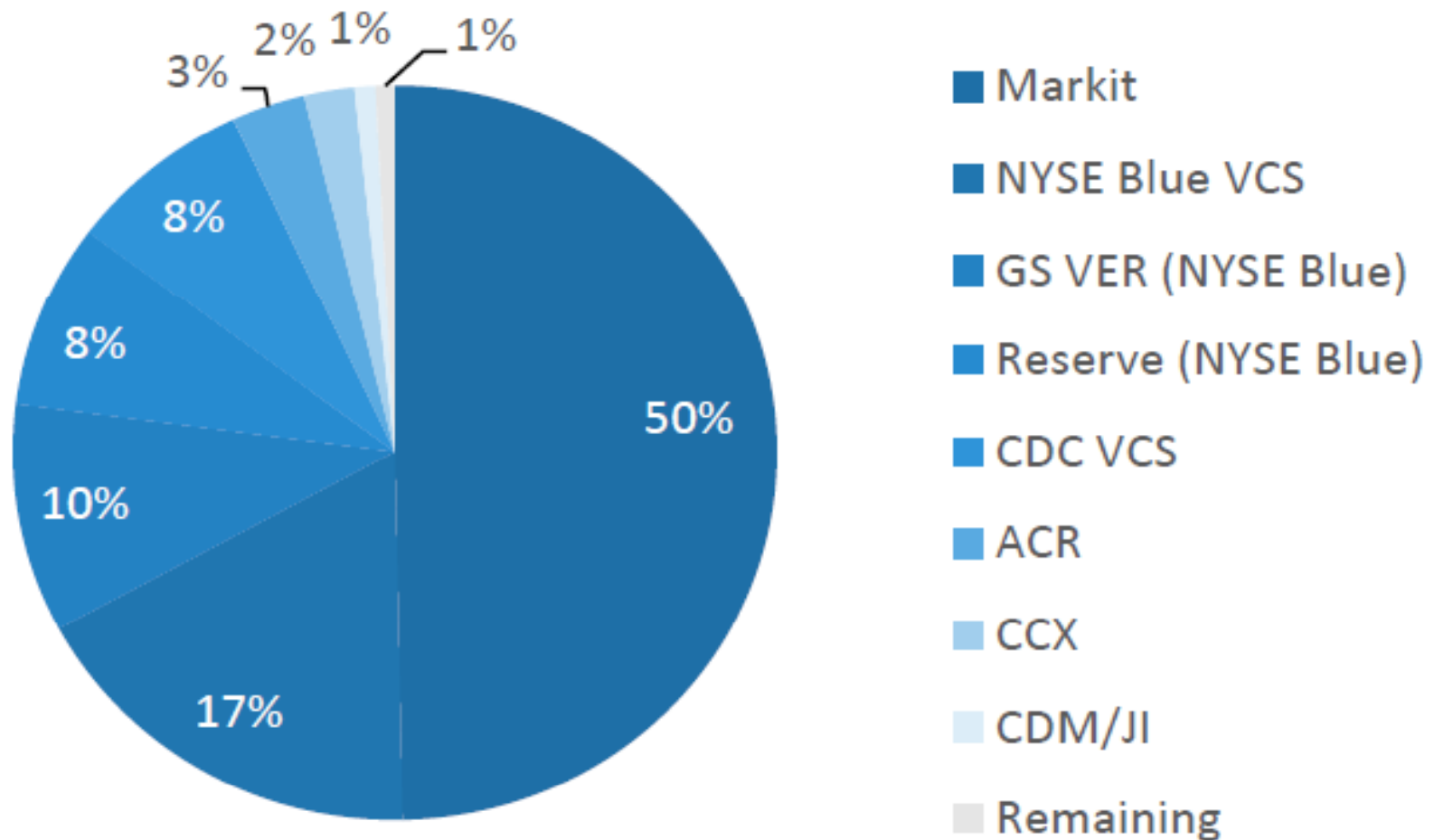
Note: Based on 51 survey respondents.

# Registries

- Verified carbon reduction are converted to a saleable asset
- Credits have unique ID
- Transferred from seller to buyers account
- Examples: Gold Standard Registry, VCS Registry, Markit Registry, ACR, J-VER and others
- Many Standards have their own registry



Figure 28: Transaction Volume by Registry Utilized, OTC 2010



Source: Ecosystem Marketplace, Bloomberg New Energy Finance.

Note: This figure excludes the volume of OTC credits (33%) that were reported as not tracked in registries. Based on 107 survey respondents.

# Different ways to sell

- Pre-pay (PP): payment is made in advance of credit delivery;
- Payment-on-delivery (POD): payment is made when the credits are verified and delivered; unit-contingent means that delivered credit volumes depend on how many are produced;
- Firm delivery: quantities contracted for delivery are exactly specified;
- Spot transaction: the credit has already been produced – delivery and payment are instantaneous.



