



14th Asia Pacific Seminar on Climate Change: The Carbon Markets

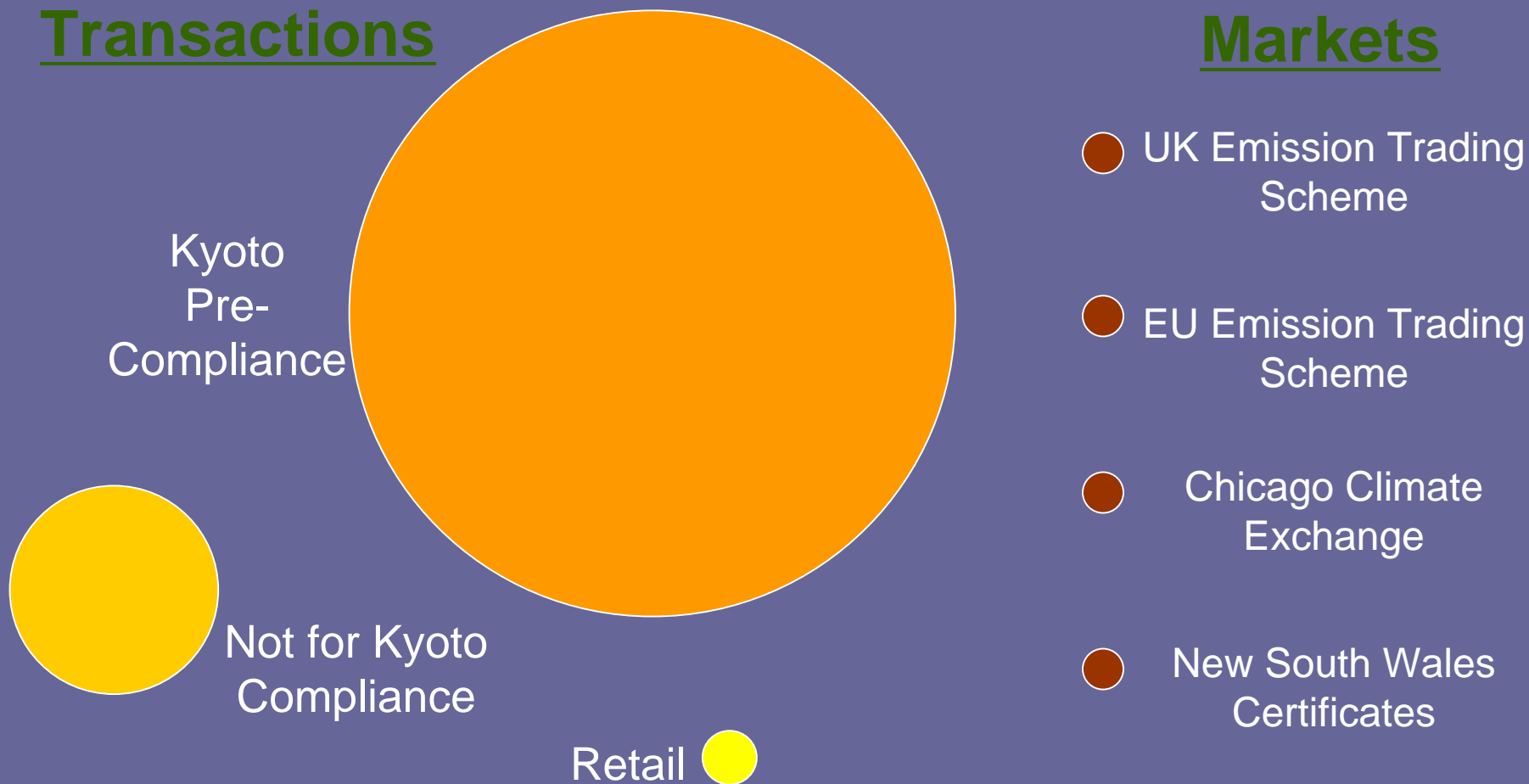
Manly Pacific Hotel
Wednesday 22 September 2004

