



Leveraging Investments for Coal Mine Methane with Climate Change Funds

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Presentation Outline



- **History of Carbon Markets**
 - United Nations Framework Convention on Climate Change (UNFCCC)
 - Clean Development Mechanism (CDM)
- **Carbon Market Today**
- **Carbon and Climate Change Funds**

History of Carbon Markets



➤ UNFCCC: Objective of the Convention

Stabilization of greenhouse gas concentrations in the atmosphere at a level that would **prevent dangerous anthropogenic interference with the climate system.** Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened, and **to enable economic development to proceed in a sustainable manner.**

➤ UNFCCC: Differentiated Commitments

- **Annex I Parties**—*OECD countries and countries undergoing transition to a market economy*—that are committed to adopting policies and measures that will reduce their GHG emissions to earlier levels
- **Annex II Parties**—*OECD countries*—must provide new and additional financial resources in order for developing countries to implement the Convention
- **Annex II Parties** will also promote and finance the transfer of environmentally sound technologies, particularly for developing countries

➤ UNFCCC: Division of Parties by Annex

Annex I Parties

Annex II Parties

Australia / Austria / Belgium / Canada /
Denmark / EC / Finland / France / Germany /
Greece / Iceland / Ireland / Italy / Japan /
Luxembourg / Netherlands / New Zealand /
Norway / Portugal / Spain / Sweden /
Switzerland / Turkey / United Kingdom / USA

Belarus / Bulgaria / Croatia / Czech Republic /
Estonia / Hungary / Latvia / Liechtenstein /
Lithuania / Monaco / Poland / Romania /
Russian Federation / Slovakia / Slovenia /
Ukraine