# Why VERS from the Pacific?

- Niche market with desirable project characteristics:
  - Location – Small and vulnerable Pacific Islands
  - Type – Solar and other renewables, small-scale energy efficiency
  - Strong environmental and social project contributions – community projects
  - High profile – good for buyers' image
  - The story behind the credit

***“Charismatic Carbon”***



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# Opportunities in the Pacific

- Renewables + good project characteristics = higher price for VERs
- Solar, mini-hydro, biomass
- REDD forestry + forest management + new mangrove conservation methodology
- Landfill and waste water
- Energy efficiency e.g. Home improvements



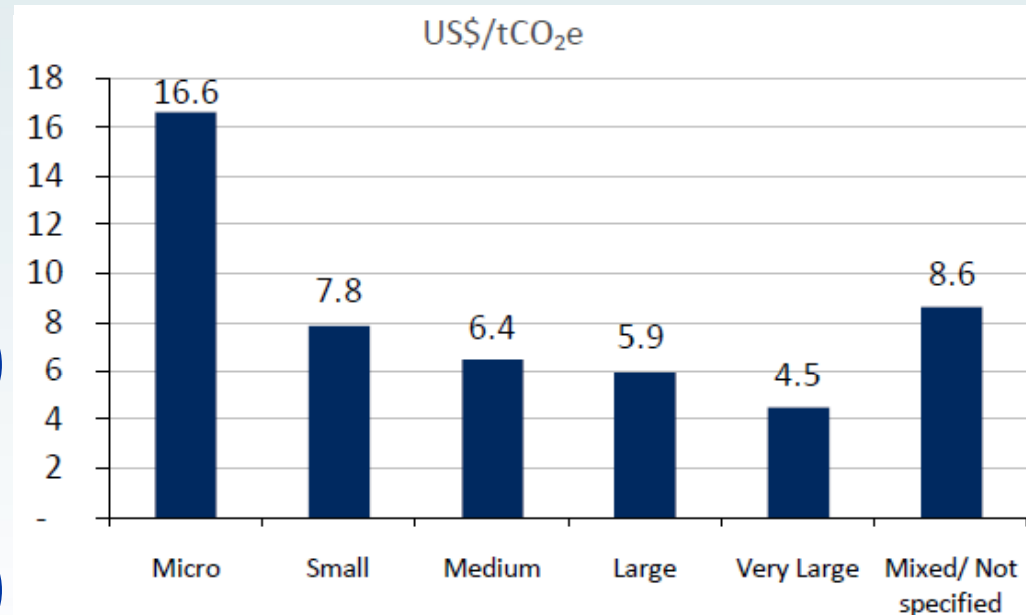
# Solar Projects – High prices

- Solar's high price may be attributed to:
  - solar offset scarcity
  - micro-scale project sizes
  - higher production costs.
- Higher prices regardless of location or standard utilized
- Solar = overall environmental appeal and/or level of buyer comfort with the familiar project type



# Project sizes – small is beautiful

- Micro (< 5,000 tCO<sub>2</sub>e/year)
- Small (5,000 to 19,999 tCO<sub>2</sub>e/year)
- Medium (20,000 to 99,999 tCO<sub>2</sub>e/year)
- Large (100,000 to 500,000 tCO<sub>2</sub>e/year)



Source: Ecosystem Marketplace, Bloomberg New Energy Finance.  
Note: Based on 215 observations.