**Martijn Wilder, Partner
Baker & McKenzie, Sydney**

Structure of the Carbon Market

Project-Based Transactions

Allowance Markets

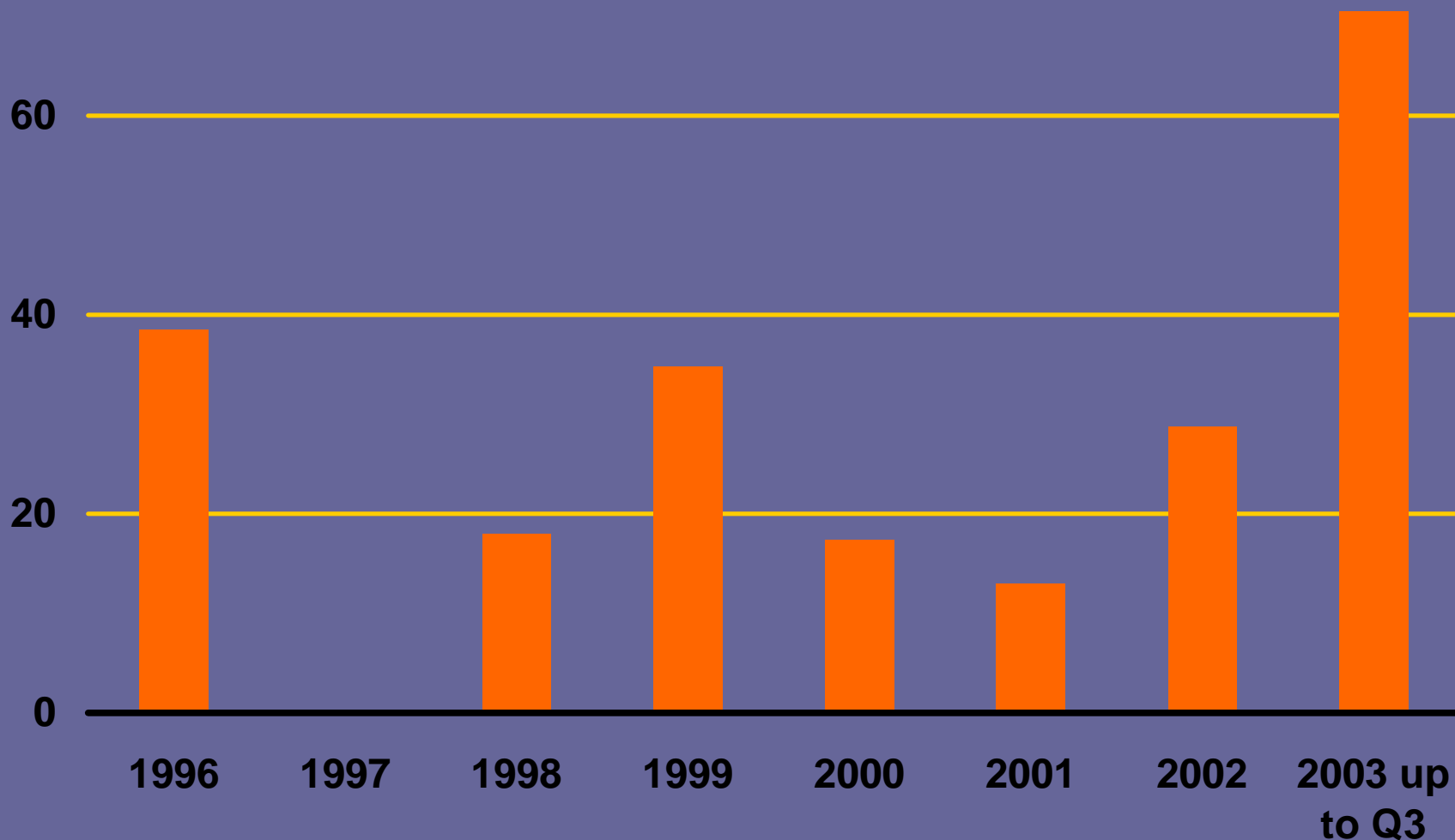


Project-Based Transactions Dominate

- Allowance markets dominate in number of trades, but are less than 4% of volume (2003)
- Project-Based Transactions:
 - **70 million tCO₂e** traded in 2003 (vintages up to 2012)
 - **2.5 times** more than 2002
 - ~ **220 million tCO₂e** traded since 1996
 - On average, projects generate 70% more emission reductions (post-2012 in general)

