

# Overview of the Carbon Market and Project-Based Credits

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ADB Transport Forum

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# Outline

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- Why is there a carbon market?
- What is the size of the carbon market?
- Who and what is selling?
- Who is buying?
- What are current carbon prices?
- Structure of project transactions
- Market outlook

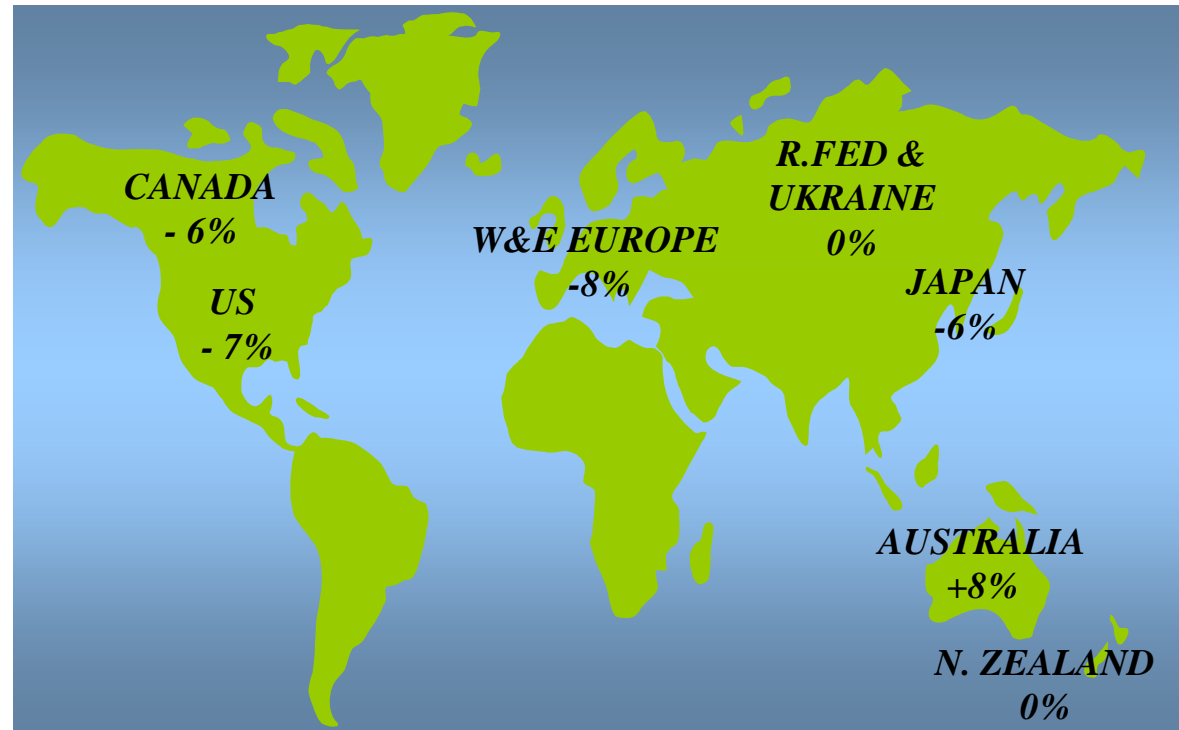
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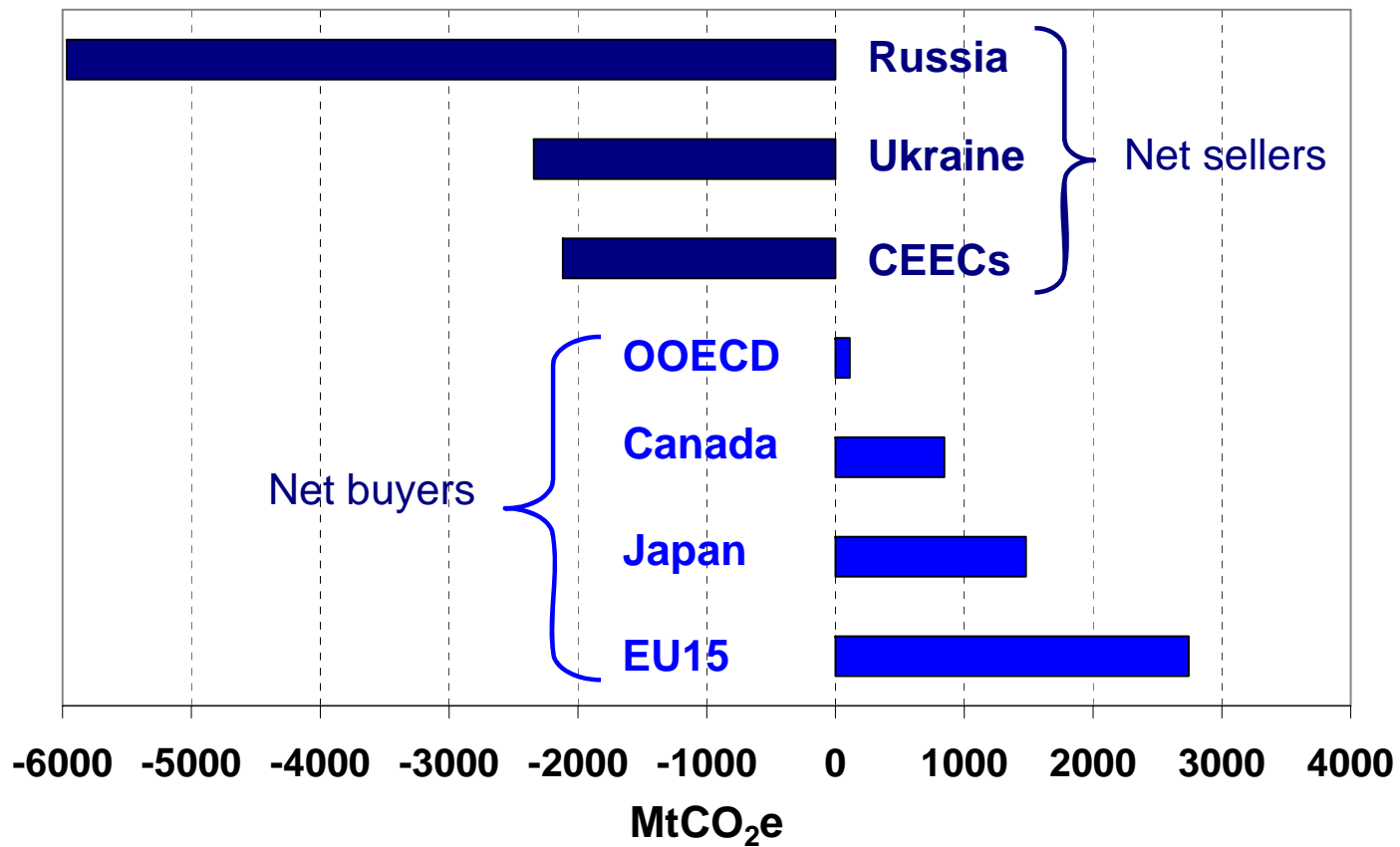
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# Global Kyoto Commitment

- 38 countries faced reduction/limitation commitments - overall reduction of 5.2% from 1990 emission levels
- Commitments respond to a GHG reduction of 30%-40% below business as usual forecasts over period 2008 - 2012
- U.S. has not ratified and are engaged in voluntary market and state/regional-level activities at this time
- Kyoto Parties also agreed to the notion of “successive commitment periods” but have not agreed on reduction targets

