



Financing Coal Methane Projects

- Methane to Markets Coal Subcommittee Meeting -

**The World Bank
Carbon Finance Unit**

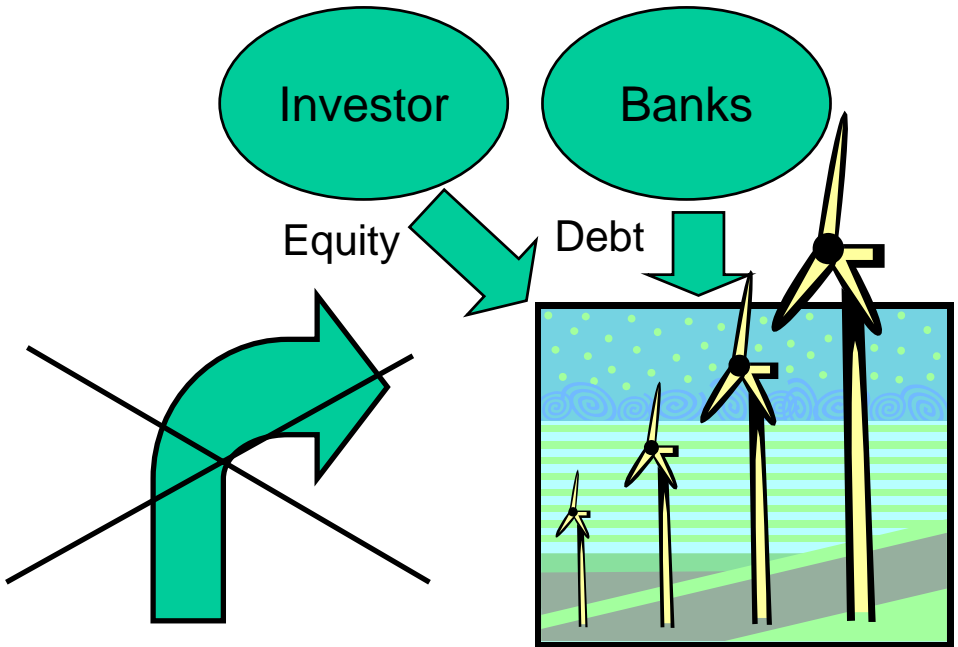
May, 2006



Carbon Finance and The WB



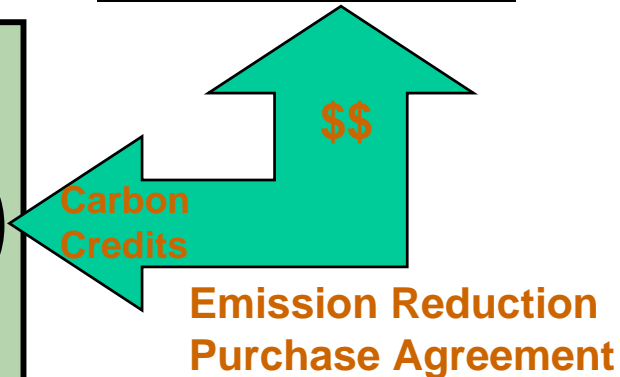
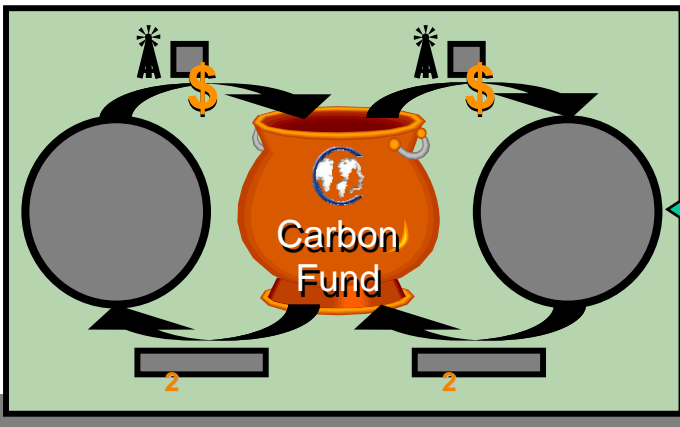
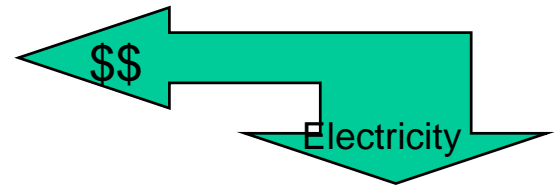
Nature of Carbon Financing Contract



Carbon Finance:

Resources provided to projects generating (or expected to generate) greenhouse gas (or carbon) emission reductions in the form of the purchase of such emission reductions.