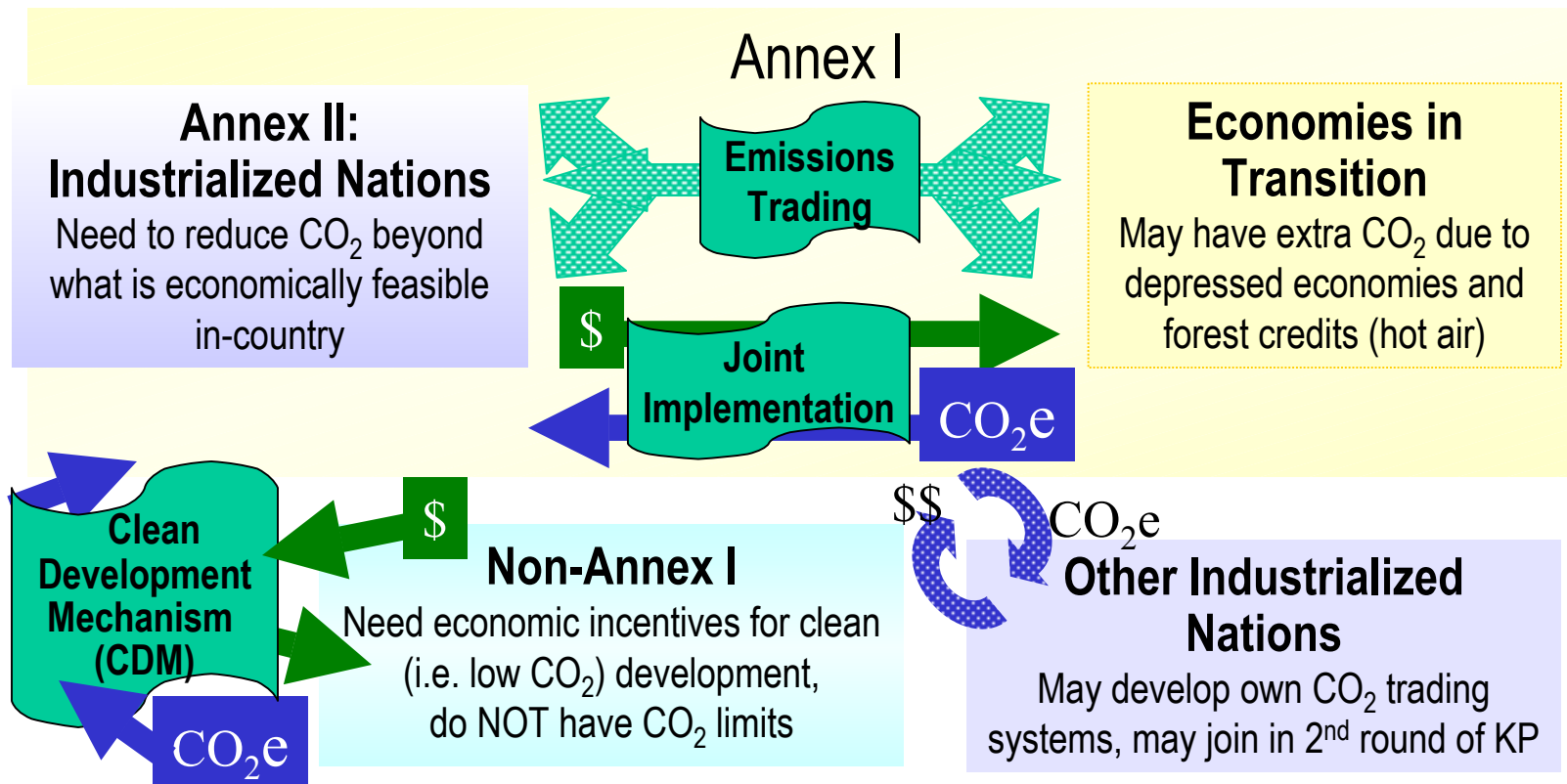
Non-Annex I

Remaining Ratifying Countries

➤ CDM: Purpose

- Assist non-Annex I countries in achieving sustainable development
- Assist Annex I countries in complying with their commitments to reduce GHG emissions