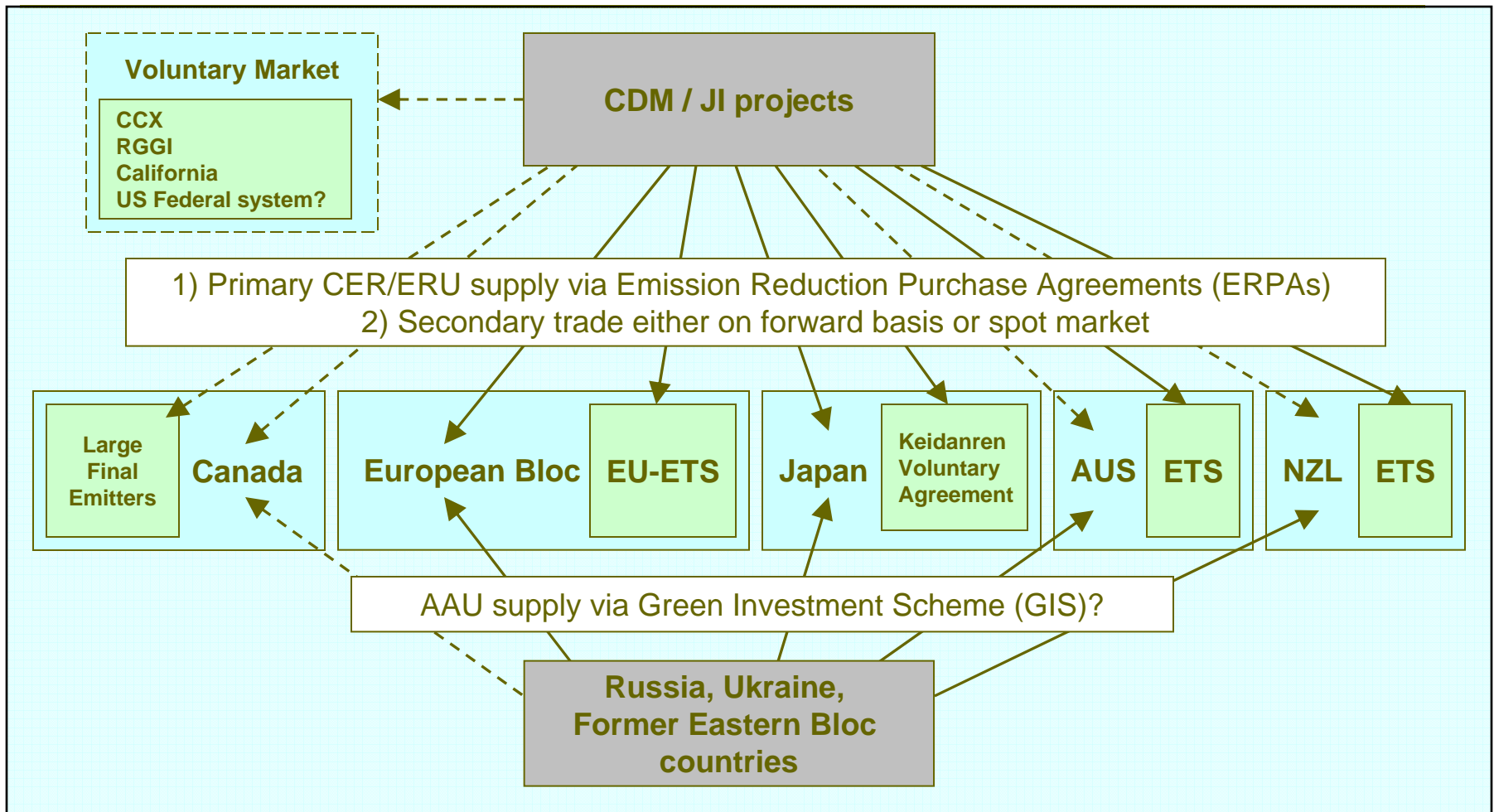


# Annex B targets vs. business-as-usual trends

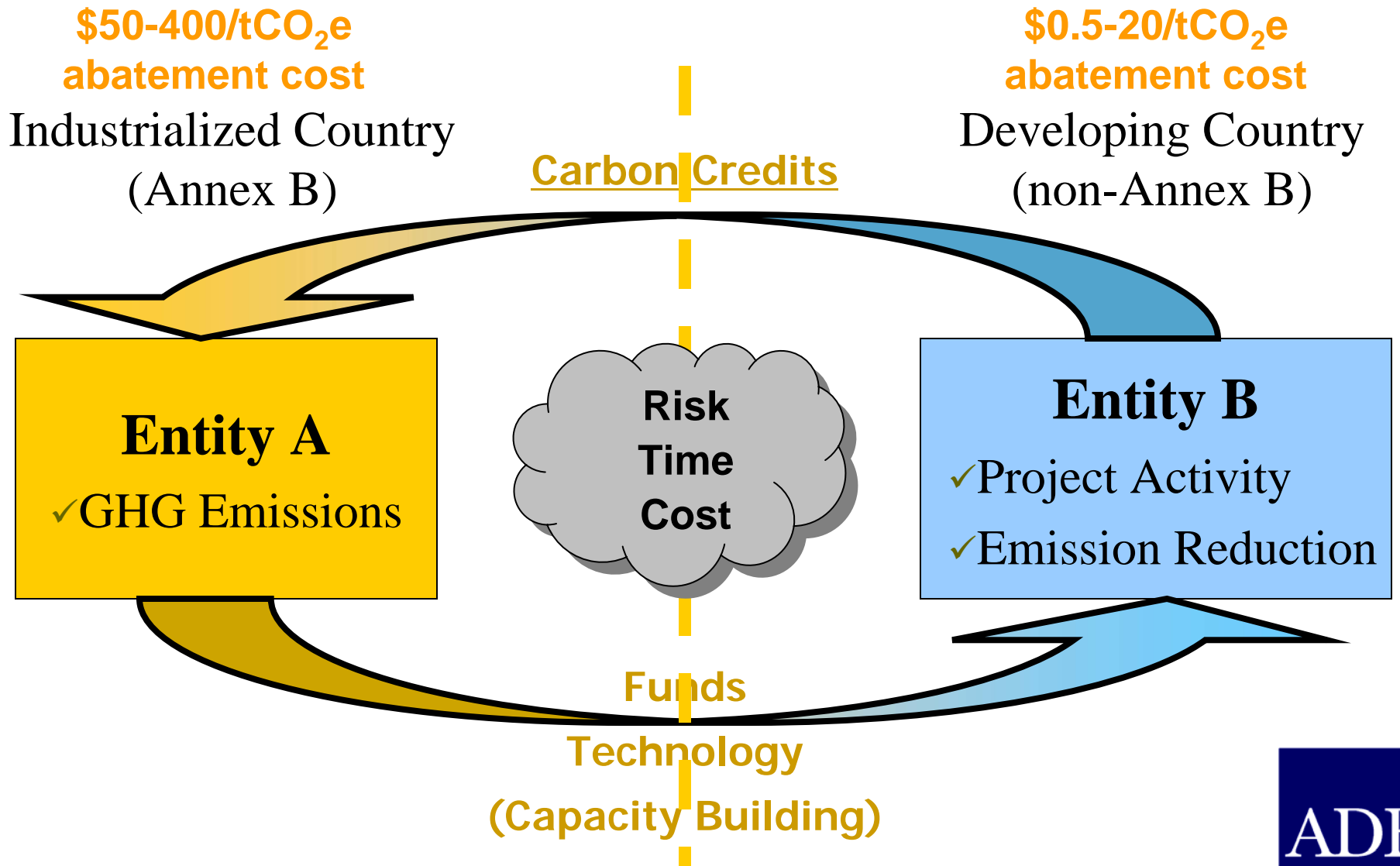


Source: Point Carbon

# Carbon Markets



# CDM: Matter of cost effectiveness



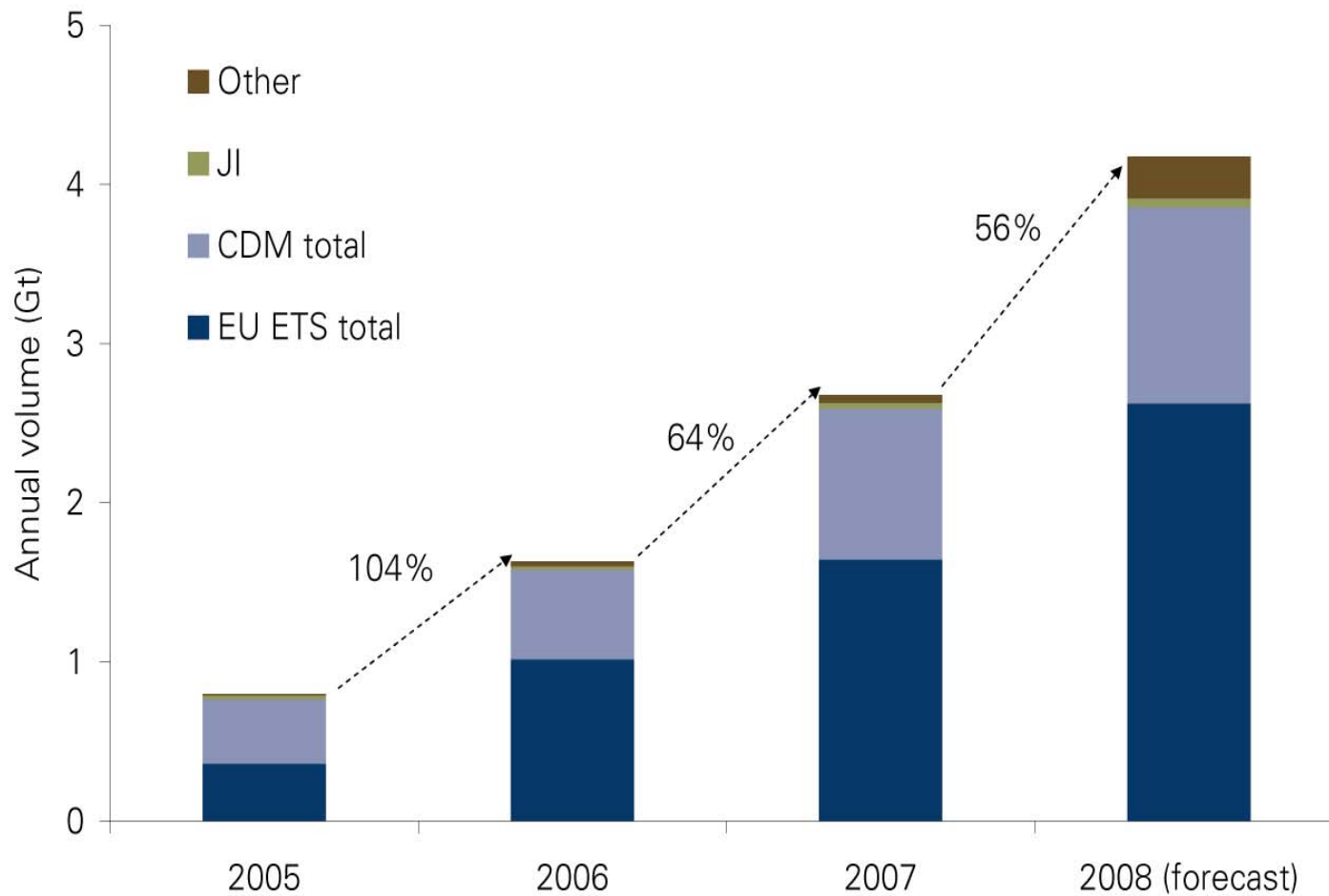
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# Growing Market