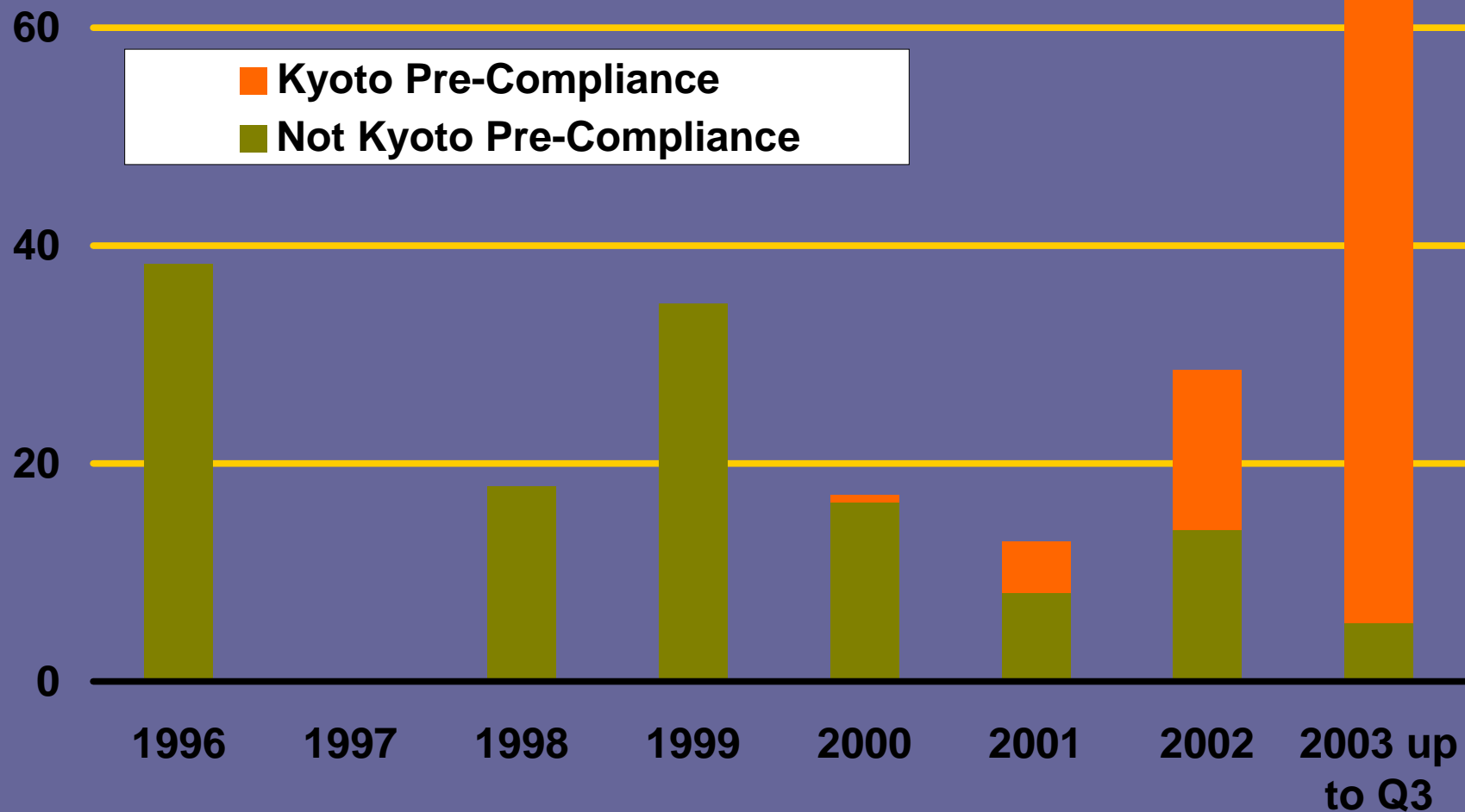
Carbon Market Growing

Volume traded in project-based transactions, million tCO₂e



Main Driver: Compliance

Volume traded in project-based transactions, million tCO₂e

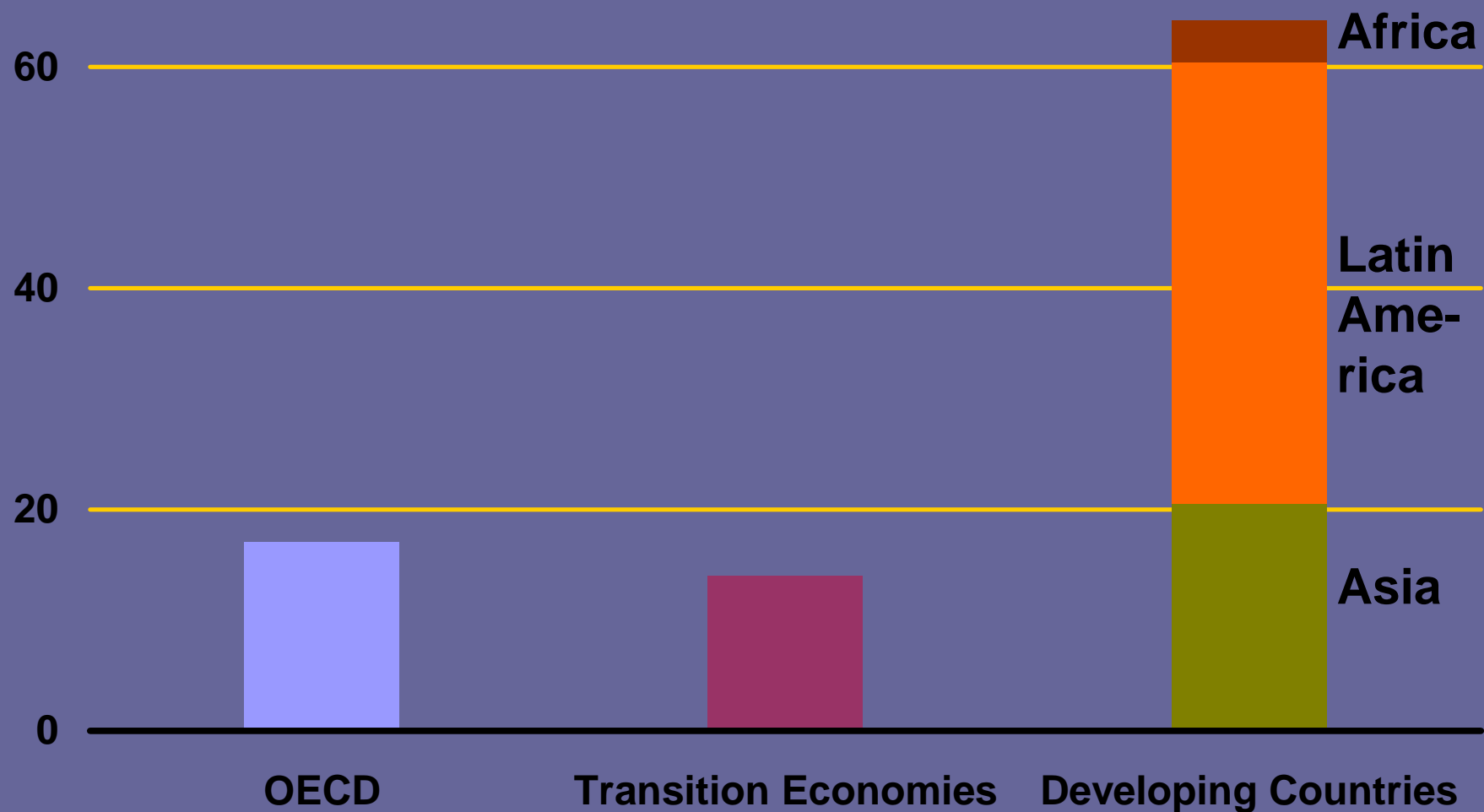


Who's selling?

- 90% of volume now contracted in JI or CDM Countries
- Latin & Central America was dominant but Asia now emerging as the major source of projects
- Africa still largely bypassed
- Trades tend to concentrate on larger, middle-income countries

Location of Projects

In million tCO₂e sold from 2002 to Q3 2003



The Carbon Market: Buyers

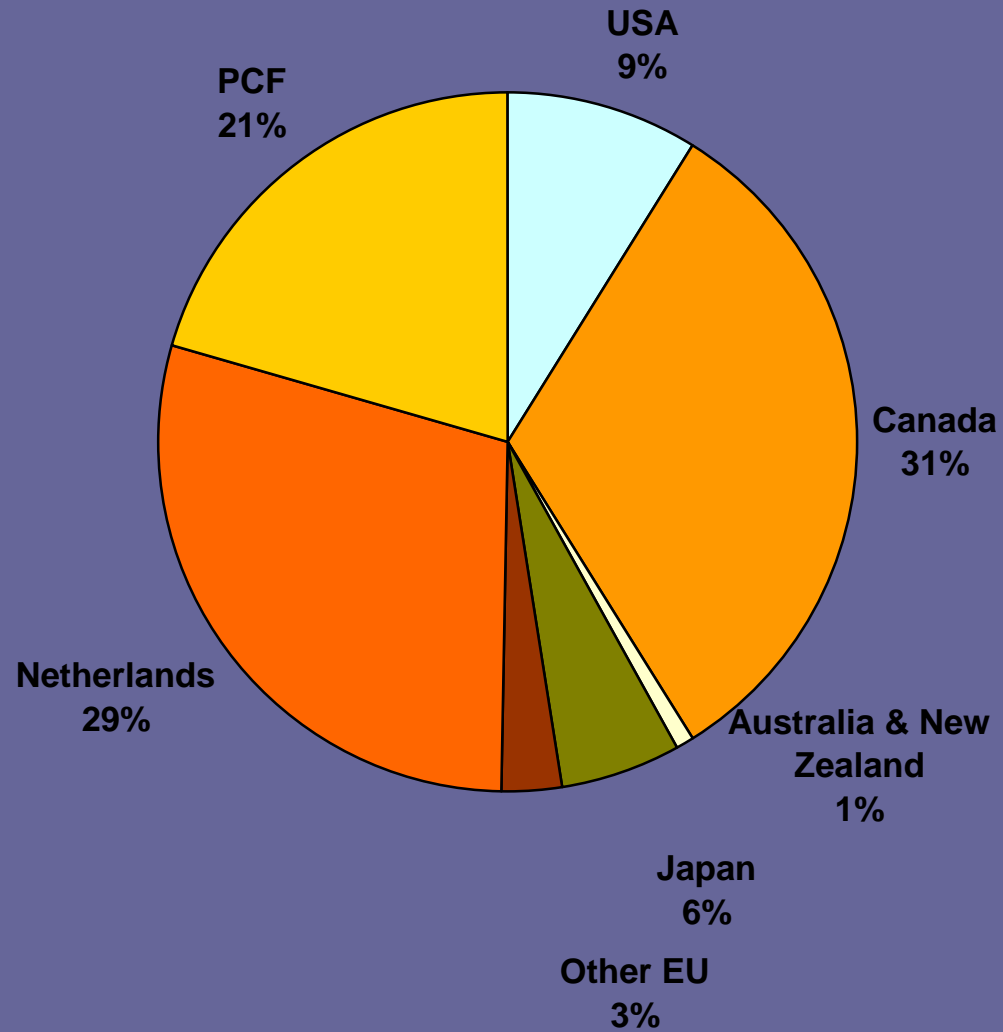
- Three (3) Main buyers making up 90% of purchasers:
 - Japanese corporates
 - Netherlands (including via fund managers)
 - World Bank
- Other Government funds now emerging: Denmark, Austria, Finland
- Other Multi-laterals: IFC, EBRD
- Other Corporates including US companies
- Brokers: Natsource, CO2e.com, Evolution Markets
- Retail Market: Future Forests, 500ppm