➤ CDM: Flexibility Mechanisms

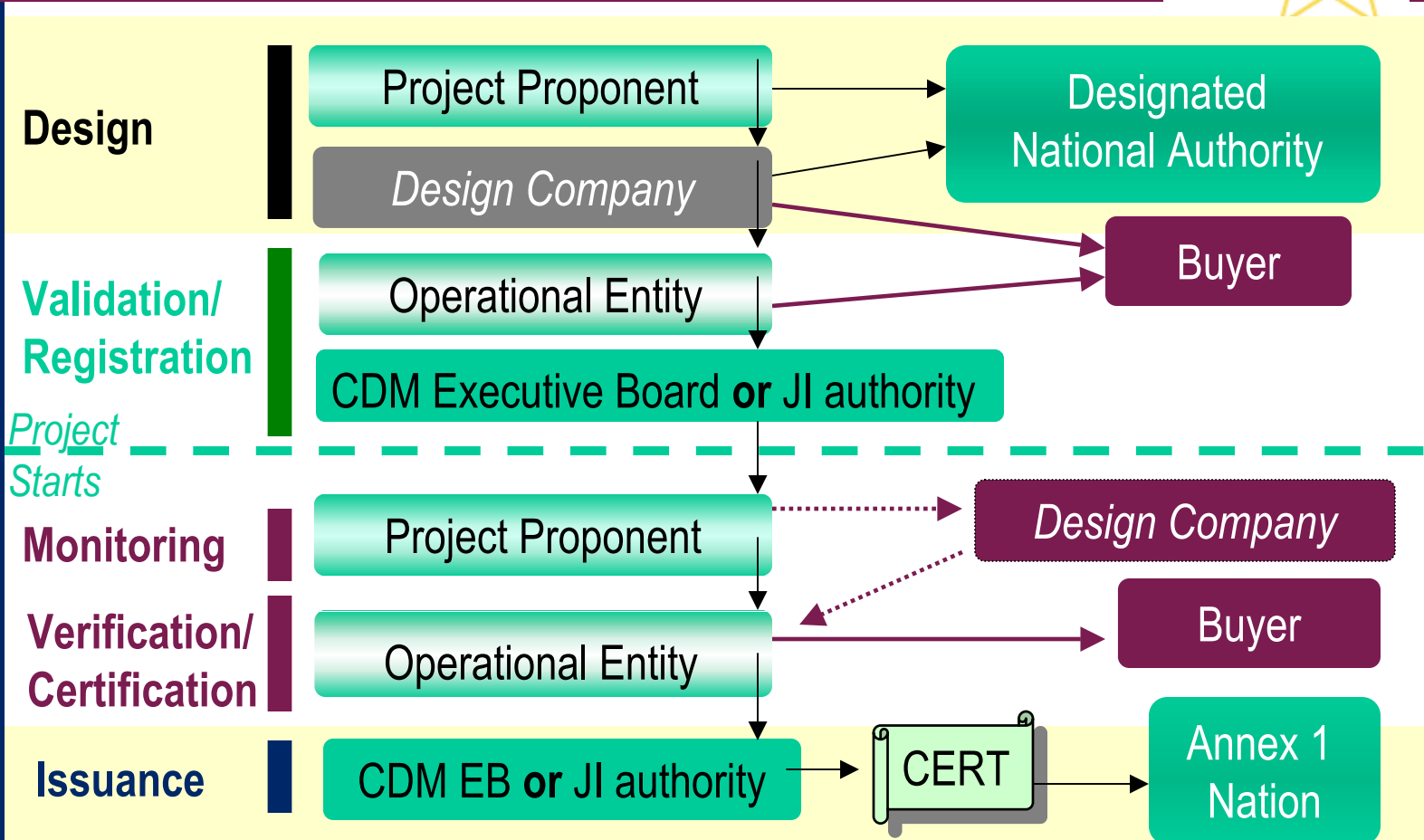


Adapted from UNFCCC

- = CDM Project Cycle
- = Not officially within CDM
- = For non-CDM/EB Trades

History of Carbon Markets

➤ CDM: Project Activity Cycle



➤ CDM: Principal Requirements for Projects

- Non-Annex I Parties (host country) **must benefit** from projects that produce certified emission reductions (CERs)
- Projects must assist host countries in sustainable development
- Projects must result in real, measurable, and long-term benefits that relate to climate change
- Projects emissions reductions must be **additional** to what would be in place without the project activity

➤ CDM: Developing Quality Projects

- Identify projects with high credibility and measurable GHG impacts and that are easy to monitor
- Get local, regional, national governments' and participants' support *early* in project development phase
- Target projects with local benefits
- Look for CDM partners with expressed long-term interest and commitment
- Work closely with project stakeholders

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Carbon Market Today



➤ Types of Trades

Trades between...

Private Entities

- Internal (BP)
- External

Government Sponsored

- Domestic Allowances—Country Trade Market (UK & Denmark)
- Bilateral Agreements (C/ERUPT)
- Governments & Private Entities

Trades through...

Brokers (CO₂e.com, Natsource)

Funds

- Donor Agencies & Conglomerates (PCF)
- Sponsoring Gvts (E/CRUPT)
- Private Funds

Direct

- This model should change for countries that utilize CDM/JI

Market Mechanisms Similar to Commodity Trading

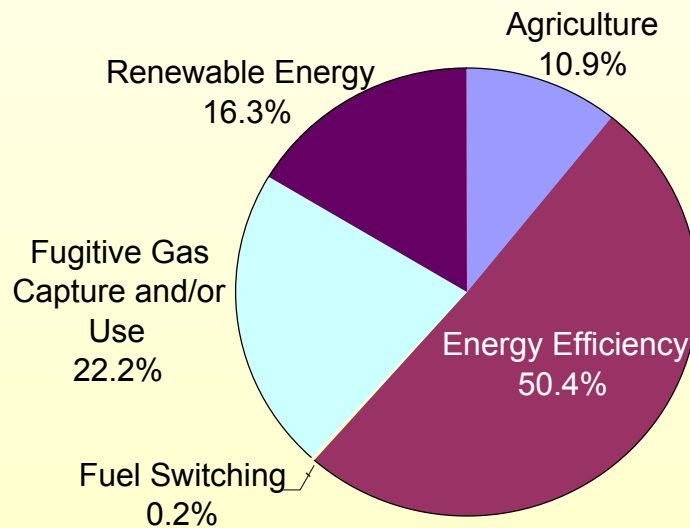
➤ Transaction Structures

- Most transactions based on outright purchase with varying payment terms (discounted up-front, payment on delivery, etc.)
- Some transactions based on financial derivatives (such as call options, option payments with strike prices, etc.)
- Some transactions based on historical and future emission reductions

