

A world map is visible in the background, rendered in a light blue color against a darker blue gradient. The map shows the continents of North America, South America, Europe, Africa, Asia, and Australia.

# Financing Coal Mine Methane Projects

NEW TRENDS IN COAL MINE METHANE RECOVERY & UTILIZATION

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Poland

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# CMM - Attractive Asset Class

- Growing global resource base
  - 450 MtCO<sub>2</sub>e in 2005 to 530 MtCO<sub>2</sub>e in 2020 (US EPA)
- Conventional technologies proven
- VAM now commercial
- Large potential
- Measurable and verifiable
- Strong industry players in key markets
- Mine safety benefits

## *Carbon Finance* Survey of Carbon Fund Managers

- **88% of fund managers expect CMM supply to increase in next year**
- **38% see dramatic increase - highest of among all project-types**

# CIS/CEE is Key Growth Area for CMM



- Attention shifting away from to JI markets
- Stabilizing economies attracting foreign and domestic investment
- Substantial opportunity for CMM
  - Long history of mining and degasification
  - Potential markets exist for gas
  - Several projects already operating

*Carbon Finance* survey:

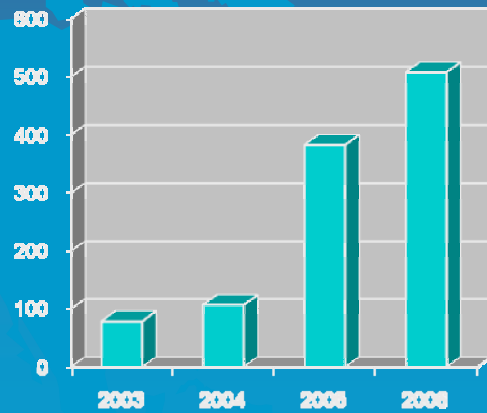
64% of carbon fund managers believe CIS/CEE will be a significant growth area in coming years

# Equity/Debt

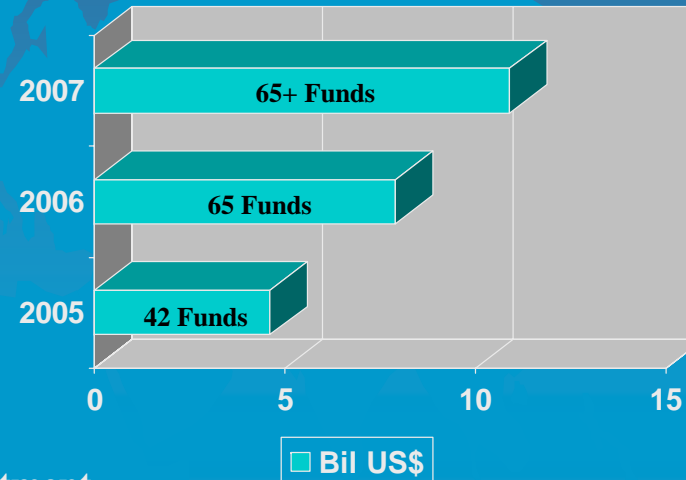
- Significant capital available for equity investments
  - Investment banks/funds
  - Bilateral/multilateral financial institutions/programs
  - Private equity
  - Corporate buyers
- Debt can be more challenging
  - Risk of non-delivery
  - ERPAs not collateral
- Alternative financing arrangements coming to market (derivatives, bridge financing, etc)
- No longer clear demarcation between institutional finance and carbon finance