Source: Point Carbon

# Growing Market

	2005		2006		2007		2008	
	Final figures		Final figures		Final figures		Forecast	
	[Mt]	[€ mill.]	[Mt]	[€ mill.]	[Mt]	[€ mill.]	[Mt]	[€ mill.]
<b>EU ETS total</b>	<b>362</b>	<b>7,218</b>	<b>1,017</b>	<b>18,143</b>	<b>1,643</b>	<b>28,133</b>	<b>2,550</b>	<b>46,450</b>
<i>OTC</i>	207	4,269	627	11,180	1,009	17,278	1,470	31,826
<i>exchanges</i>	55	1,131	190	3,395	434	7,431	630	13,640
<i>auctions</i>	-	-	-	-	-	-	75	1,628
<i>bilateral</i>	100	1,818	200	3,568	200	3,425	300	6,495
<i>options</i>	-	-	-	-	-	-	150	985
<b>CDM total</b>	<b>401</b>	<b>2,038</b>	<b>563</b>	<b>3,920</b>	<b>947</b>	<b>11,737</b>	<b>1,230</b>	<b>14,715</b>
<i>primary</i>	397	1,985	523	3,349	597	5,984	507	4,526
<i>secondary</i>	4	50	40	571	350	5,753	693	10,120
<i>options</i>	-	-	-	-	-	-	30	70
<b>JI</b>	<b>28</b>	<b>96</b>	<b>21</b>	<b>95</b>	<b>38</b>	<b>326</b>	<b>58</b>	<b>402</b>
<b>Other total</b>	<b>8</b>	<b>52</b>	<b>31</b>	<b>300</b>	<b>48</b>	<b>186</b>	<b>263</b>	<b>1,052</b>
<i>RGGI</i>	-	-	-	-	-	-	144	514
<i>AAU</i>	-	-	-	-	-	-	80	400
<i>Other ETS</i>	8	52	31	300	49	186	31	108
<i>Pre-compliance</i>	-	-	-	-	-	-	9	30
<b>Sum</b>	<b>799</b>	<b>9,401</b>	<b>1,632</b>	<b>22,458</b>	<b>2,676</b>	<b>40,382</b>	<b>4,176</b>	<b>62,619</b>

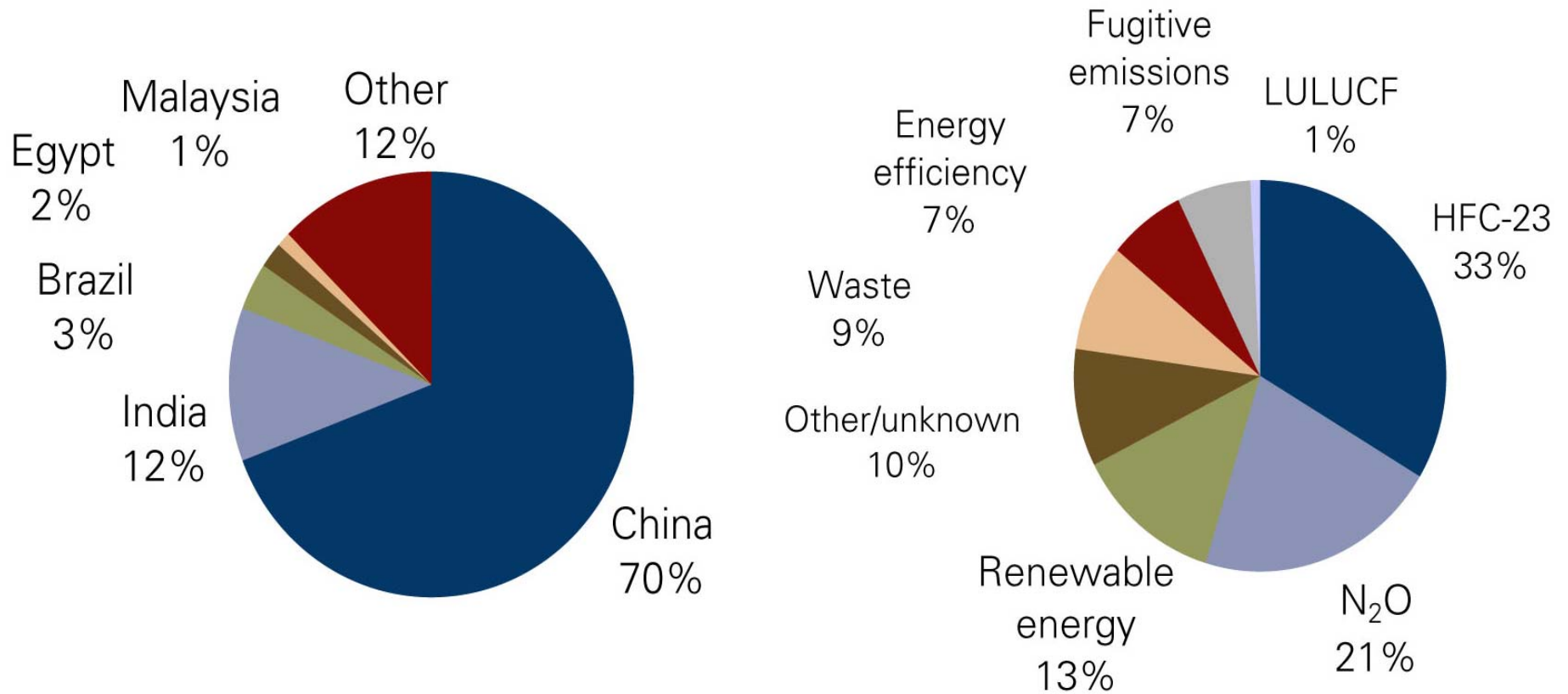
Source: Point Carbon

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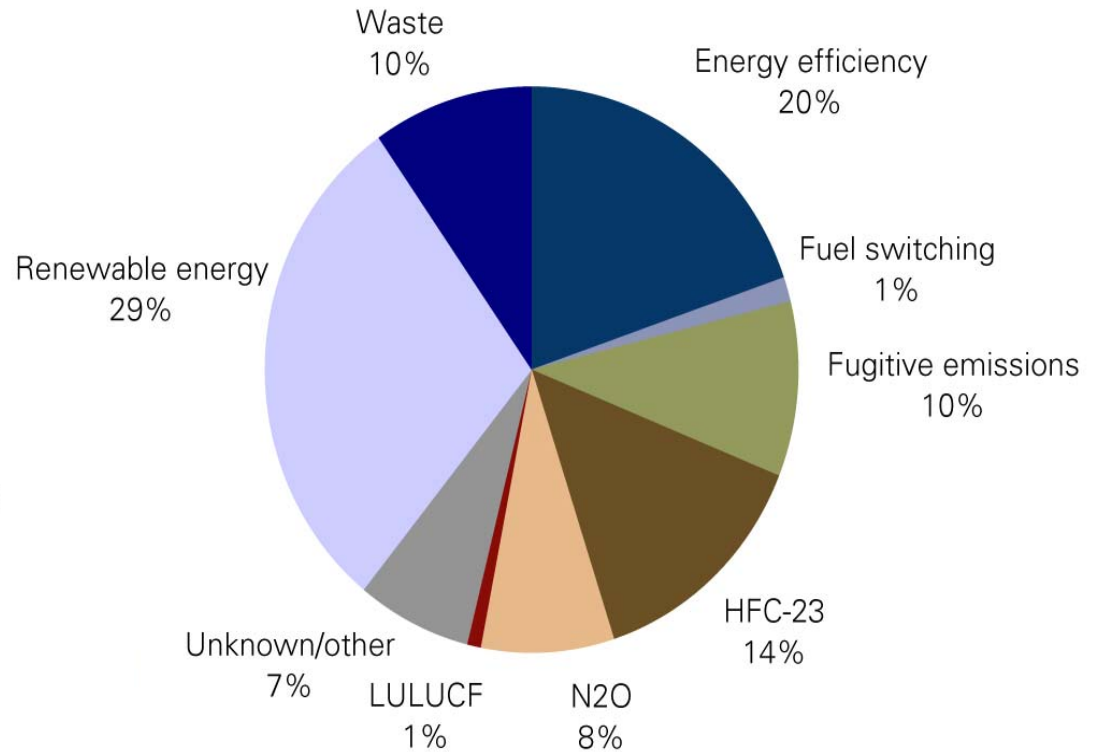
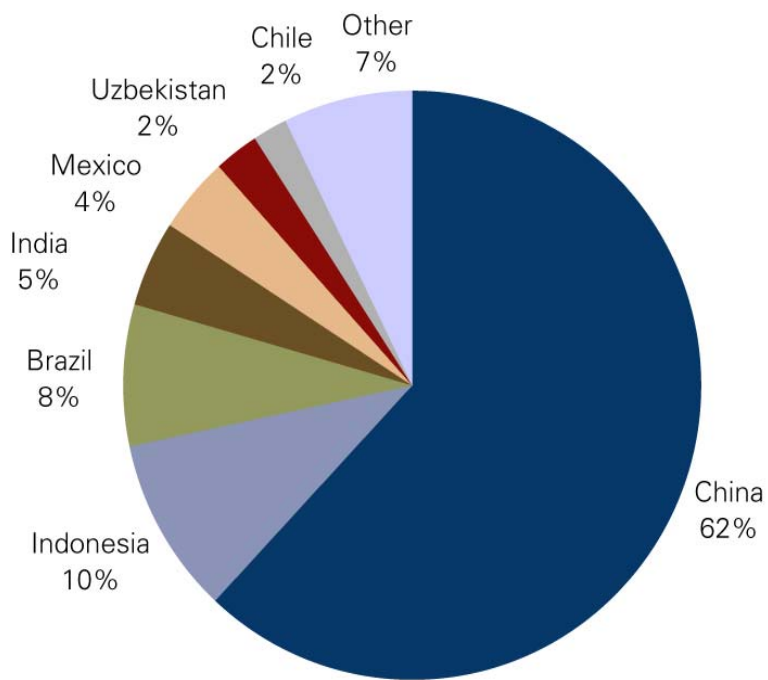
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# Snapshot of who and what sells: China and HFC dominant (2006)