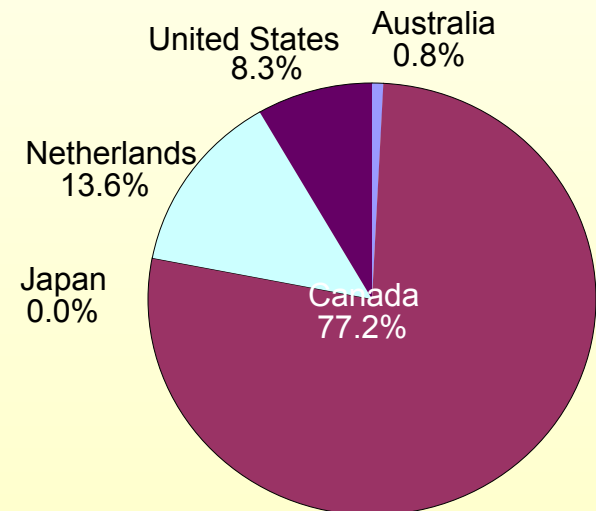
➤ What Types of Trades?

Source: Pew Center, March 2002

Project Sectors/Technologies



Countries of Buying Agents



➤ Price Ranges

- ERs range from an *average* of \$0.60 to \$3.00/ton CO₂
 - Some ERs much higher (\$7-\$16), but rare
- Price range depends on the probability of ERs being certified under the Kyoto Protocol
- Prices are higher for ERs that have government approval

➤ Participant Motivation

- Buyers are motivated by
 - Demonstrating leadership
 - Learning by doing
 - Hedging their positions in the market
- Sellers are interested in
 - Gaining competitive advantage
 - Learning by doing

➤ Liability

- Liability for non-performance or non-recognition of emission reductions usually negotiated between buyers and sellers
- In some cases, sellers have agreed to pay penalties if unable to deliver emission reductions
- Greater assumption of liability by sellers command higher prices for emission reductions

➤ Preferred Projects

- Project design structure has high probability of
 - Being accepted for validation
 - Accomplishing monitoring, verification, & certification
 - Clear ownership of emission reductions
- Technologies include
 - Fugitive gas capture from landfills
 - Gas flaring reduction
 - Fuel switching
 - Co-generation
 - Land-use projects—undertaken, but low priority for most buyers

➤ Emerging Markets for Trading GHG Credits

- Potential market volume
 - \$5-20 billion in GHG credit transactions per year by 2008
- National and regional trading programs
 - Underway: United Kingdom, Denmark
 - Future: Australia, Canada, France, European Union, Japan, Netherlands, Norway

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Carbon and Climate Change Funds



➤ Funds Reviewed

- Global Environment Facility (GEF)
- Prototype Carbon Fund (PCF)
- Dutch Government Initiatives
- Other

➤ **GEF: The Financial Mechanism of UNFCCC**

- Provides grant and concessional funds to developing countries and countries with economies in transition for projects and activities that aim to protect the global environment and achieve the objective of the Convention.
- Supports full cost of preparing national communications required by the Convention as well as “agreed incremental costs” of mitigation and adaptation measures and projects. Technical assistance and capacity building activities are also supported by GEF.
- Implementing Agencies: UNDP, UNEP, World Bank

➤ PCF: Background

- Established by the World Bank
 - To pilot carbon-financed GHG mitigation projects in JI and CDM countries
- Total capital: US\$180 million to be used in ~ 30 projects
- Emissions reductions pricing
 - Target portfolio-wide outcome price: ~\$5/tCO₂ (\$20/tC)
 - Target deal price: \$3-4/tCO₂ (~\$9-12tC)

➤ PCF: Features

- Closed-end Mutual Fund structure with diverse portfolio to
 - Enhance the learning experience
 - Reduce transaction costs
 - Minimize project risks
- PCF develops high-value knowledge asset to
 - Understand how CDM and JI can be operationalized
 - Facilitate efficient market regulation
 - Leverage sustainable development for Parties