The Carbon Market: Buyer Issues

- Retail buyers are repeat buyers but small volumes
- Governments like Dutch and World Bank are tender based while Danes aggressively securing options throughout Asia
- Increasing competition for limited emission reductions
- Private Sector companies are generally one-off purchasers looking to establish a diversified emissions reductions portfolio, learn by doing, public relations.
- Brokers are not buyers
- False Traders

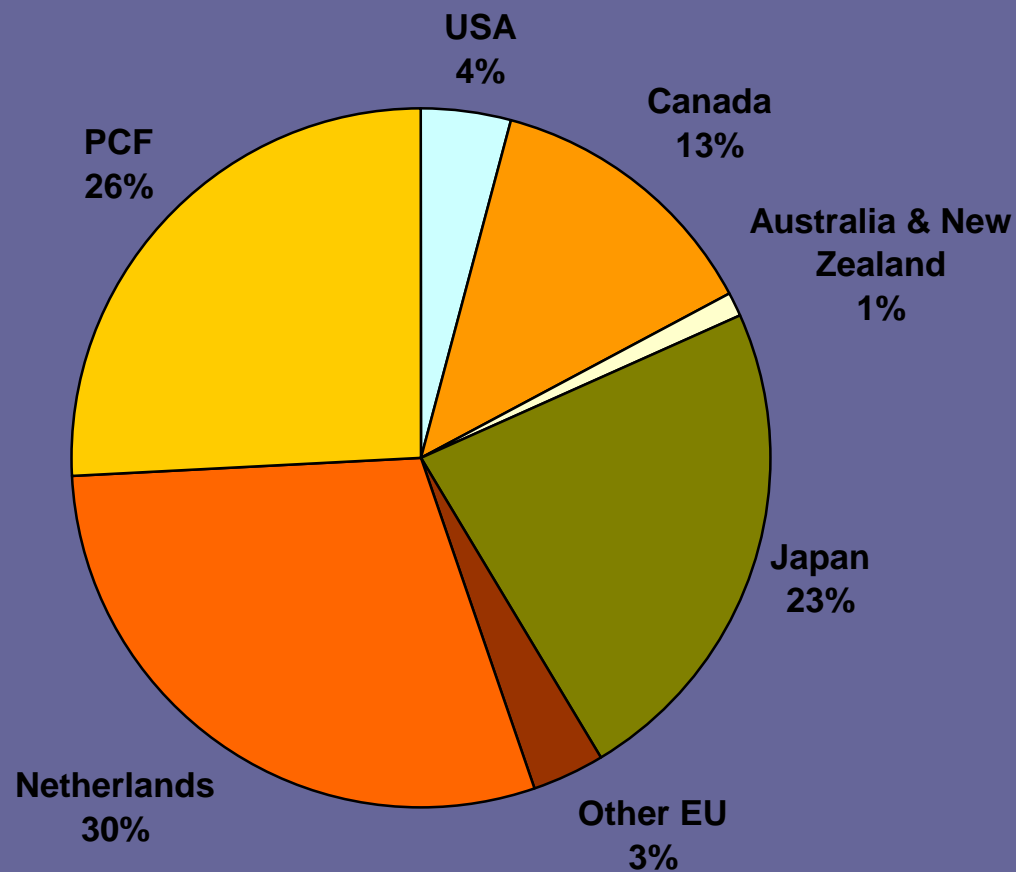
Who is buying?

In percent of volume purchased from 2001 to 2002



Who is buying?

In percent of volume purchased from 2002 to Q3 2003



World Bank Carbon Finance Business

- Dedicated Funds exist but limited availability
- However, significant risk exposure



Browser - Carboncredits.nl - ERUPT: JI projects in Central and Eastern Europe - Microsoft Internet Explorer

Address <http://www.ender.nl/soepage.asp?ID=001144&id=erupt>

Carboncredits.nl
ERUPT: JI projects in Central and Eastern Europe

For investments in Central and Eastern Europe you can benefit from our procurement programme under Joint Implementation (JI) called ERUPT. Senter is carrying out the ERUPT programme by order of the Ministry of Economic Affairs of the Netherlands.

Through ERUPT Senter buys carbon credits from investments in also renewable energy, energy efficiency, fuel switch, afforestation/reforestation and waste management. The programme is implemented on a tender basis. You can submit Expressions of Interest at given periods. From the expressions of interest received Senter will make a shortlist. Shortlisted companies are then invited to submit a proposal. Please see the [Tender information](#) section for time schedules and to download the Terms of Reference.