Source: Point Carbon

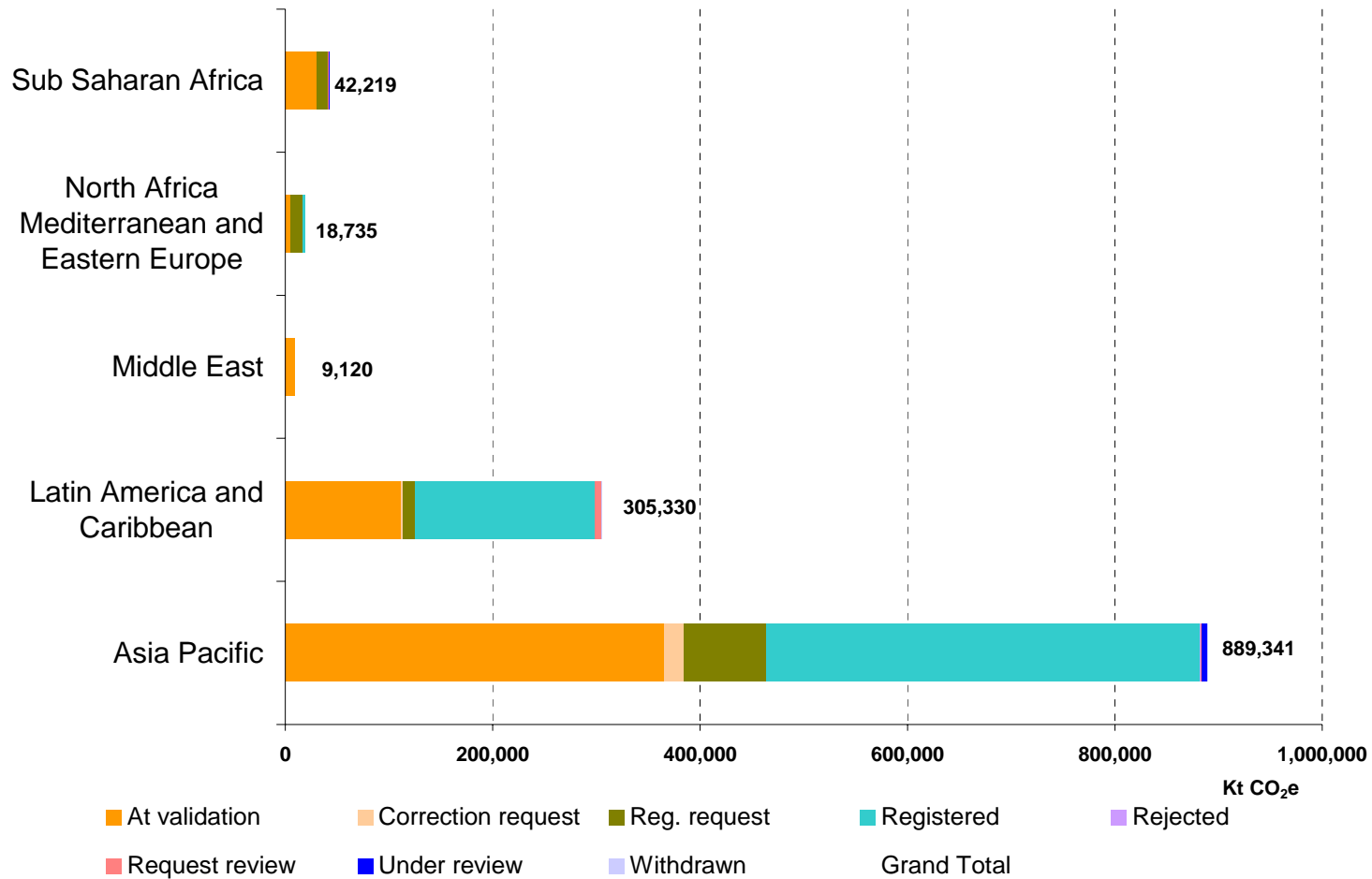
# Snapshot of who and what sells: China still dominant (2007)



Source: Point Carbon

# Who is selling?

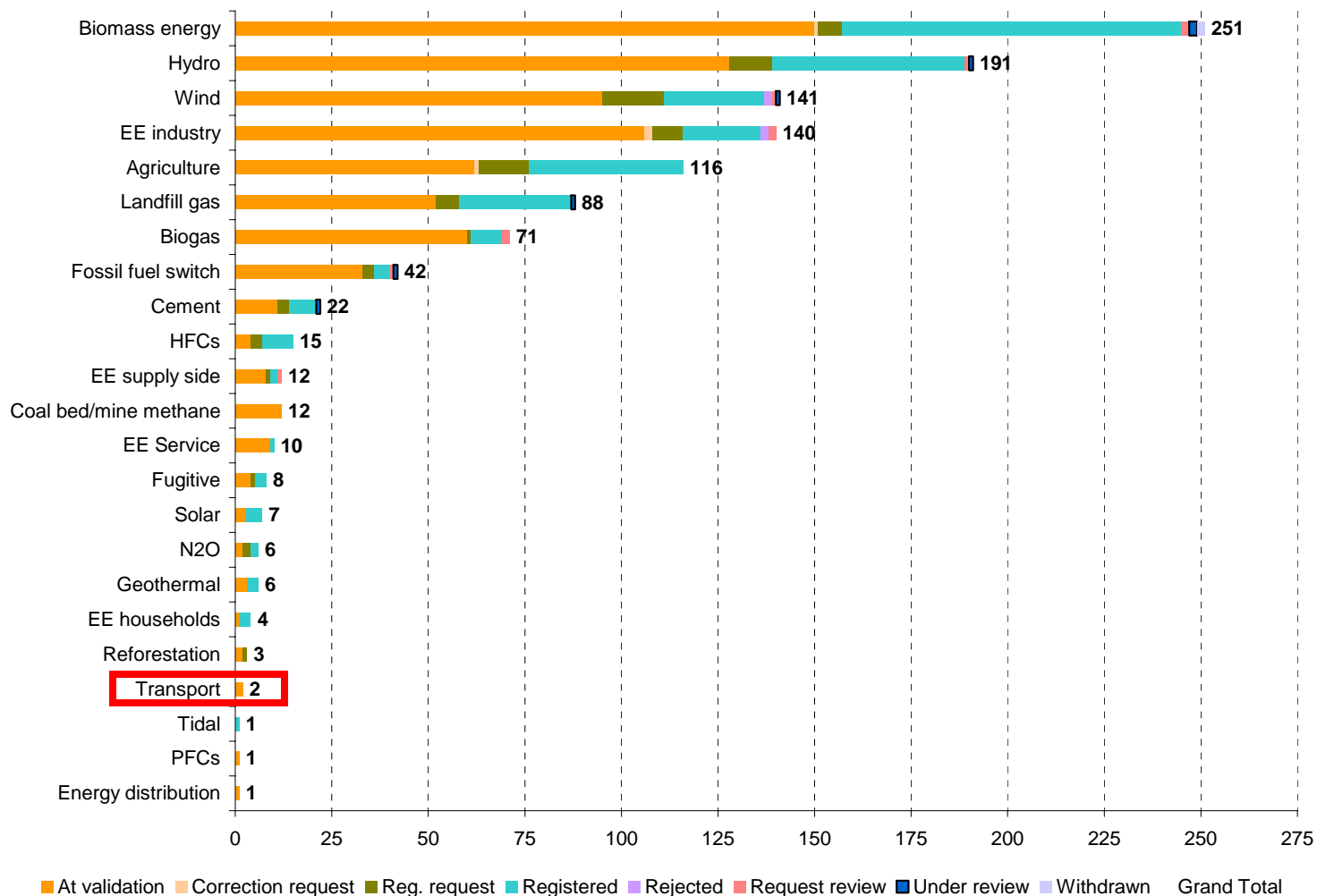
## By Region/Volume (ktCO<sub>2</sub>e 2012)