Power Purchase Agreement





Impact of Carbon Finance

SUMMARY SENSITIVITY ANALYSIS

INCREMENTAL IRR RESULTS - CONTRIBUTION OF CARBON FINANCE

Sector	Impact (%) @ price = \$6.5/ton CO2e				CF impact (% range)
	Purchase 7y	Purchase 10y	Purchase 14y	Purchase 21y	
Landfill	5.5 - 46.8%	13.9 - 48.8%	17.6 - 49.3%	20.3 - 49.3%	5.5 - 50
CH4 from coal	7.6%	9.7%	10.8%	11.5%	7 - 12
Biomass	1.9 - 3.5%	2.3 - 5.1%	2.6 - 6.3%	2.9 - 7.1%	2 - 8
Forestry	0.4 - 4.6%	0.9 - 5.7%	1.7 - 6.3%	2.6 - 6.8%	0.5 - 7
Renewable energy	0.2 - 1.7%	0.3 - 2.2%	0.5 - 2.6%	0.6 - 2.9%	0.2 - 3
District Heating	0.5%	0.6%	0.6%	0.7%	0.5 - 1

World Bank Carbon Funds & Facilities

Total funds pledged = US\$ 1.6 billion (13 governments, 56 firms)



- **Prototype Carbon Fund.** \$180 million (closed). Multi-shareholder. Multi-purpose.



- **Netherlands Clean Development Mechanism Facility.** \$249.2 million (closed). Netherlands Ministry of Environment. CDM energy, infrastructure and industry projects.



- **Community Development Carbon Fund.** \$128.6 million (closed). Multi-shareholder. Small-scale CDM energy projects.



- **BioCarbon Fund.** \$53.8 million (Tranche One closed). Multi-shareholder. CDM and JI LULUCF projects.



- **Italian Carbon Fund.** \$45.4 million (open to Italian participation). Multi-shareholder (from Italy only). Multipurpose.



- **Netherlands European Carbon Facility.** \$38 million (closed). Netherlands Ministry of Economic affairs. JI projects.



- **Spanish Carbon Fund.** \$202.7 million (open to Spanish participation). Multi-shareholder (for from Spain only). Multipurpose.



- **Danish Carbon Fund.** \$64.1 million (closed). Multi-shareholder (for from Denmark only). Multipurpose.



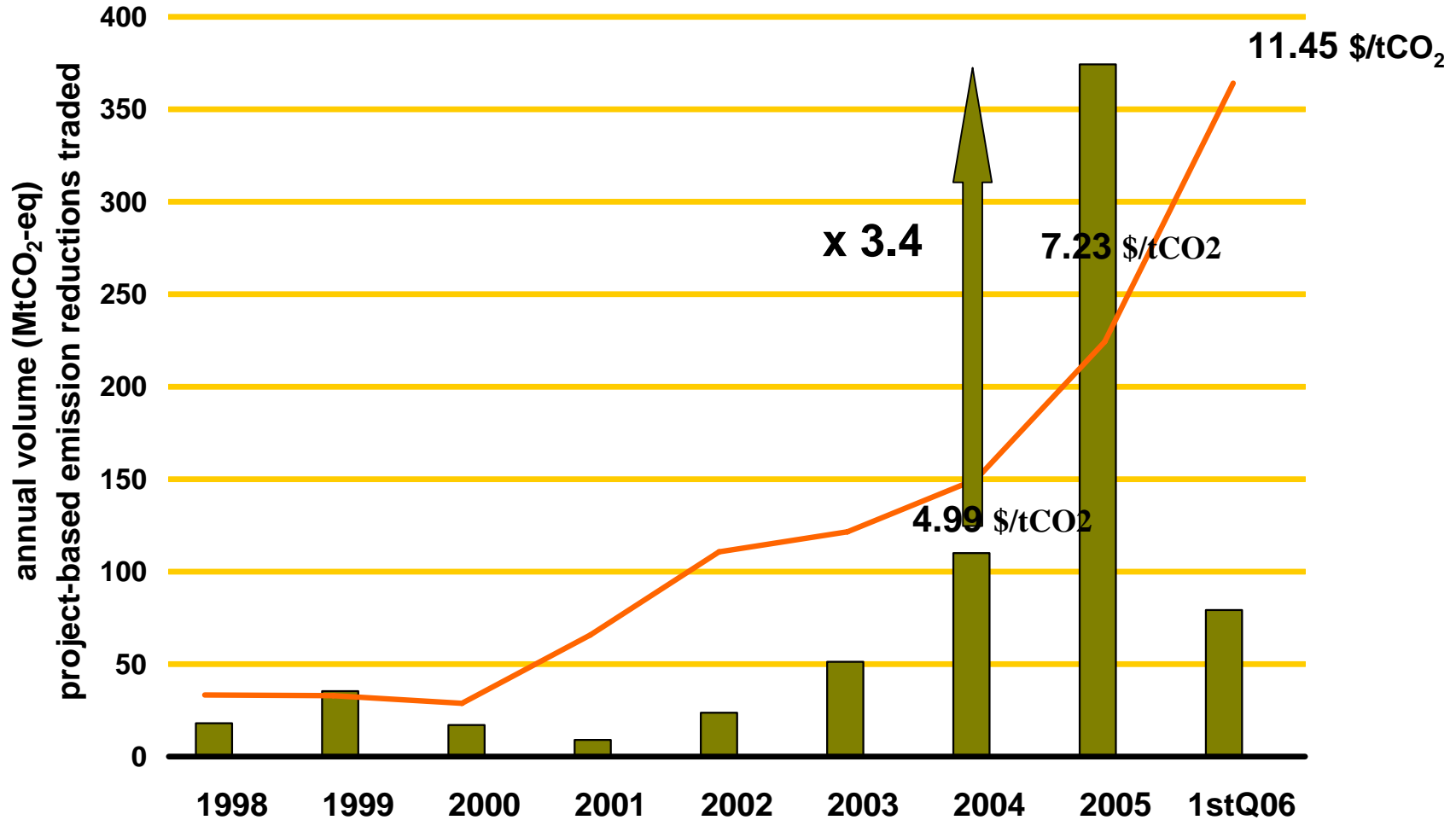
- **Umbrella Carbon Facility.** [\$677.1 million] (Tranche One closed). 2 HFC-23 projects in China.