Contents

- What are criteria for a JI project?
- How do you develop a JI project?
- What are the steps in a JI project?
- Ji host countries

What are criteria for a JI project?

Your offer should have a minimum size of 250,000 ton CO₂e and delivery should take place in the period 2008-2012. To give you an idea your JI-project should at least measure

- 15-20 MW for Combined Heat and Power
- 50-120 GWh MW for renewable energy (power only)

Browser - Carboncredits.nl - ERUPT: CDM projects in developing countries - Microsoft Internet Explorer

Address <http://www.ender.nl/soepage.asp?ID=001125&id=erupt>

Carboncredits.nl
ERUPT: CDM projects in developing countries

For investments in developing countries in Asia, Africa and Latin America you can benefit from our procurement programme under the Clean Development Mechanism (CDM) called CERUPT. Senter is carrying out the CERUPT programme by order of the Ministry of Housing, Spatial Planning and the Environment (VROM) of the Netherlands. Visit the VROM CMD website for more information on other CDM instruments.

Through CERUPT Senter buys carbon credits from investments in also renewable energy, energy efficiency, fuel switch and waste management. The programme is implemented on a tender basis. You can submit expressions of interest at given periods. From the expressions of interest received Senter will make a shortlist. Shortlisted companies are then invited to submit a proposal. Please see the tender information section for time schedules and to download the Terms of Reference.

Contents

- What are criteria for a CDM project?
- How do you develop a CDM project?
- What are the steps in a CDM project?
- CDM Host countries

What are criteria for a CDM project?

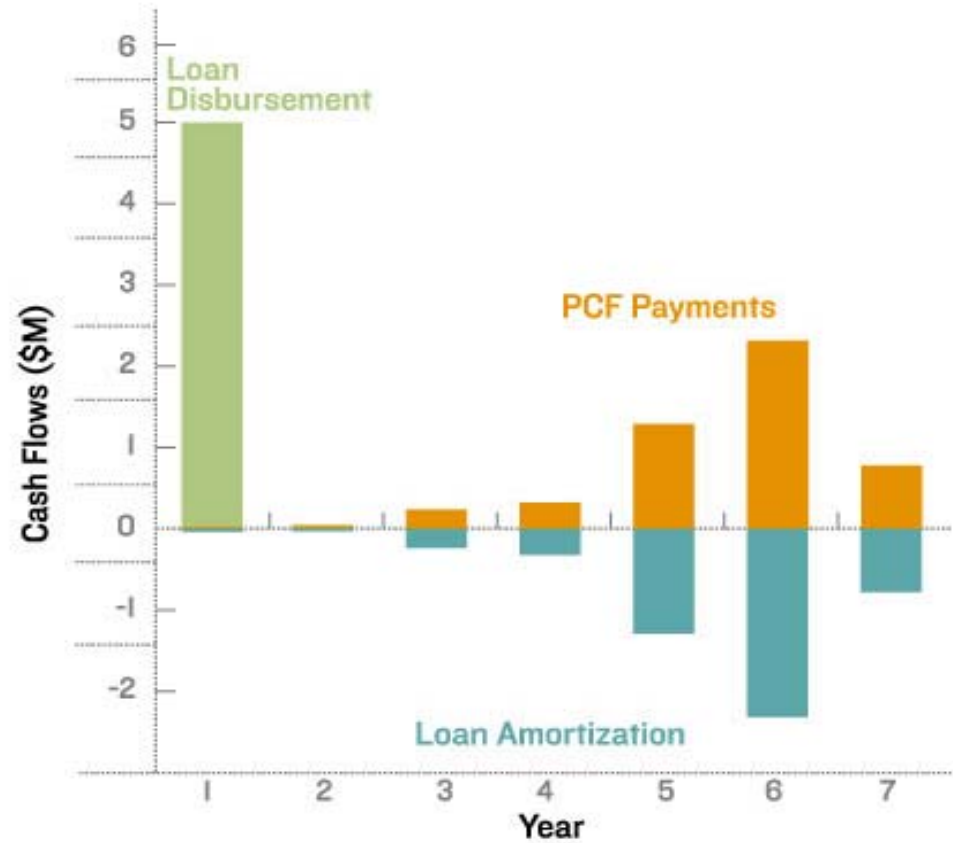
Your offer should have a maximum size of 100,000 ton CO₂e

Senter is willing to pay the following maximum prices for CERs produced by different CDM project types:

Leveraging private financing – schedule of cash flows

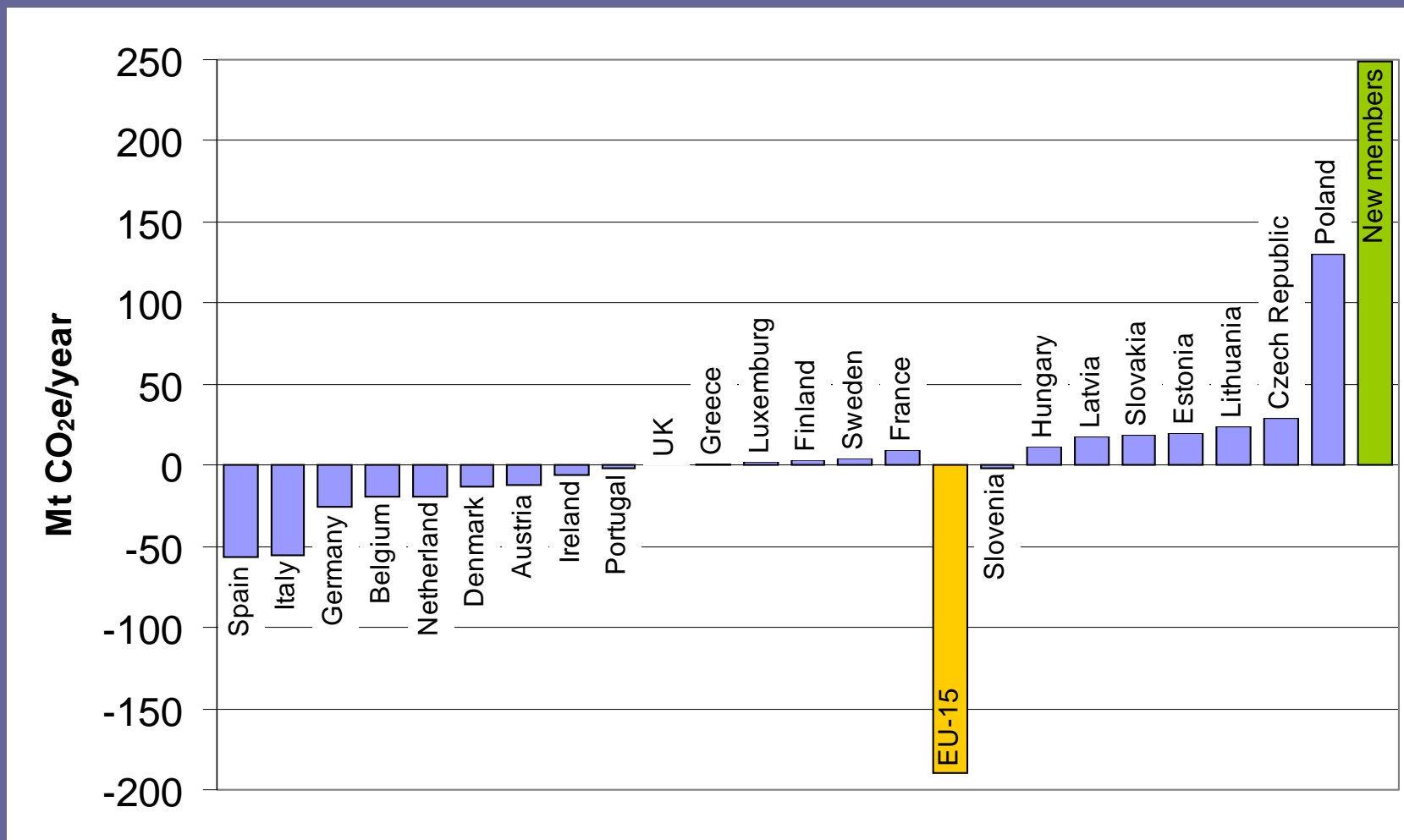
figure 4.2

USING PCF CARBON PURCHASE COMMITMENTS TO LEVERAGE PRIVATE FINANCING
B. Indicative Schedule of Cash Flows



