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Application of the Kyoto Mechanisms to Renewable Energy Projects in UNECE Transition Countries

Palais de Nations, Geneva,
Wednesday 26 May 2004

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Factor: Focus and Expertise

Analyses, Strategies, Concepts

Organization Building and Management

Mitigating Climate Change
Sustainable Energy Use

Project Development and Implementation

Emission Trading and Financing Solutions

Selection of Factor's Clients

Consulting:

- Black Emerald Capital Advisors
- DHL
- EBRD
- Energy Agency of the Economy (CH)
- Oil-Association (CH)
- Fenaco
- Georg Fischer
- GTZ
- Holcim
- Lafarge
- Novartis
- seco
- Swiss Re
- World Bank

Project Development with Carbon Component:

- Indian Wind Farms (CERUPT)
- Portfolio of 10 projects in Central and Eastern Europe (Fondelec Renewable Energy and Energy Efficiency Fund)
- Bundling of 20 Privately Owned Renewable Energy Projects in India (own development)
- Brazilian Land-Fill (Land-fill-operator)
- Rehabilitation of District Heating Companies in Central and Eastern Europe (Seco)
- Solar kitchens in India (GTZ)
- Portfolio of 10 Projects (UBS Alternative Climate)

Content

- International conventions and mechanisms
  - UNFCC
  - Kyoto, Marrakech
  - JI, CDM, IET and EU Emission Trading
- Status of possible beneficiary parties
  - Kyoto affiliation
  - Executed Projects
- JI and CDM
  - Prices, financial relevance of JI and CDM for renewable energy projects
  - EU – Emission Trading
  - Potential
  - The way without Kyoto
- How to encourage JI/CDM investments in host countries

Policy Background for Europe

Climate Change Policies

- Convention on Climate Change (UNFCCC)
- Kyoto Protocol
- EU GHG Trading Directive
- (National transposition of trading directive)

➢ "Harmonized"

Policies to promote Renewables

- --
- --
- EU Renewables Directive
- (Sub-)National regulation to promote renewable energy

➢ „Not harmonized"