# Capital Markets Providing Liquidity

**Project-Based Trading**  
MTCO<sub>2</sub>e (CDM/JI/other compliance)



**Investment Capital**



## Large Scale Private Capital



## Boutique Investment



## Project Developers (Design/Finance/Build/Operate)



## Bilateral/IFIs

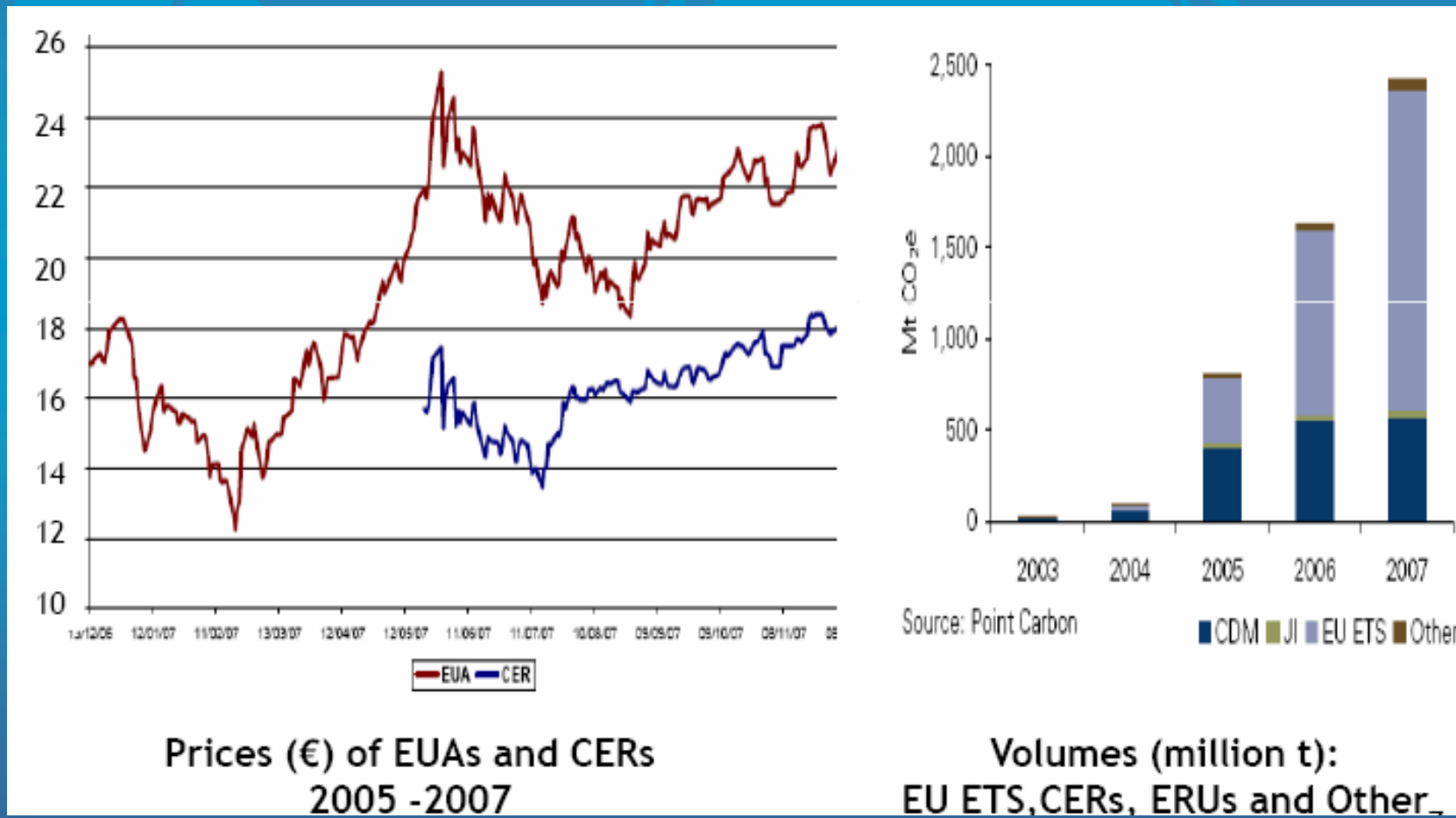


## Corporate



Sources: World Bank Carbon Finance Unit, Point Carbon, Carbon Finance

# History of Carbon Prices and Volumes



# What Makes a Project Financeable?

- Reliable Gas supply
- Appropriately sized project
- Sufficient revenues from energy product and emission reductions
- Adequate capital to ensure proper construction and start-up
- Adequate revenue stream to support operations and regular maintenance
- Applicable licenses and permits
- Qualified, integrated team
- Effective integration with mining operations
  - Understand mine plan and degasification operations
  - Coordinate closely with mine management, staff
- ALL OF THE ABOVE DEMONSTRATED IN A COHERENT BUSINESS PLAN

# State of the Market

- Expect that some projects will not be able to deliver contracted quantities
  - Could see similarity to landfill gas (one report - 70% less delivery than promised)
- Market confusion for some buyers/aggregators - quantity vented or drained does not necessarily equal avoided emissions
- Some buyers still willing to accept risk of non-delivery if seller makes good-faith effort
- Purchasers increasingly open to smaller volumes
  - 100,000 tonnes (2008-2012)
  - 50,000 tonnes for existing suppliers

# Remaining Barriers

- Inadequate documentation to support investment
- Still evolving legal and regulatory frameworks in some countries
- CDM Board
- Post-2012 uncertainty
- Differing priorities between corporate headquarters and mining operations
- Investors/buyers looking for bargains, sellers holding out for higher prices
- Mines want investment in upstream methane degasification, but concern for investors

# Thank You!

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