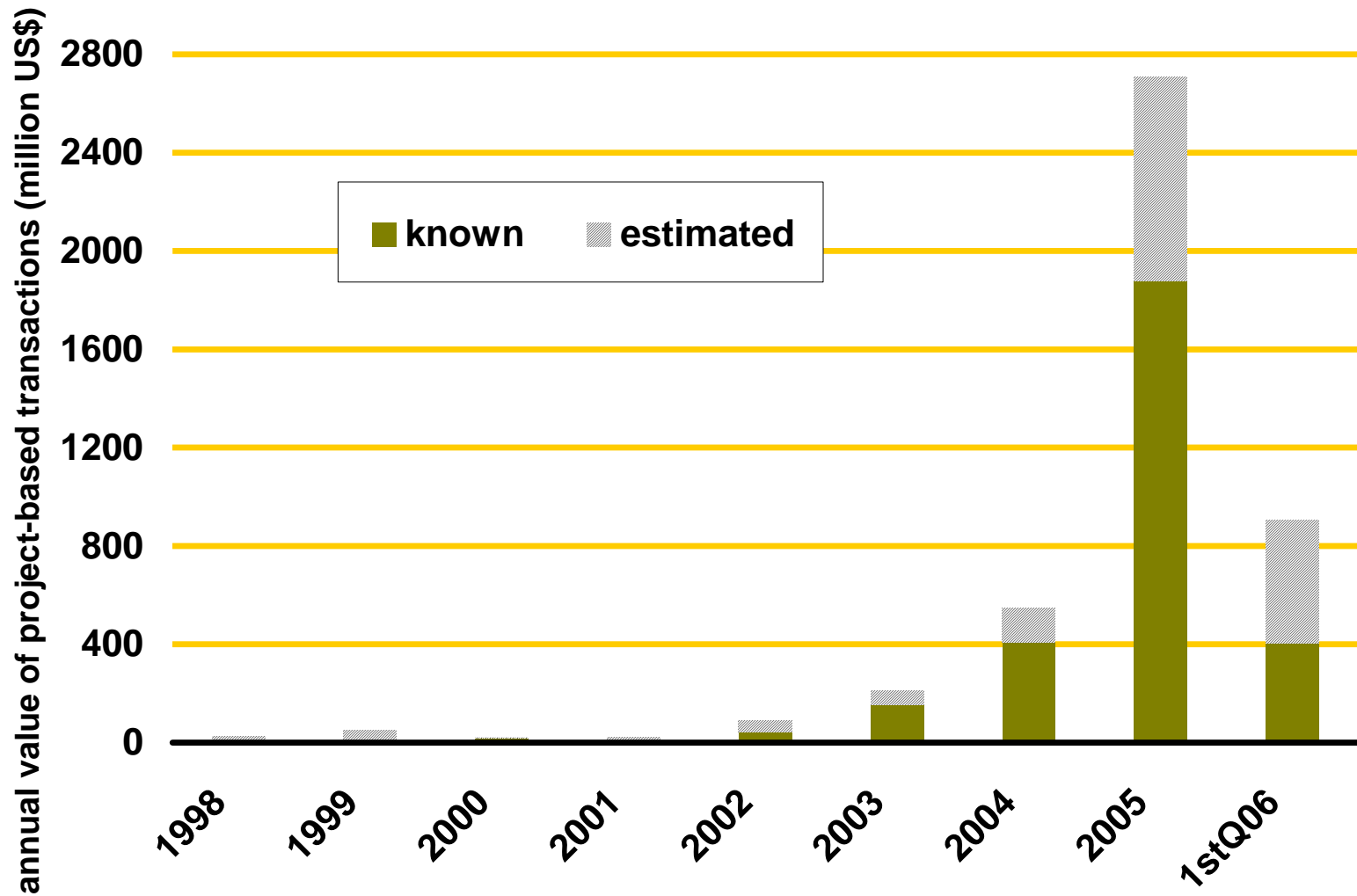
Carbon Market Overview

- **Carbon is now a financial commodity**
 - Growth of market and has brought in the biggest names in the financial sector, including investment banks and speculators
- **Multi-Billion Dollar Overall Market Value**
 - Over **US\$ 10 billion in 2005** and **US\$ 7.5 billion for 1Q '06**
 - Volumes and Price both up
 - EUA trades dominate market in value – 75% (2005); 87% (1Q '06)
- **Meaningful Participation of Developing Countries**
 - **49.2% of total volume (2005); 23.2% of total value (2005)**
 - **26.2 and 11.7% (1Q '06)**