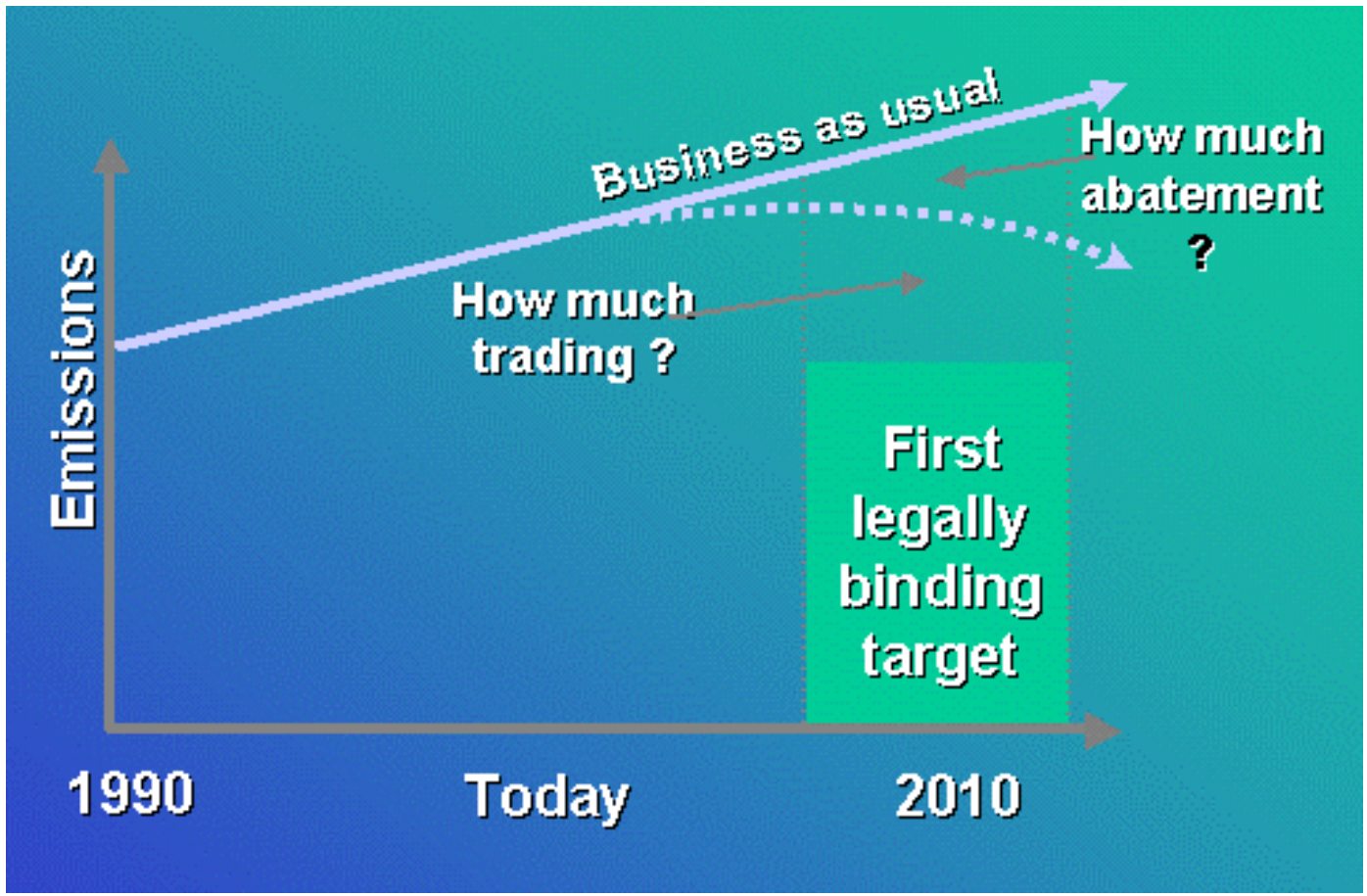
UNFCCC

The ultimate objective of the UNFCCC is: „to achieve stabilization of atmospheric concentration of greenhouse gases at levels that would prevent dangerous anthropogenic (human-induced) interference with the climate system….”

Source: UNFCCC. (2003). Caring for climate. A guide to the climate change convention and the Kyoto Protocol. *UN*.

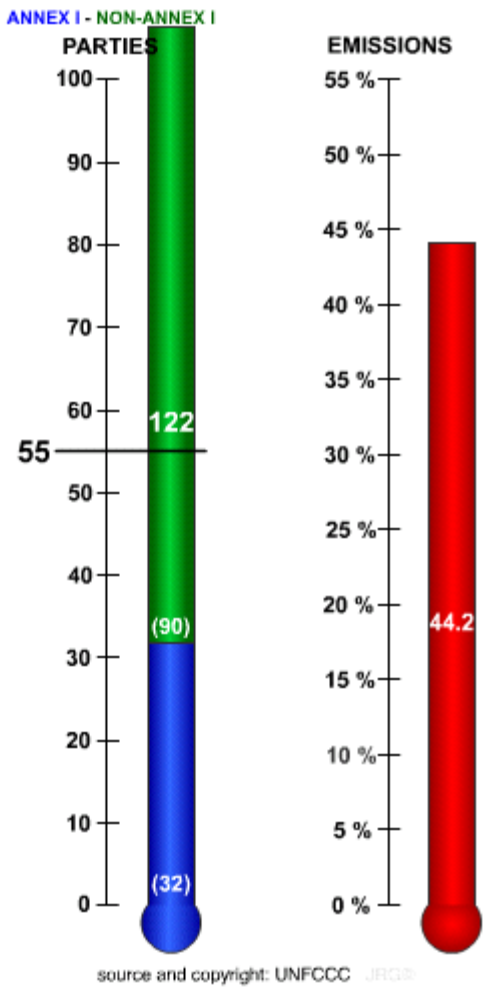
- Signatures of 188 nations and the European Community
- Parties to the Convention started to meet annually a series of Conference of Parties (COP) to promote and monitor the implementation of the UNFCCC

Kyoto Protocol



Source: Ward, M. (2001). The policy context. *Climate Change: the IPCC Third Assessment Report - Wellington Workshop May 2001*