Source: Ecosecurities

# What is selling?

## No. of PDDs by Technology



Source: Ecosecurities



# What is selling?

## No. of PDDs by Technology

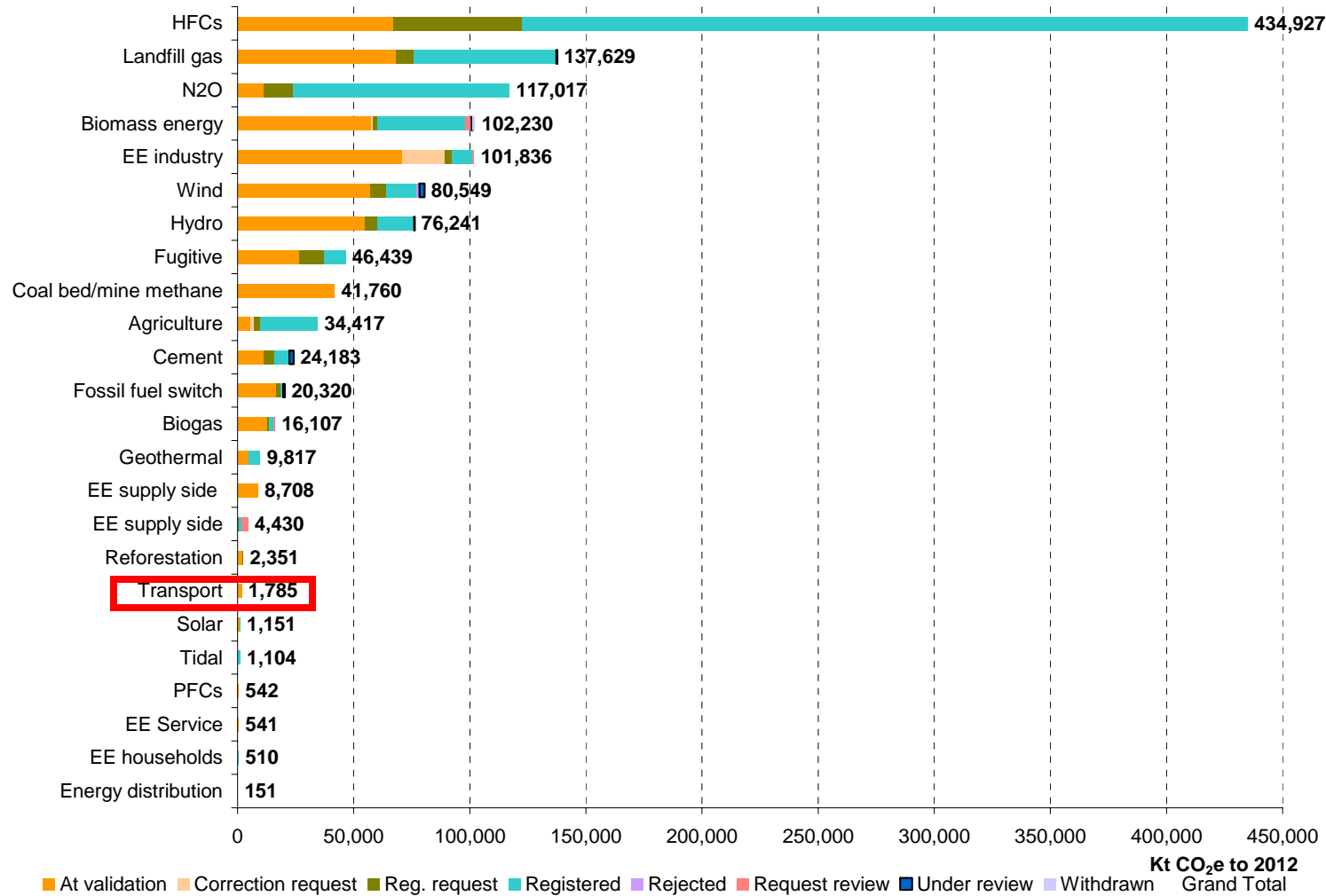
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- Biomass and Hydro dominate in terms of Project Numbers
- But in terms of volume...



# What is selling?

## Volume to 2012 by Technology



Source: Ecosecurities

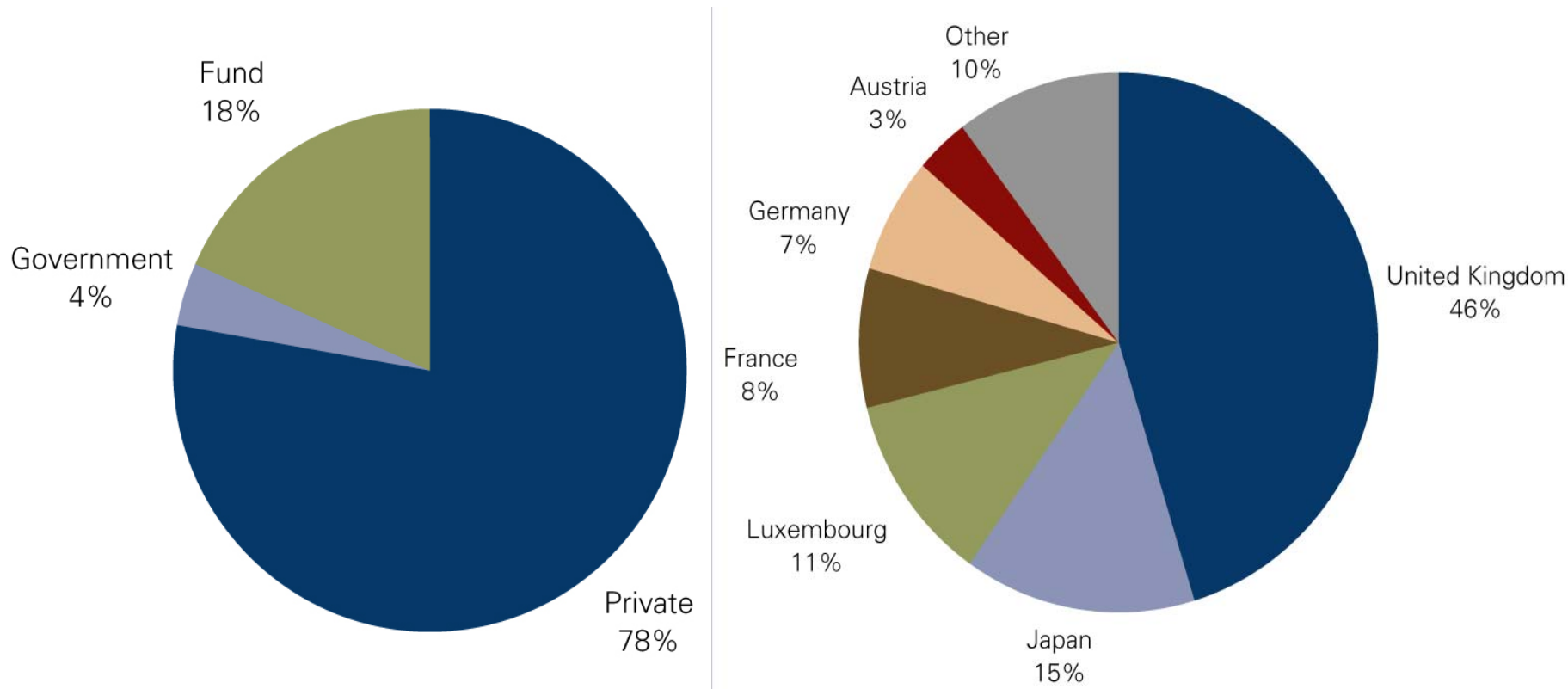


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# Who is Buying? (2007)