Kyoto status

2000 GHG emissions excluding LUCF compared to Kyoto targets



In total a net surplus of 60 Mt CO₂e

Key Emitters in the EU Power Sector

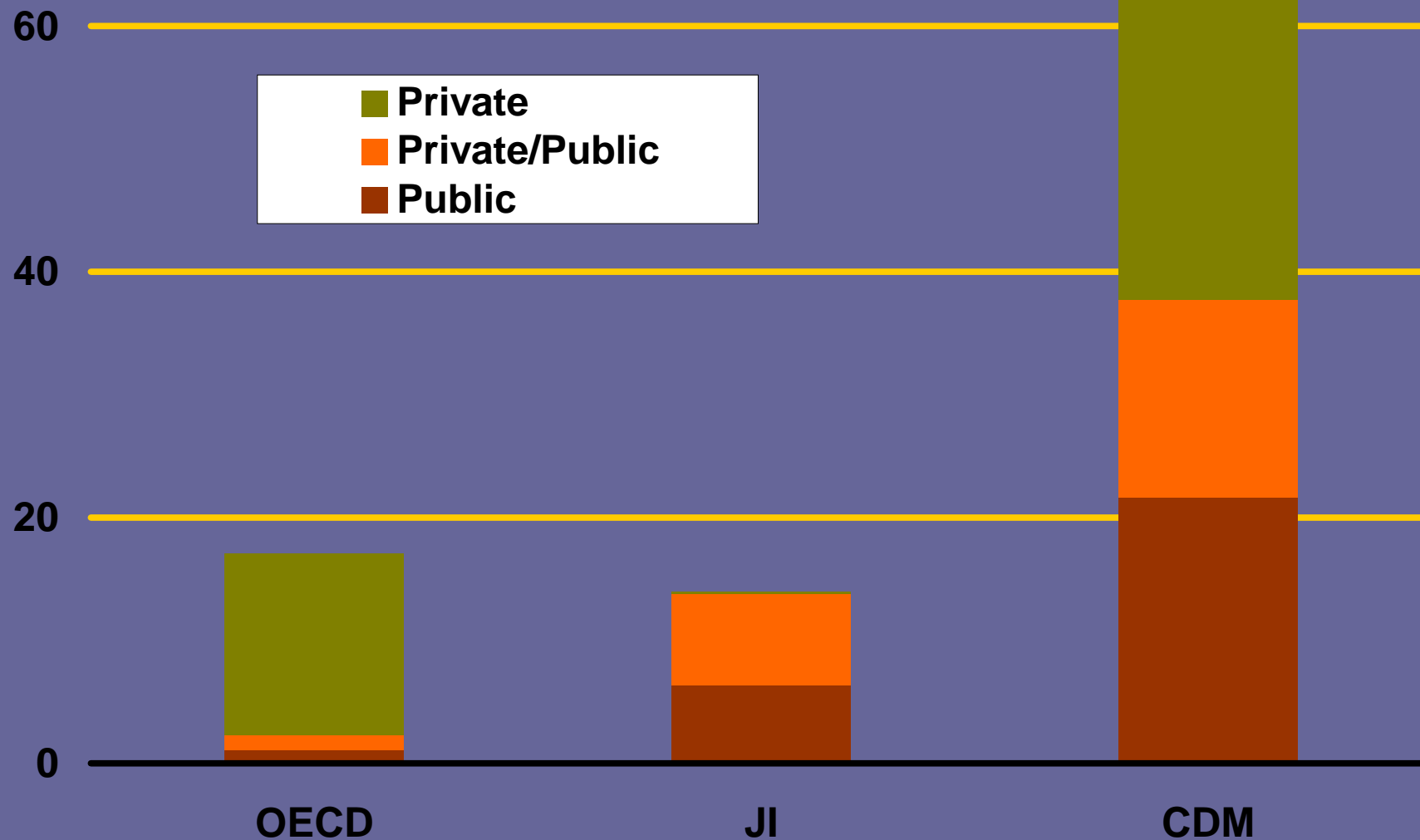
C. Data, by company

| Country | Company | Capacity (in MW) | Generation (in TWh) | Emission (in t CO ₂) | kg CO ₂ / MWh |
|---------------|----------------------|---------------------|------------------------|-------------------------------------|-----------------------------|
| France/UK/Ger | EDF | 115,460 | 536 | 36,889,777 | 69 |
| Italy | ENEL | 56,348 | 182 | 99,000,000 | 544 |
| Swed/Germ | Vattenfall | 33,963 | 180 | 70,988,805 | 394 |
| Germany/UK | RWE | 40,339 | 179 | 126,600,000 | 707 |
| Germany/UK | E.ON | 42,231 | 171 | 76,137,100 | 445 |
| Italy/Spain | Endesa | 26,089 | 129 | 72,600,000 | 563 |
| Belgium/NL | Electrabel | 23,945 | 106 | 39,361,000 | 371 |
| UK | British Energy | 11,528 | 68 | 0 | 0 |
| Spain | Iberdrola | 16,088 | 58 | 8,560,390 | 148 |
| Norway | Statkraft | 8,700 | 58 | 0 | 0 |
| UK | TXU Europe | 7,746 | 50 | 16,000,000 | 320 |
| Greece | DEI | 11,121 | 48 | 41,500,000 | 865 |
| UK | Scottish & Southern | 7,036 | 45 | 19,000,000 | 422 |
| Finland | Fortum | 5,800 | 41 | 11,400,000 | 278 |
| UK | Edison Mission | 6,363 | 40 | 20,000,000 | 500 |
| Portugal | EDP | 7,585 | 28 | 12,600,000 | 450 |
| Austria | Verbund | 7,350 | 28 | 3,146,000 | 112 |
| Slovakia | Slovenské elektrárne | 6,998 | 26 | 8,000,000 | 308 |
| UK | Scottish Power (UK) | 5,261 | 26 | 13,260,000 | 510 |
| Spain | Union Fenosa | 5,597 | 26 | 14,525,000 | 559 |
| Ireland | ESB | 4,700 | 24 | 15,800,000 | 658 |
| Italy | Edison | 4,500 | 23 | 15,189,772 | 660 |
| Finland | PVO | 3,748 | 19 | 4,900,000 | 258 |
| Denmark | Elkraft System | 5,422 | 13 | 10,500,000 | 808 |
| Spain | Hidrocantabrico | 2,173 | 13 | 11,906,972 | 916 |
| TOTAL | | 466,091 | 2,117 | 747,864,816 | 353 |

By lack of available public data, we have not been able to integrate Essent (NL) figures. Our assessment would approximate 26 Mt CO₂ for 50 TWh of generation.

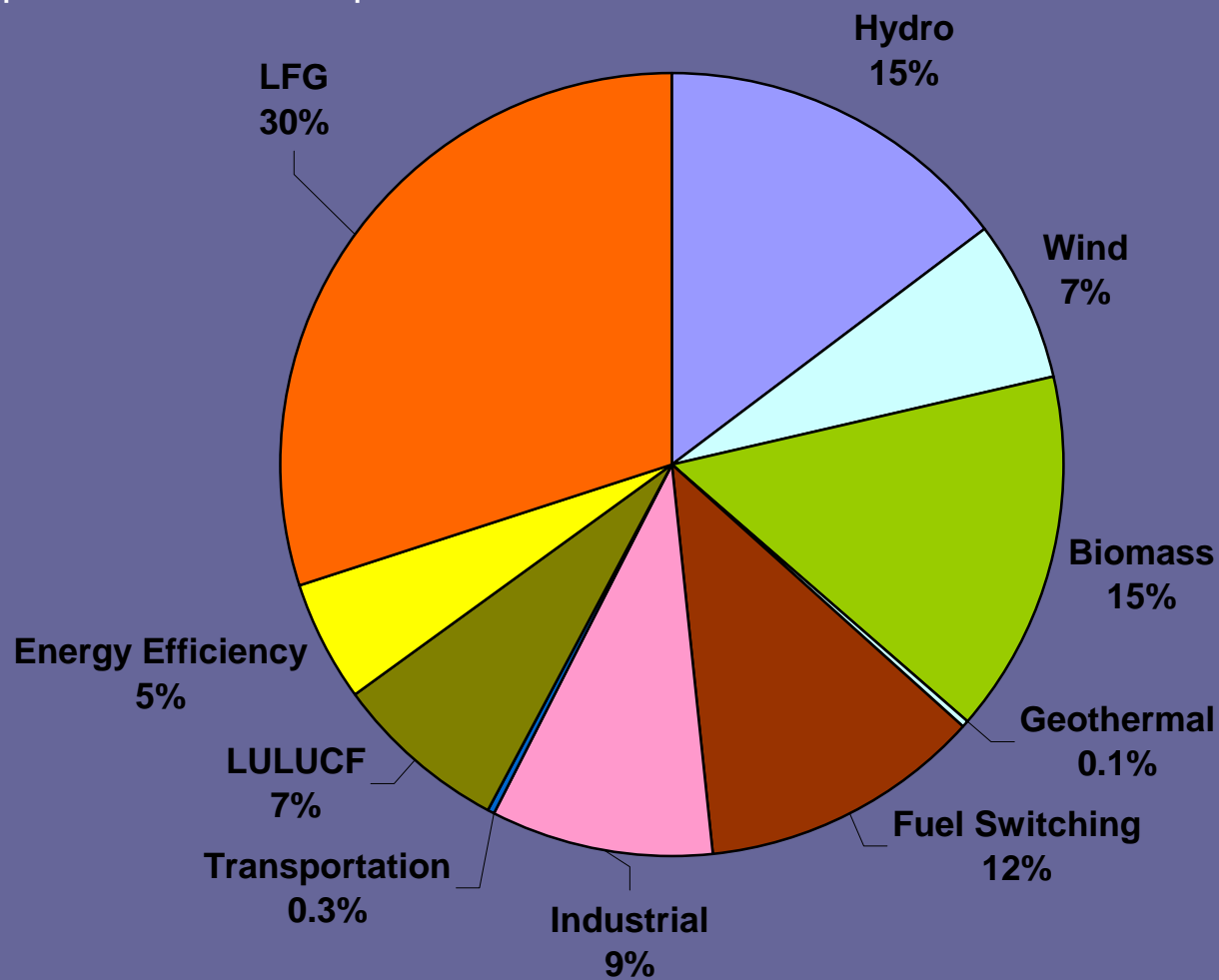
Private Investment in CDM Increases

(million tCO₂e from 2002 to Q3 2003)