Volume Traded Through Projects: Scaling up

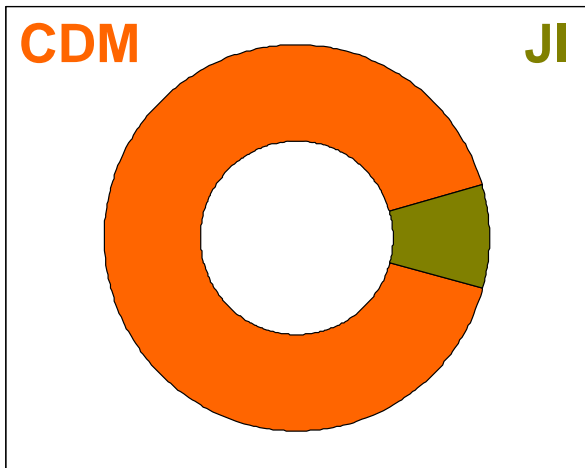


An acceleration in value transacted



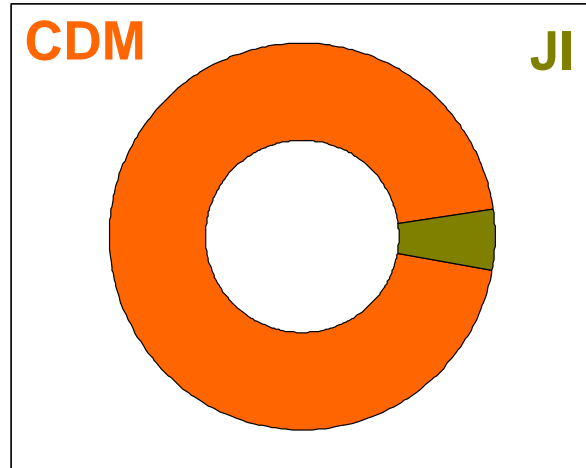


Market hates regulatory risks: low JI contractual flow



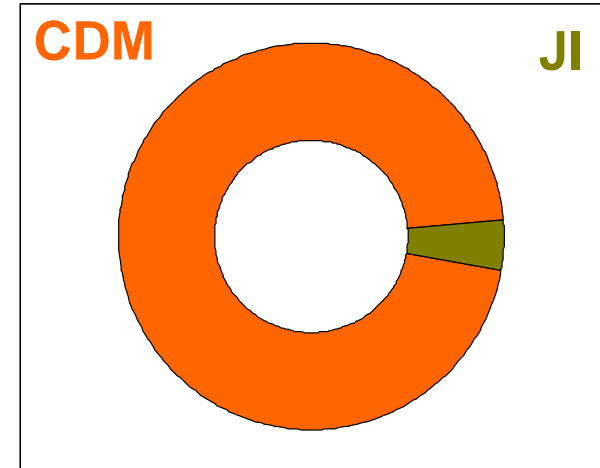
2004

CER	ERU
5.2	6.0
US\$/tCO₂e	US\$/tCO₂e



2005

CER	ERU
4.6	4.6
US\$/tCO₂e	US\$/tCO₂e



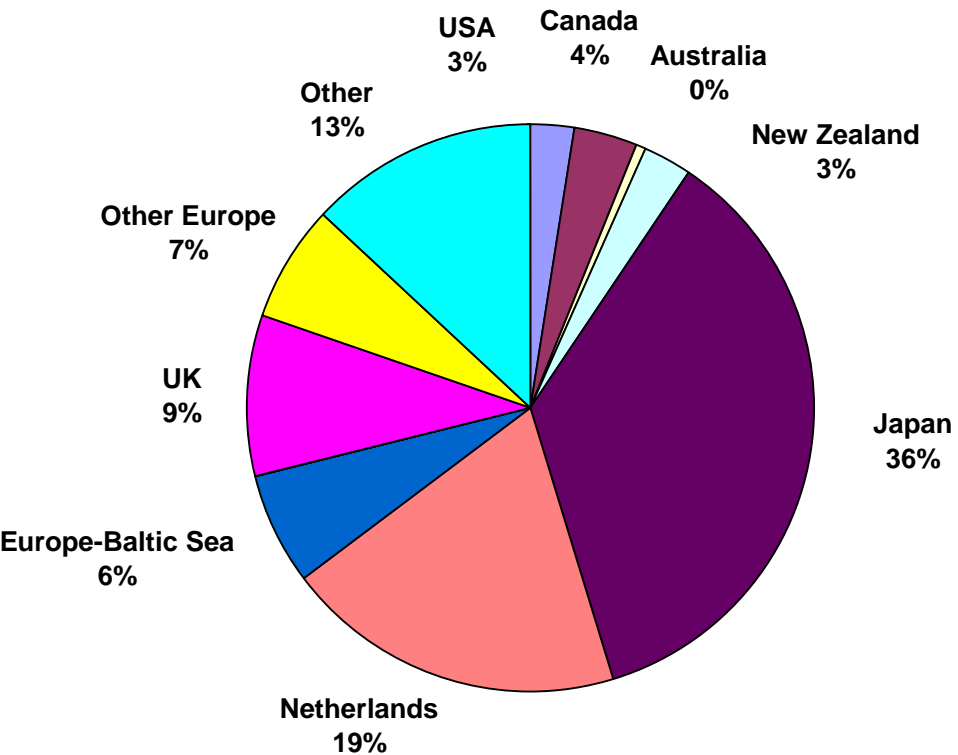
2006

CER	ERU
11.6	7.2
US\$/tCO₂e	US\$/tCO₂e

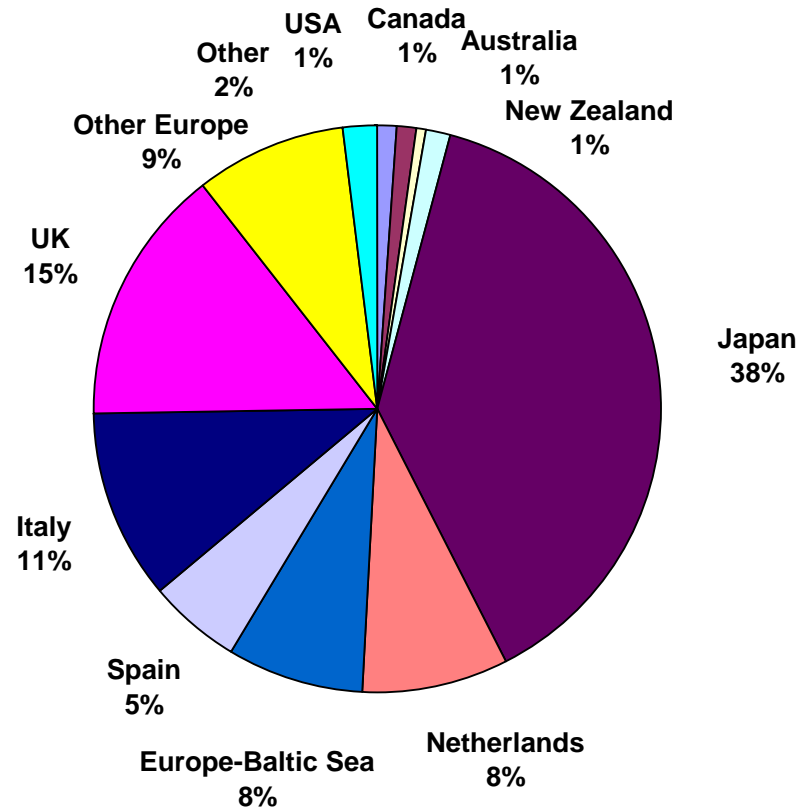


Main Buyers: Europe and Japan, mostly firms

In percent of volume purchased



Jan. 2004 – Dec. 2004

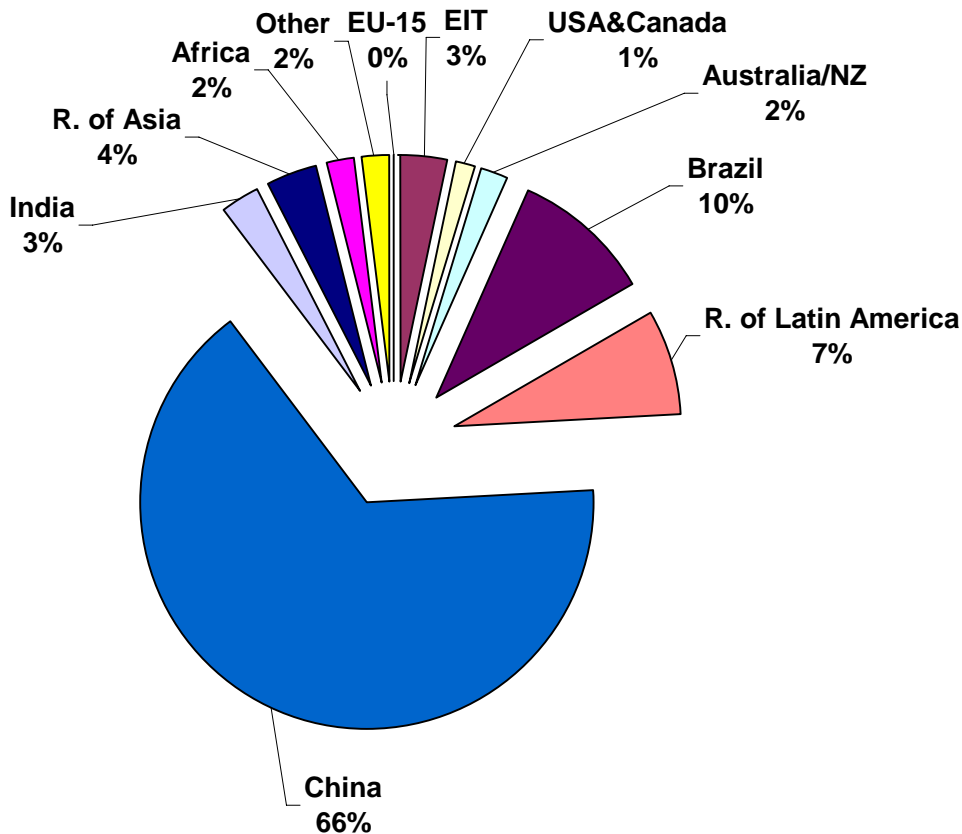