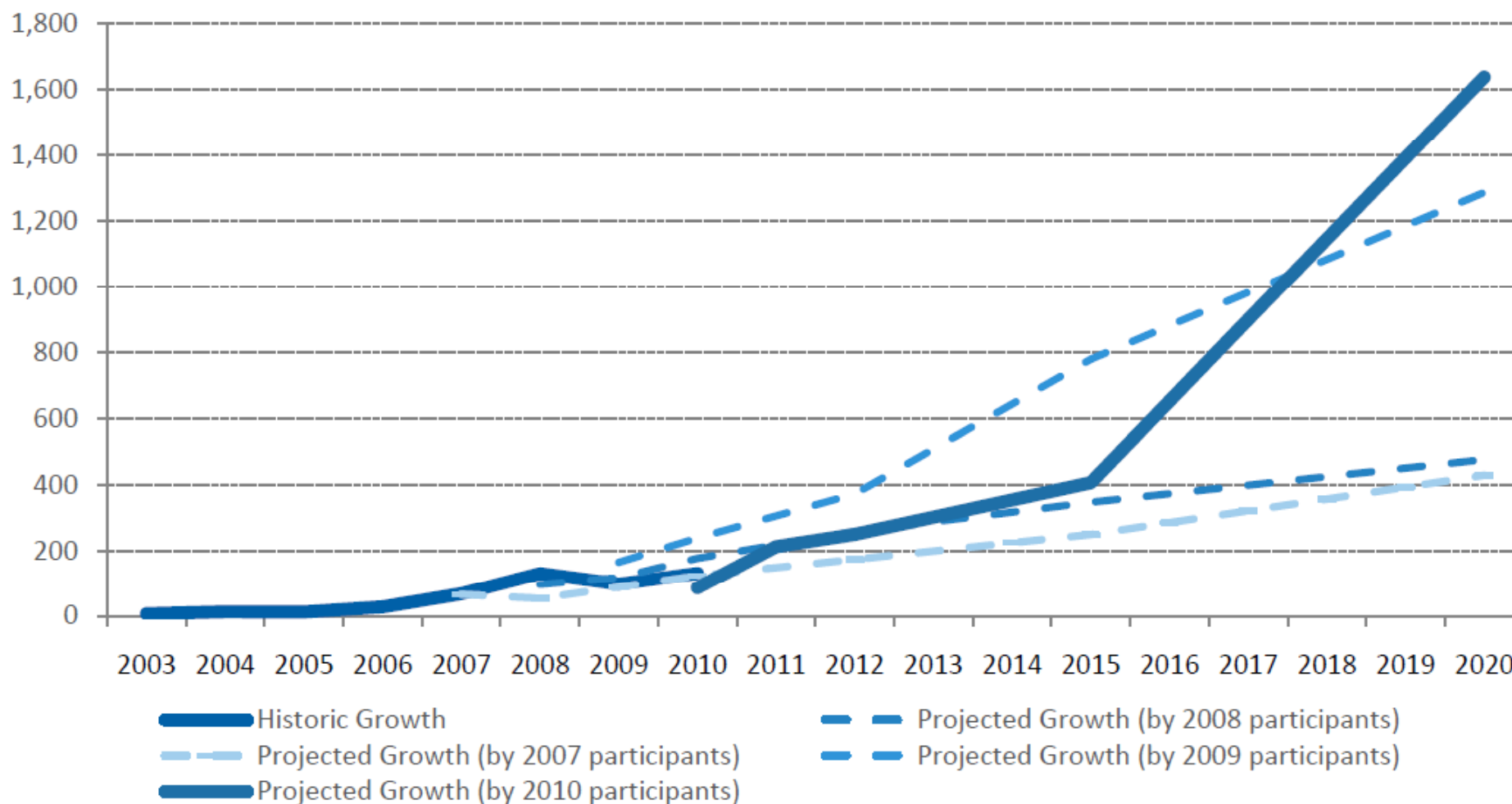
# Gold Standard Micro-Project Scheme

- Community-Focused Micro Scale Scheme
- Other standards also developing guidelines that allow project developers to easily aggregate small or diffuse project activities
- High prices possible for Gold Standard certified projects



Figure 33: Supplier-Projected Growth in the Voluntary Carbon Markets

MtCO<sub>2</sub>e



Source: Ecosystem Marketplace, Bloomberg New Energy Finance.

Note: Based on 95 survey respondents.



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# Developing a VCM project

- Is a lot like developing any community / energy / forestry / etc. project
- You have to:



- Line your ducks up...



# How to Develop a Project?

1. You have an idea for a project which reduces or avoids carbon emissions
2. The project requires some extra financing or needs some assistance to secure finance
3. It should contribute to the sustainable development of the local community
4. Get your partners together
5. Write a Project Idea Note
6. Decide on a Standard to use
7. Present project to credit buyers
8. Get funding for your PDD



1. PROJECT IDEA AND PRELIMINARY ASSESSMENT

2. PROJECT DESIGN AND PLANNING

3. DEVELOPING A PROJECT DESIGN DOCUMENT

4. REVIEW PROJECT ACTIVITIES AND DEVELOP PROJECT IMPLEMENTATION STRATEGY

5. FINALIZING FINANCING AND INVESTMENT ARRANGEMENTS

6. APPROVALS, VALIDATION AND REGISTRATION

7. IMPLEMENTATION AND MONITORING

8. VERIFICATION AND ISSUANCE

This process is not fast and could take anything between 1 and 3 years or more!

But projects can then generate income for 10 years or more





# References

- *Back to the Future, State of the Voluntary Carbon Markets 2011*, A Report by Ecosystem Marketplace & Bloomberg New Energy Finance, Molly Peters-Stanley, Katherine Hamilton, Thomas Marcello, and Milo Sjardin, June 2, 2011
- Olander, Jacob, and Johannes Ebeling. *Building Forest Carbon Projects: Step-by-Step Overview and Guide*. In *Building Forest Carbon Projects*, Johannes Ebeling and Jacob Olander (eds.). Washington, DC: Forest Trends, 2011
- *State and Trends of the Carbon Market 2011*, Environment Department, World Bank, Washington DC, June 2011
- *The Handbook for Programme of Activities: Practical Guidance to Successful Implementation*, Climate Focus