Technology Distribution

In percent of volume purchased from 2002 to Q3 2003



Outlook

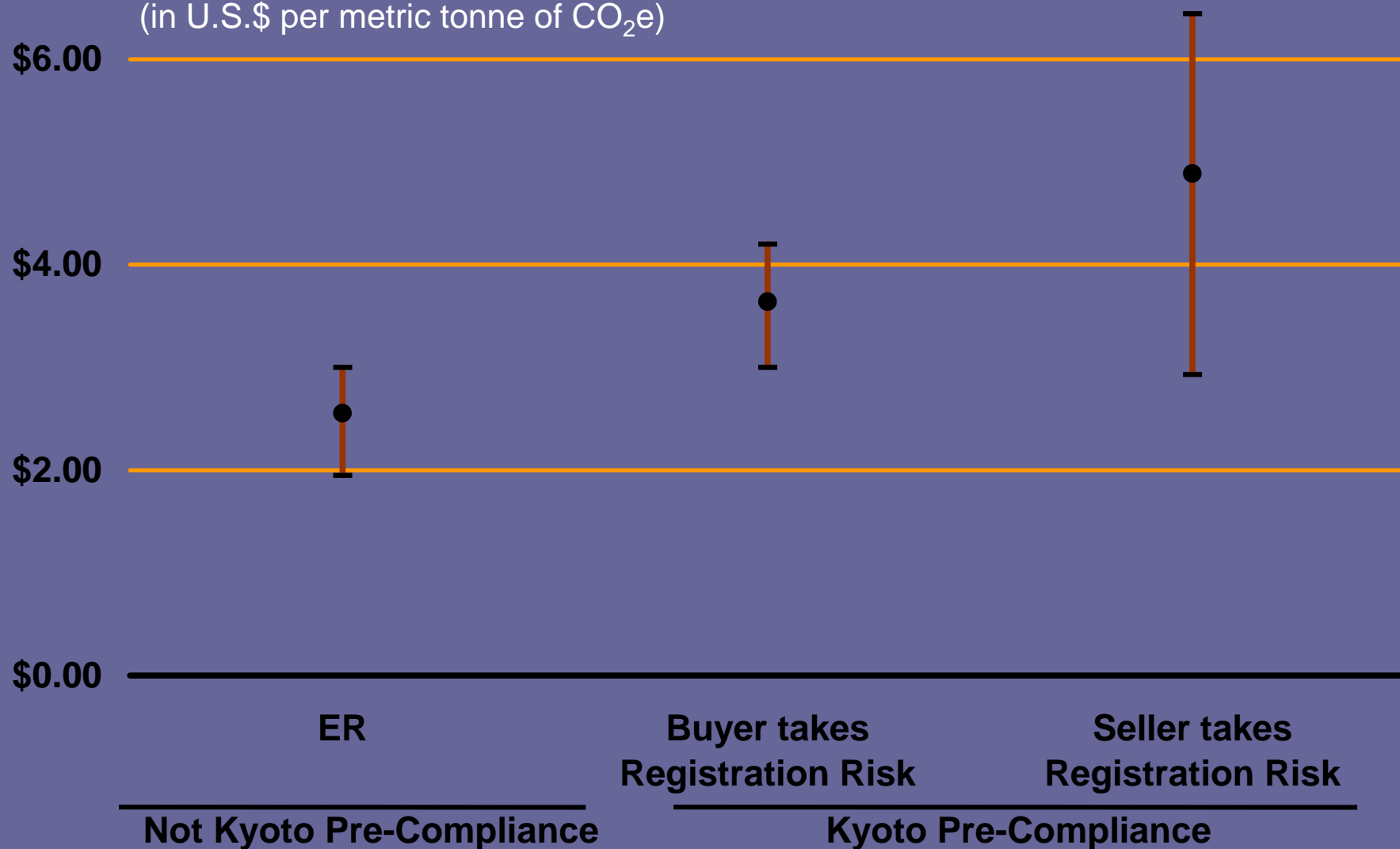
- **Large scale pledges** (mostly by EU governments) to become projects in 04, 05
- Clarification of rules and begin of operations of **major trading schemes** (EU, Canada, Japan longer term) should fuel allowance trading + demand for CDM/JI in 04, 05
- On the other hand, prolonged uncertainty on Kyoto could hamper growth of market
- Window of opportunity for CDM/JI closing by 2006-2007 because of **projects lead-time**

The Carbon Market: Price

- Global regimes developing and pricing is not yet reflective of future global market value
- Price will depend of carbon asset being sold and the nature of the transaction
- In project based transactions involving the sale of future streams of carbon rights price will be affected by the creditworthiness of seller, the ability of seller to deliver, sovereign risks, structure of the transaction, allocation of risk
- In transactions involving pre-existing or anticipated statutory rights price will be dictated by factors including demand, timing in context of compliance deadlines, penalties, cost of compliance
- EU Allowances, sovereign AAUs highest value

Prices in 2003

(in U.S.\$ per metric tonne of CO₂e)



The Carbon Market: Price

- Contractual rights trading at US\$0.50- \$US2 (although small retail type trades at around US\$10)
- Kyoto rights trading at US\$3-US\$4 up to US\$10 and European buyers at between Euro 3-7
- As increased buyers emerge especially with competing country funds price expectations shifting upwards
- EU Allowances- average price for 2005 vintages peaked at 14 Euro Feb/March and travelling between 7 and 10 Euro since
- Predictions vary widely as to future market prices
- Ramifications for when and how transactions are pursued

A stylized globe icon in a light blue color, positioned on the left side of the slide. It features a grid of latitude and longitude lines, with the grid cells being semi-transparent. The globe is partially cut off by the left edge of the slide.

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