Jan. 2005 to Mar. 2006



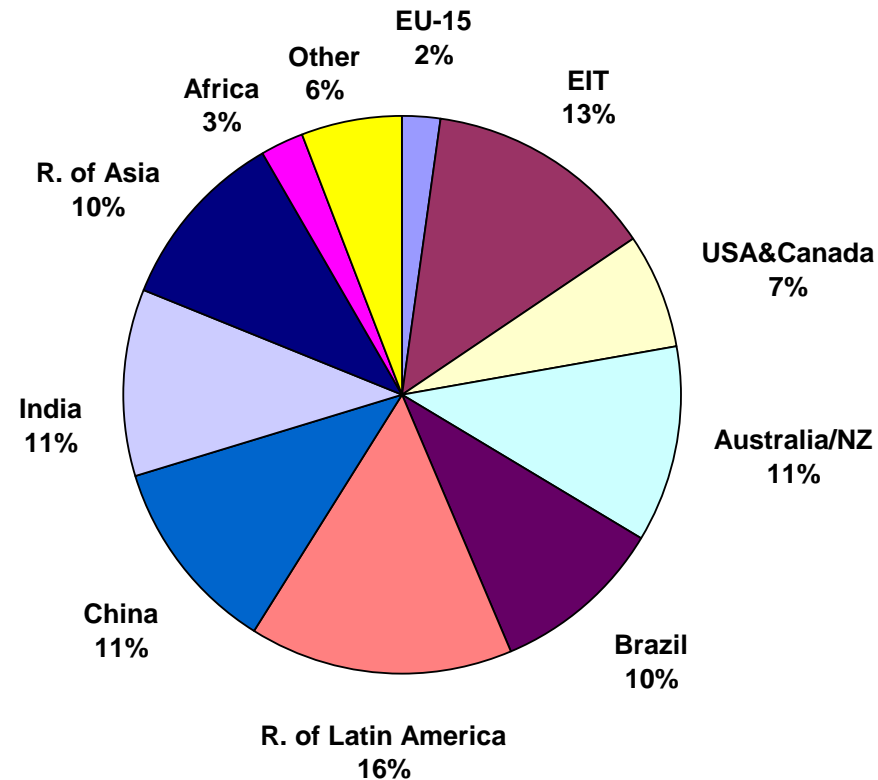
Supply: China has the dragon's share

Share in volume



Jan 05 – Mar 06

Share in number of projects

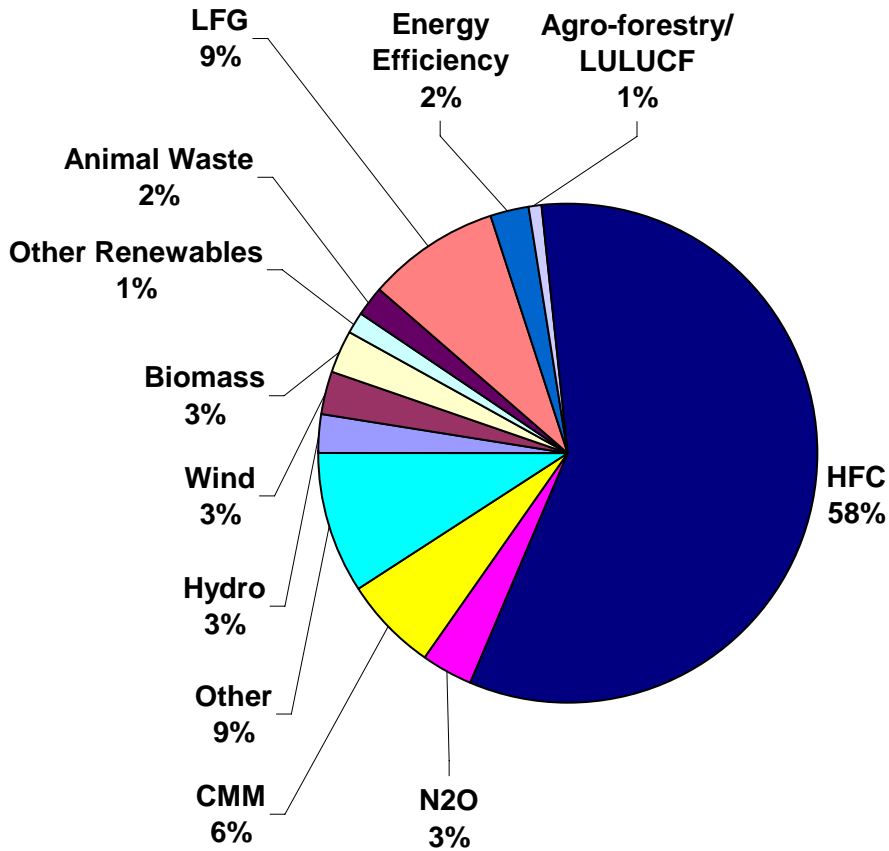


Jan 05 – Mar 06

Non-CO₂ Gases still Dominate

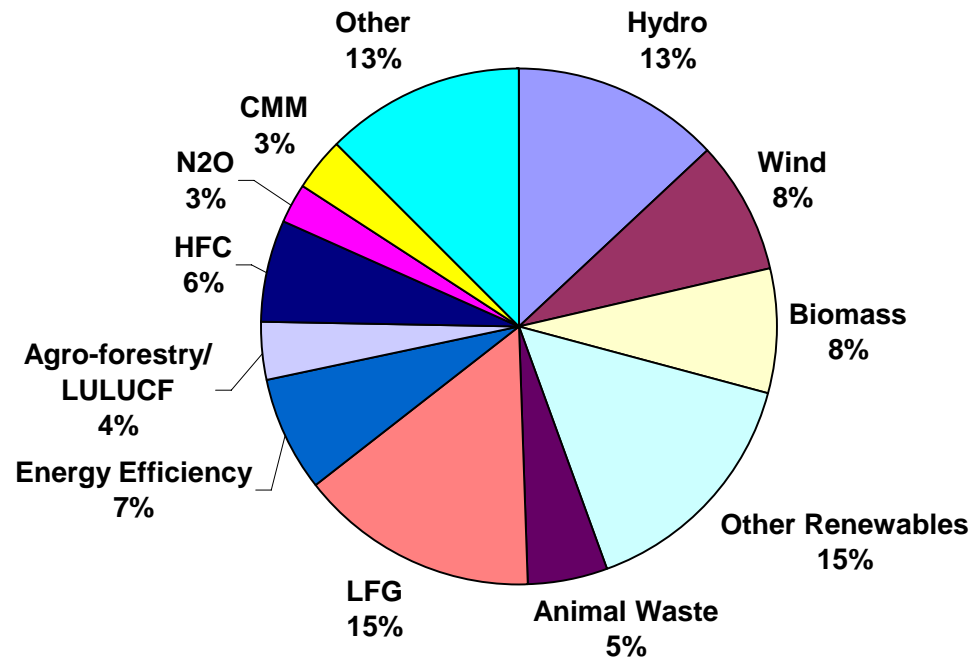


Share in volume



Jan 05 – Mar 06

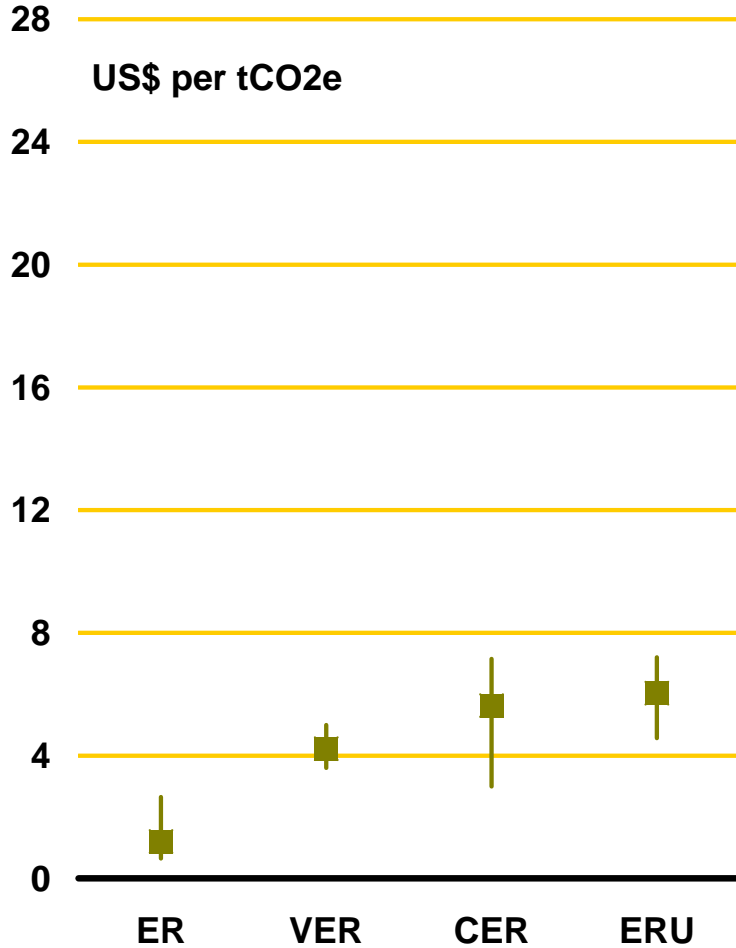
Share in number of projects



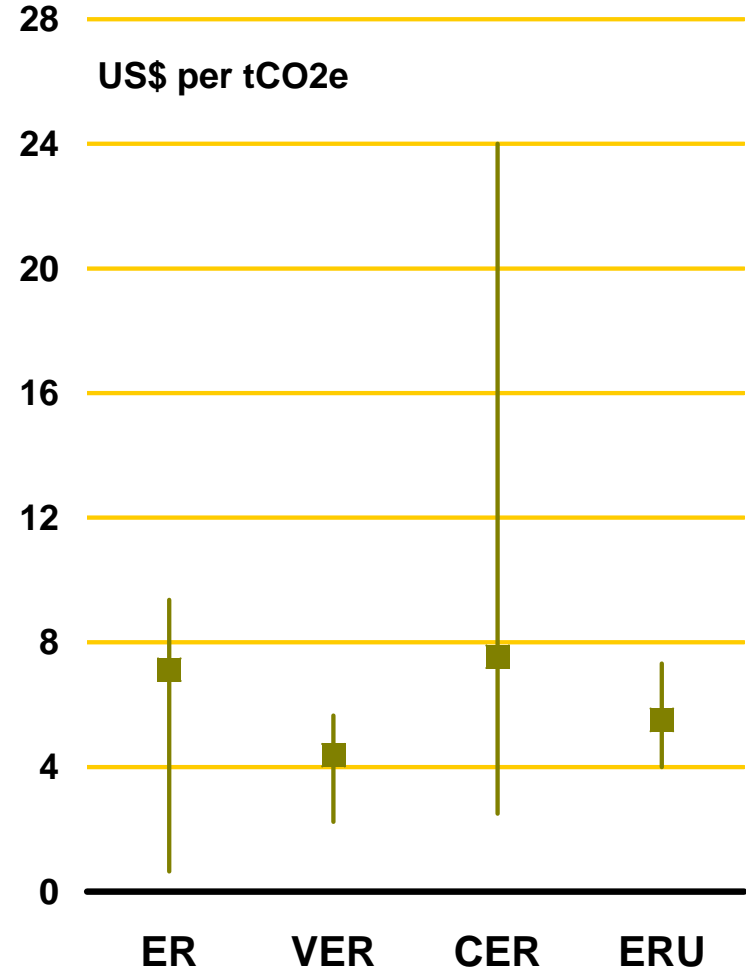
Jan 05 – Mar 06



Prices move up



Jan. 04 – Apr. 05



Jan. 05 – Mar. 06

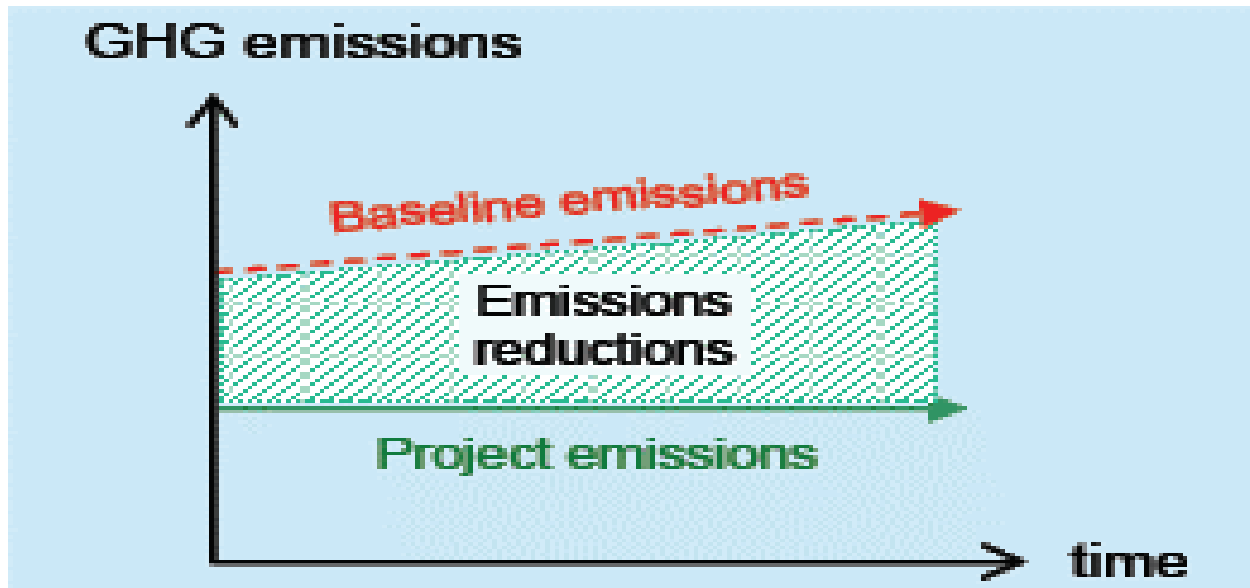


Carbon Finance in Coal Methane Sector