Carbon and Climate Change Funds



➤ **PCF: Subscribers (\$180 million)**

▪ **Public Sector (6)**

- Governments of Netherlands, Finland, Sweden, Norway, Canada, and Japan Bank for International Cooperation

▪ **Private Sector: (17)**

- Electrabel (Belgium), Fortum (Finland), RWE (Germany)
- Chubu Electric, Chugoku Electric, Kyushu Electric, Shikoku Electric, Tohoku Electric, Tokyo Electric Power
- BP-Amoco, Gaz de France, NorskHydro (Norway), Statoil (Norway)
- Mitsui, Mitsubishi
- Deutsche Bank, RaboBank (Netherlands)

Carbon and Climate Change Funds



➤ PCF: Host-Country Committee

Joined (through MoU or Project Endorsement)

Africa (10)

Benin, Burkina Faso, Ghana, Kenya,
Morocco, Senegal, Swaziland,
Uganda, Togo, Zimbabwe

Asia (1)

India

Eastern Europe/ C Asia (8)

Bulgaria, Czech R., Hungary,
Kazakhstan, Latvia, Poland,
Romania, Uzbekistan

Latin America (13)

Argentina, Brazil, Chile, Colombia, Costa Rica,
El Salvador, Guatemala, Guyana, Honduras,
Mexico, Nicaragua, Peru, Uruguay

Considering

China, Bangladesh, Egypt, Philippines, Sri Lanka, Thailand,
Vietnam, Slovakia, Ukraine

Carbon and Climate Change Funds



➤ Carbon Finance Beyond PCF: *New Funds*

- **Bio-Carbon Fund:** To demonstrate benefits and test rules and methods for LULUCF activities in CDM. Design funded.
- **Community Development Carbon Fund:** An ongoing facility to distribute benefits of CDM/JI to small projects, small countries and rural poor. “Carbon with a human face”. Design funded.
- **Carbon Neutral:** World Bank to demonstrate tapping the voluntary carbon market. Design funded. Launched April 11, fully operational June 2002.
- **Netherlands Clean Development Facility:** Agree to place at least US\$30 million per year in CDM for 2002-2005+: Signed April 19, May 2002 start-up date.

Carbon and Climate Change Funds



➤ Dutch CDM Funds

- **Cerupt:** To pilot CDM Carbon Finance projects, modeled on ERUPT-JI, targets 10MT (Tender)
- **INCaF** (IFC-Netherlands Carbon Facility) International Finance Corporation: targets 10MT
- **CAF-Netherlands CDM Facility:** focuses on public and private sector transactions, located in countries in Latin America and the Caribbean, targets 10MT
- **IBRD Netherlands Fund:** targets 16MT
- **ABD Fund:** under discussion

Carbon and Climate Change Funds



➤ Additional Funds

- **EBRD, Dexia Group, and FondElec:** have secured EUR 61 million and is raising another EUR 90 million for investments in GHG emissions reduction in Eastern Europe and FSU
- **The Renewable Energy and Energy Efficiency Fund:** initiated by IFC, has secured \$65 million for investments in energy projects that reduce emissions of GHG emissions
- **BC Hydro:** issued a request for proposal in Feb 2001 for 5.5 million tonnes of CO₂ offsets. At current quoted price for CO₂ offsets, the value of the offsets = ~ \$5–20 million
- **Additional investors:** Seattle City Light, the Climate Trust of Oregon, TransAlta, Mitsubishi, and other Japanese industrial and energy companies

Carbon and Climate Change Funds



➤ Active Parties in China CBM

▪ Donor Agencies

- World Bank, U.S. Environmental Protection Agency, Asian Development Bank, UNDP, UNEP

▪ Private International Developers

- Texaco, ARCO, Phillips, Amoco, Enron, Sino-American Energy Co., Lowell Petroleum Co., BHP, AMT Drilling Co.,

▪ Private Chinese Developers

- Zhongyuan Oilfield, Huabei Oilfield, Northern China Bureau of Petroleum Geology, Jindan Energy Research and Development Co., Yanquan Coalbed Methane Development Co., Huawell Petroleum, Central Coal Research Institute Xi-an Branch, Star Mining Corp.