Source: Point Carbon

# Who is Buying?

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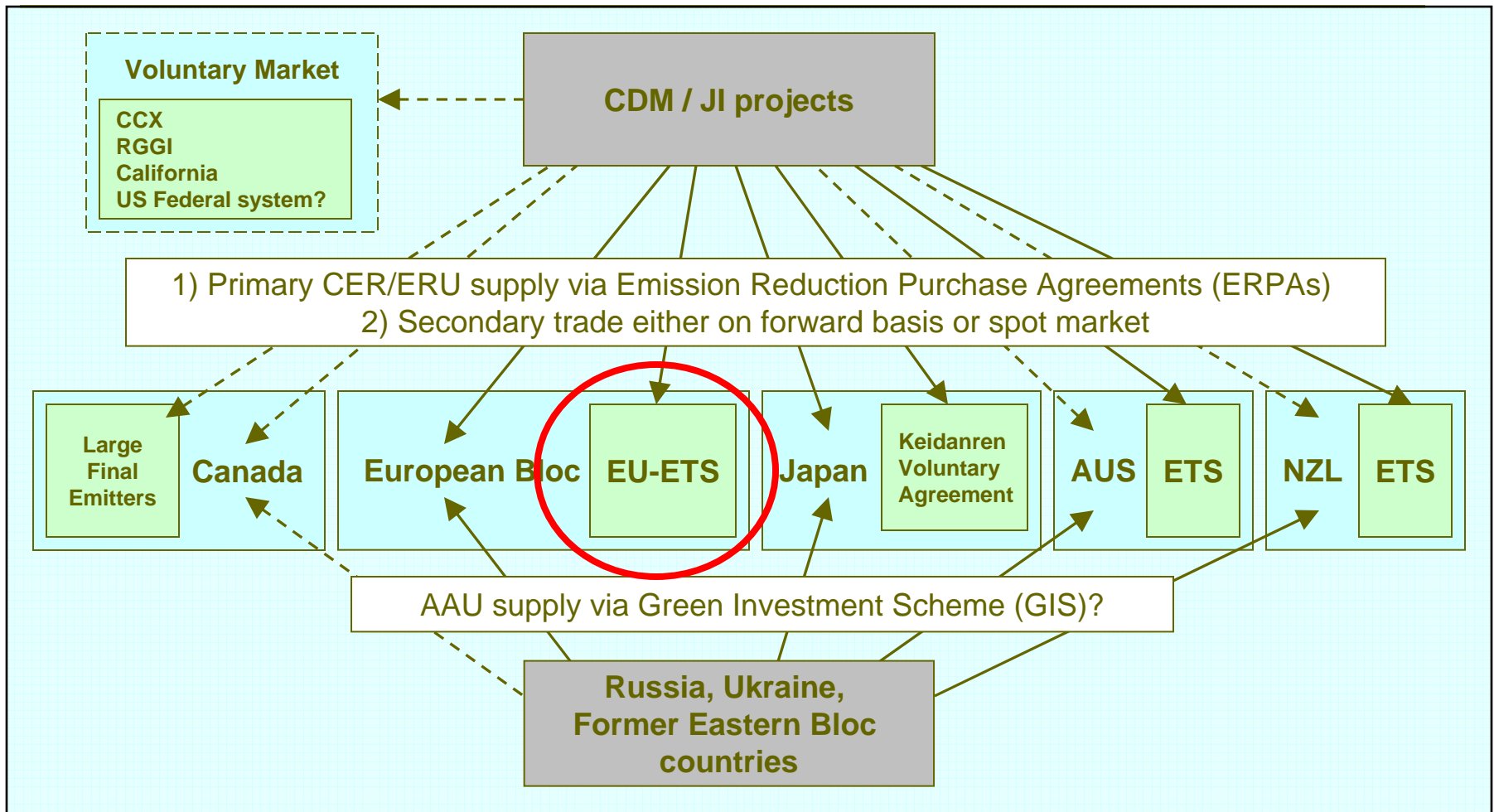
- ❑ European buyers now account for over 75% of purchases
- ❑ Great increase in the number of funds
- ❑ Roughly 3/4 by private sector, 1/4 by government (including through carbon funds)
- ❑ Japan has declined sharply, from being the largest buyer in 2003-2004 (29%) to only 15% in 2007

# Outline

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- Why is there a carbon market?
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- What project types are selling?
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# Carbon Markets

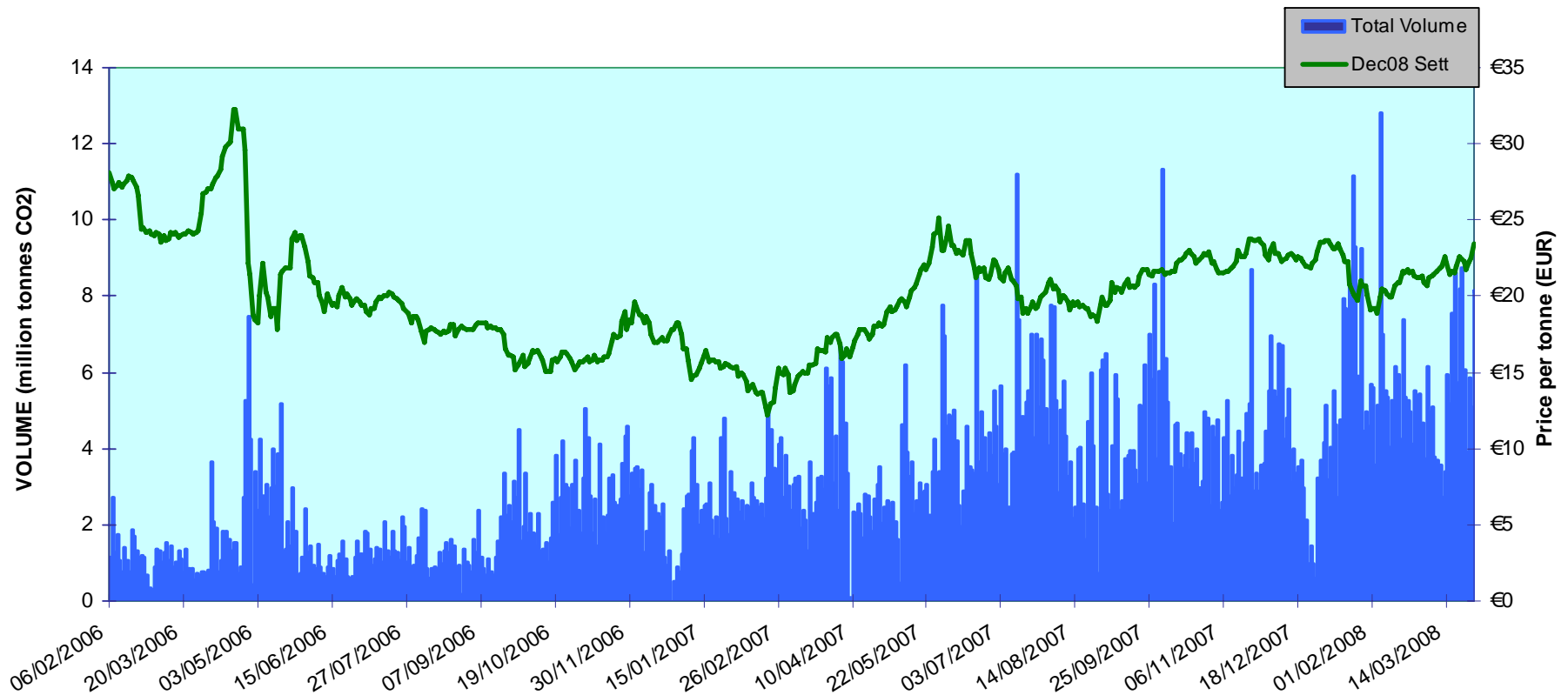


# EU Emissions Trading Scheme

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- ❑ Cap and trade system covering over 12,000 industrial installations in 28 countries amounting to about 46% of EU emissions
- ❑ An installation that has a shortage of allowances can choose from
  - Implementing in-house emission reductions
  - Buying EU allowances on the market
  - **Buying JI and CDM credits** (through the “Linking Directive”)
- ❑ Strict penalties for non-compliance
  - 2005-2007: €40/tCO<sub>2</sub>e
  - 2008-2012: €100/tCO<sub>2</sub>e

# EU Allowance Prices and Volume Feb 2006 - Mar 2008



Source: European Climate Exchange





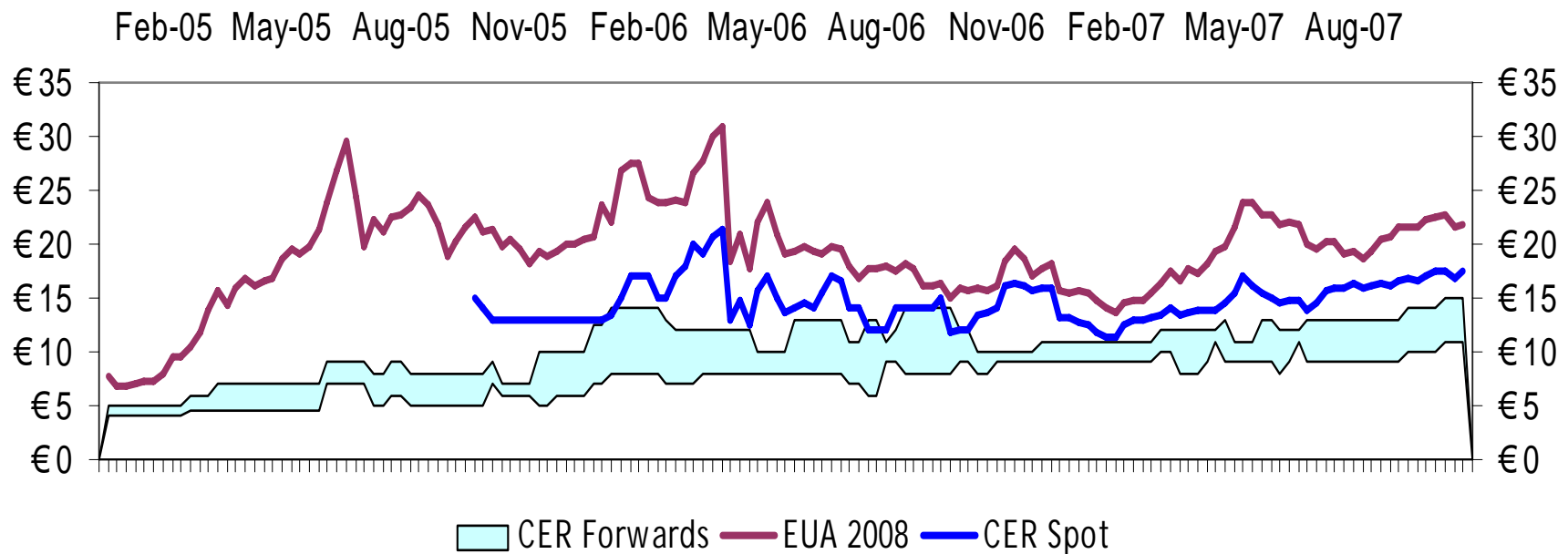
# CERs (credits from CDM projects)

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- Still trade at a discount to EUAs
- Typically within the range €7 – €18/CER
- Forward contracts for CERs riskier than forward contracts for EUAs
  - EUAs are govt issued, creditworthy
  - Delivery uncertainty of CERs
  - Few CERs issued so far
  - International Transaction Log not yet established for CERs
- Eventually prices should start to converge?