Baseline and Baseline Methodology

- The **baseline** (scenario and emissions) for a CDM project activity is the scenario that reasonably represents GHG emissions that would occur in the absence of the proposed project activity.
- Difference between the baseline emissions and GHG emissions after implementing the CDM project activity (project emissions) is **emission reductions**.
- Baseline emission under the selected baseline scenarios shall be calculated in accordance with **approved methodologies** (AMs) or new methodologies (NMs).



ACM0008



- Approved in December, 2005.
- Expected acceleration of development of coal methane related CDM/JI projects. Early projects will be registered as CDM this year.
- CMM and VAM recovery, power generation, flaring, and industrial/city gas supply through pipelines are covered.
- ACM0008 **does not apply** to project activities with any of the following features:
 - Operate in open cast mines;
 - Capture methane from abandoned/decommissioned coalmines;
 - Capture/use of virgin coal-bed methane, e.g. methane of high quality extracted from coal seams
 - Independently of any mining activities;
 - Use CO₂ or any other fluid/gas to enhance CBM drainage before mining takes place.



WB in Coal Methane Projects

- Jincheng
 - Capture of CMM and power generation by 120MW combined cycle in Shanxi, China.
 - Generates 19.5 million tCO₂e of carbon credits over 7 years. WB purchases 9.5 million tCO₂e.
- Qinshui
 - CMM gas pipeline project in Shanxi, China. Expected to generate around 8 million tCO₂e over 7 years.
- Further development of coal methane projects
 - Possible UCF new tranche for coal methane projects
 - Key issues:
 - CMM: Competition with other carbon funds and private sector
 - VAM: Technology
 - AMM: Methodology
 - Lending by the WB



Thank you

www.carbonfinance.org