# EUAs vs CERs

- CER Spot linked to EUA '08, spread narrows/widens with bear/bull market
- CER Forwards more stable, lag EUA price



Source: ABN AMRO Bank N.V. data

# Outline

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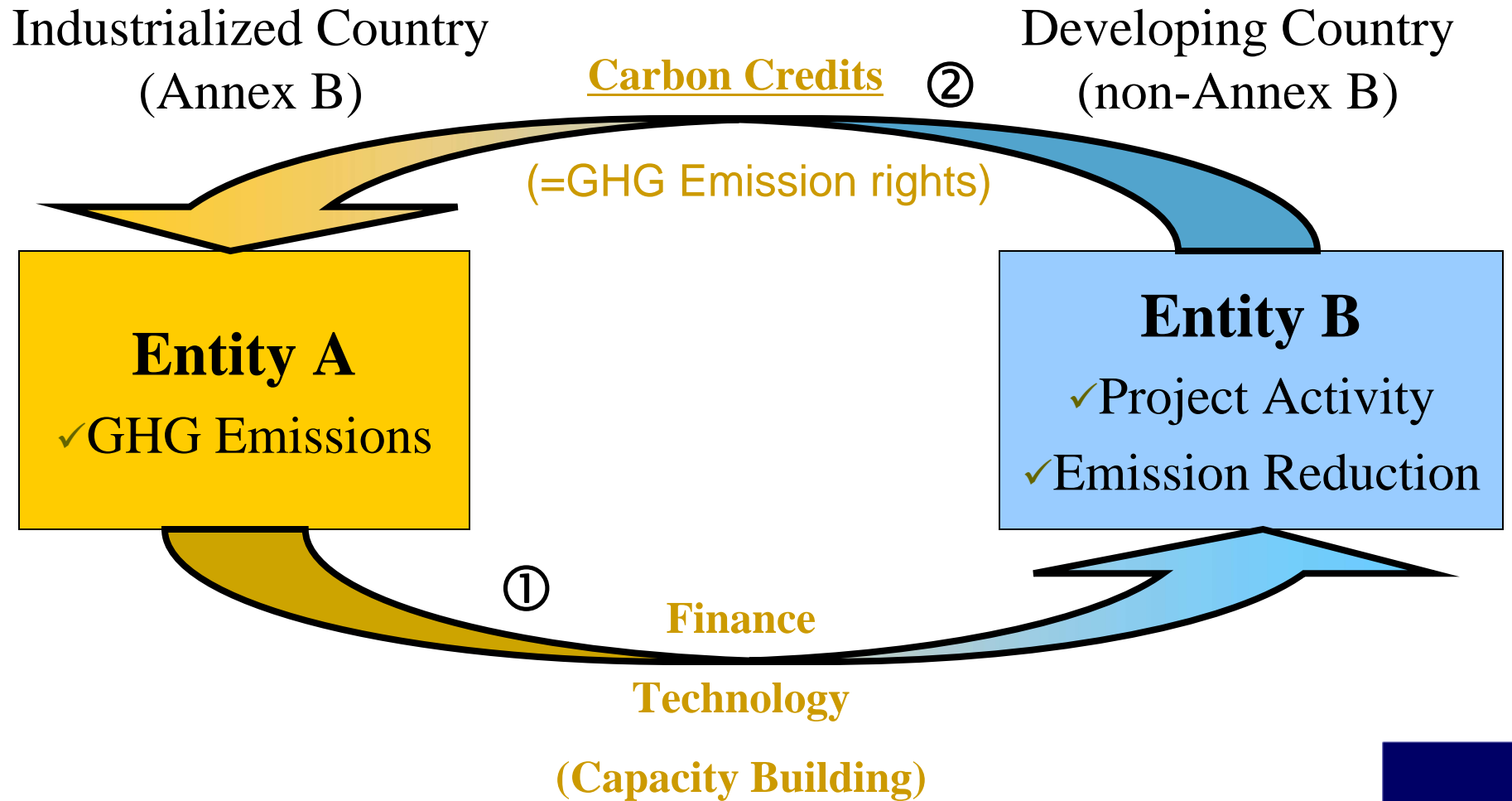
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# Structure of Transactions

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- Most transactions follow a commodity model (i.e. forward contract, **payment on delivery**); Few follow investment model (i.e. debt and/or equity)
- Very few cases where carbon value is leveraged for upfront financing
- Therefore, most carbon contracts **do not address upfront financing barrier**
- Contracts vary depending on how project, country & Kyoto risks allocated

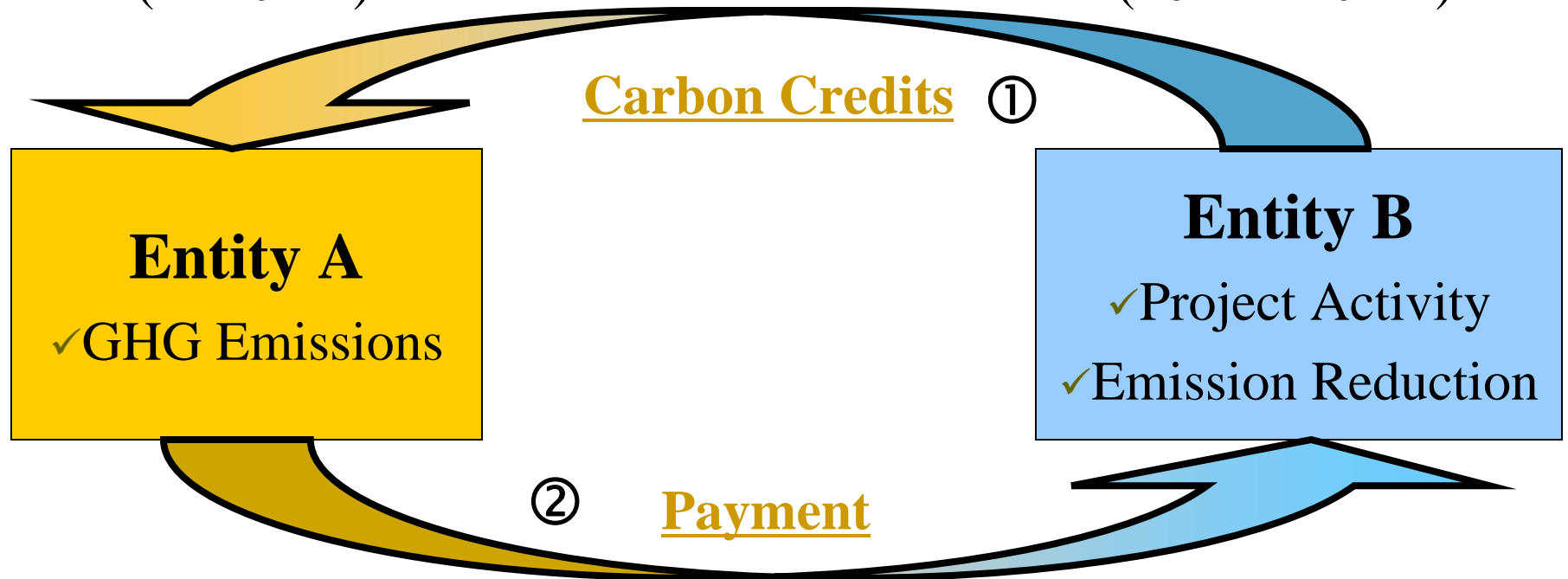
# CDM Concept



# CDM Reality

Industrialized Country  
(Annex B)

Developing Country  
(non-Annex B)



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# Market Outlook

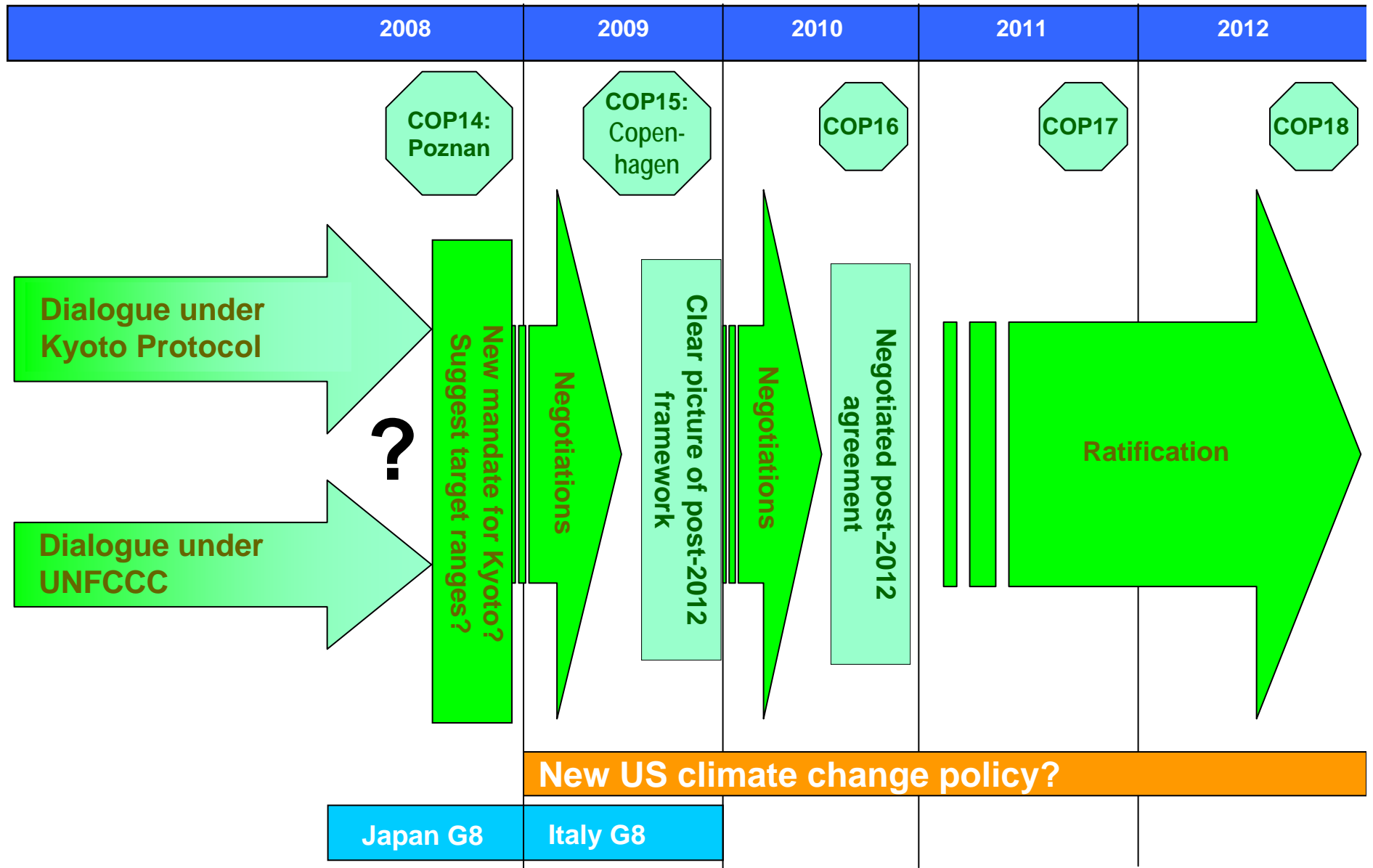
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- Increase in number of mandatory schemes – regional, national, sub-national
- Increase in number of voluntary schemes
- Greater linkage between trading schemes – carbon credit becoming common link (e.g. ICAP)
- Post-2012 global agreement appears likely
- ? What will U.S. position be after elections?
- ? Will major developing countries take on sectoral or intensity based targets?



	<b>Start</b>	<b>Transacted Volume</b>	<b>Post-2012</b>	<b>Import Rules for Credits from CDM</b>
The European Union Emission Trading Scheme (EU ETS)	2005	2,061 million tCO <sub>2</sub> e (2007)	20% or 30% below 1990	Allowed (with limits depending on global agreement)
The New South Wales (NSW) Greenhouse Gas Abatement Scheme (GGAS)	2003	25 million tCO <sub>2</sub> e (2007)	tbd	not allowed
Australia National Emission Trading Scheme (AN ETS)	2010	unknown	Target tbd; caps will be set for the first 5 years (until 2015)	limited
New Zealand National Emission Trading Scheme	2008	–	tbd	allowed
The Regional Greenhouse Gas Initiative (RGGI)	2009	–	Target tbd; from 2009 to 2018	10% can be used if prices rise above \$10/tCO <sub>2</sub> e
California's Global Warming Solutions Act (AB 32)	2012	–	1990 levels by 2020	10% limit (tbd)
The Western Climate Initiative (WCI)	tbd	–	15% below 2005 baseline by 2020	tbd
The Midwestern Regional Greenhouse Gas Reduction Program (MRP)	2012	–	tbd	tbd
Canada's Mandatory Intensity Target	2009 (tbc)	–	20% below 2006 levels by 2020	10% limit
South Korea National Emission Trading Scheme (Voluntary)	tbd	–	tbd	tbd
Japan's Voluntary Emission Trading Scheme (JVETS)	2005	82,624 tCO <sub>2</sub> e (2006-2007)	tbd	allowed

# Global Negotiation Timeline



# What would US cap and trade look like?

## McCain's plan



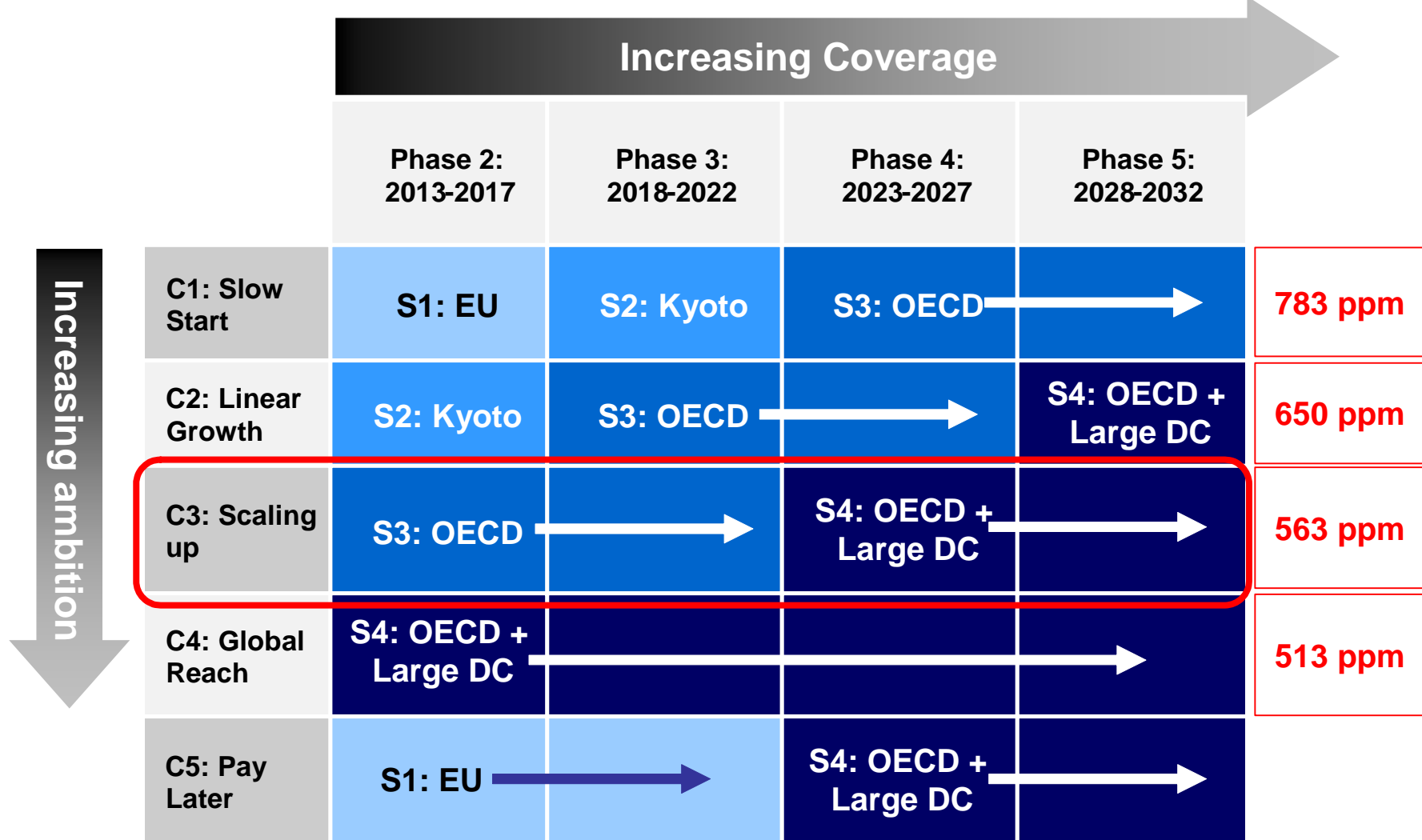
- 2050 target: **60% below** 1990 levels
- Allowances will “eventually be auctioned”
- Auction proceeds to be used to fund nuclear, CCS and battery development
- **Unlimited offsets** as a start
- Co-sponsored McCain-Lieberman bill

## Obama's plan



- 2050 target: **80% below** 1990 levels
- 100% allowances auctioned
- Auction proceeds to be used to fund clean technologies, energy efficiency and workers compensation
- **Limited use of offsets**
- Address deforestation
- Co-sponsored Boxer-Sanders bill

# Scenario overview: timing and target setting



Source: Point Carbon

# Market Summary

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- ❑ Carbon market: Allowance Market (**EU-ETS, AUS-ETS** etc.) and Project Market (**CDM, JI** etc.)
  - Allowance market is larger; therefore driving prices
- ❑ Project credits trade at a discount to allowances
- ❑ Price depends on contract structure and project risk
- ❑ Upfront finance still difficult to secure for developers
- ❑ Post-2012 schemes already emerging
- ❑ US position likely to change drastically in 2009
- ❑ Financial value is likely to continue beyond 2012