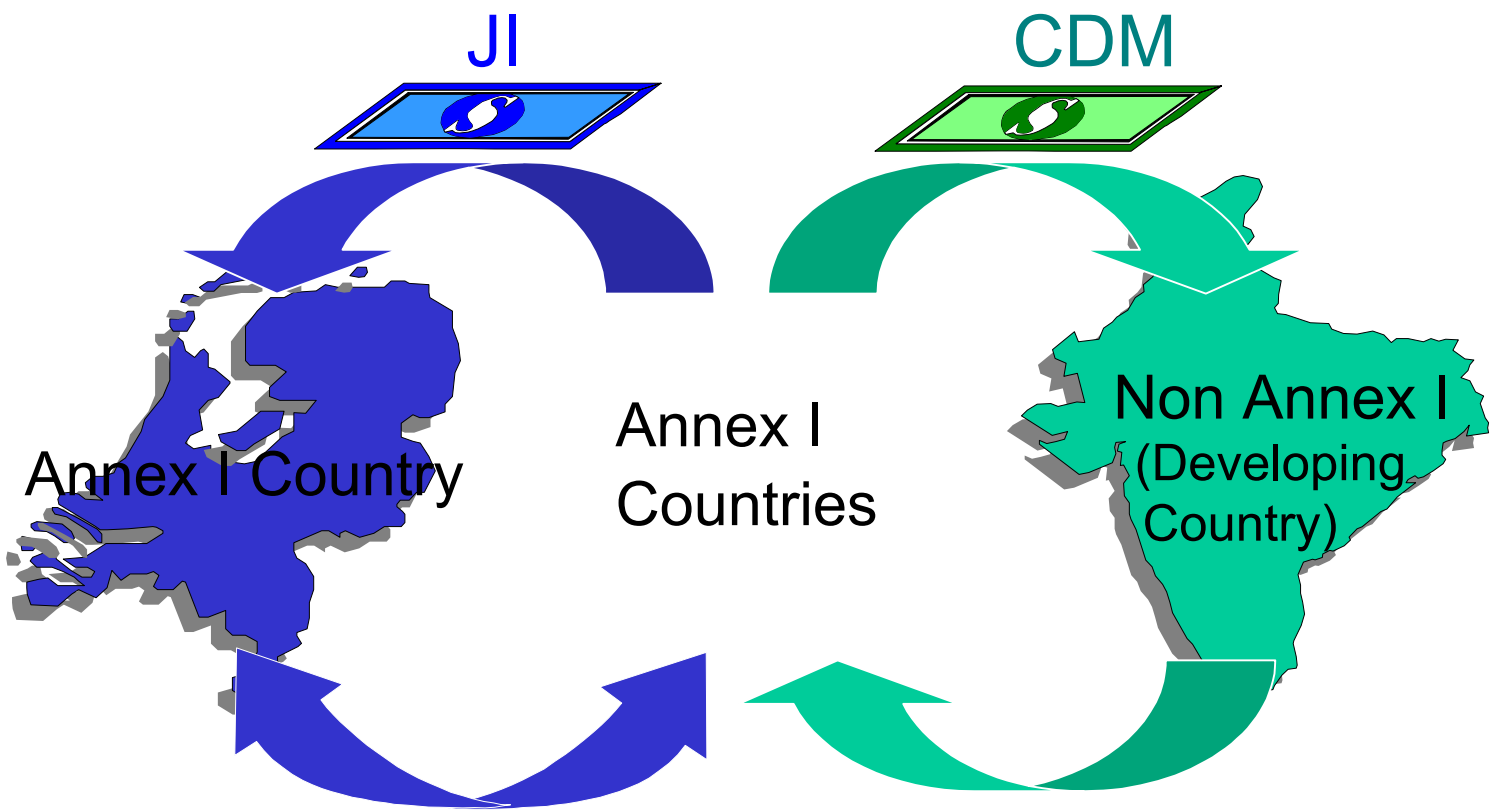
Kyoto Protocol



Scope: developed countries and economies in transition

Ratified emissions	44.2%
Required emissions for the KP to get legally binding	55.0%
Parties to ratify: Russia	17.4%

The Flexible Mechanisms of the Kyoto Protocol



Emission Reduction Units

Certified Emission Reductions

Emissions Trading in Europe: Objective and Mechanism

- Mandatory Emission Trading Directive from beginning of 2005
- Purpose: Introduce GHG emission caps for large emitters, with possibility to trade emissions allowances ("Cap-and-Trade")
- Mechanism:
  - Each Member State determines a yearly aggregate target emission ("cap") and allocates these allowances to the covered installations (National Allocation Plans).
  - Installations surrender every year allowances equivalent to their actual emissions in the past year.
  - Installations can purchase additional allowances from other installations in the GHG market, and sell or bank their excess allowances.
  - Penalty for excess emissions: 40 €/t CO_2 in 2005-07; 100 €/t CO_2 in 2008-12 + additional reduction in the following year
- **Linking directive in place since May 2004: Introduction of emission reductions from JI- and CDM-projects**

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Planned and ongoing JI/CDM – Projects in UNECE coutries

Source: Joint Implementation Quarterly • March 2004

JI-Projects:

Bulgaria	1
(Hungary	2)
(Latvia	1)
Romania	5
(Czech Rep.	1)
(Poland	1)
(Slovakia	1)
(Estonia	5)

CDM-Projects:

Moldova	1

Total JI+CDM 18

Ratified the Kyoto Protocol

Additional UNECE JI- Parties

Source: Joint Implementation Quarterly • March 2004

1. Belarus

(2. Croatia)

(3. Lithuania)

4. Russian Federation

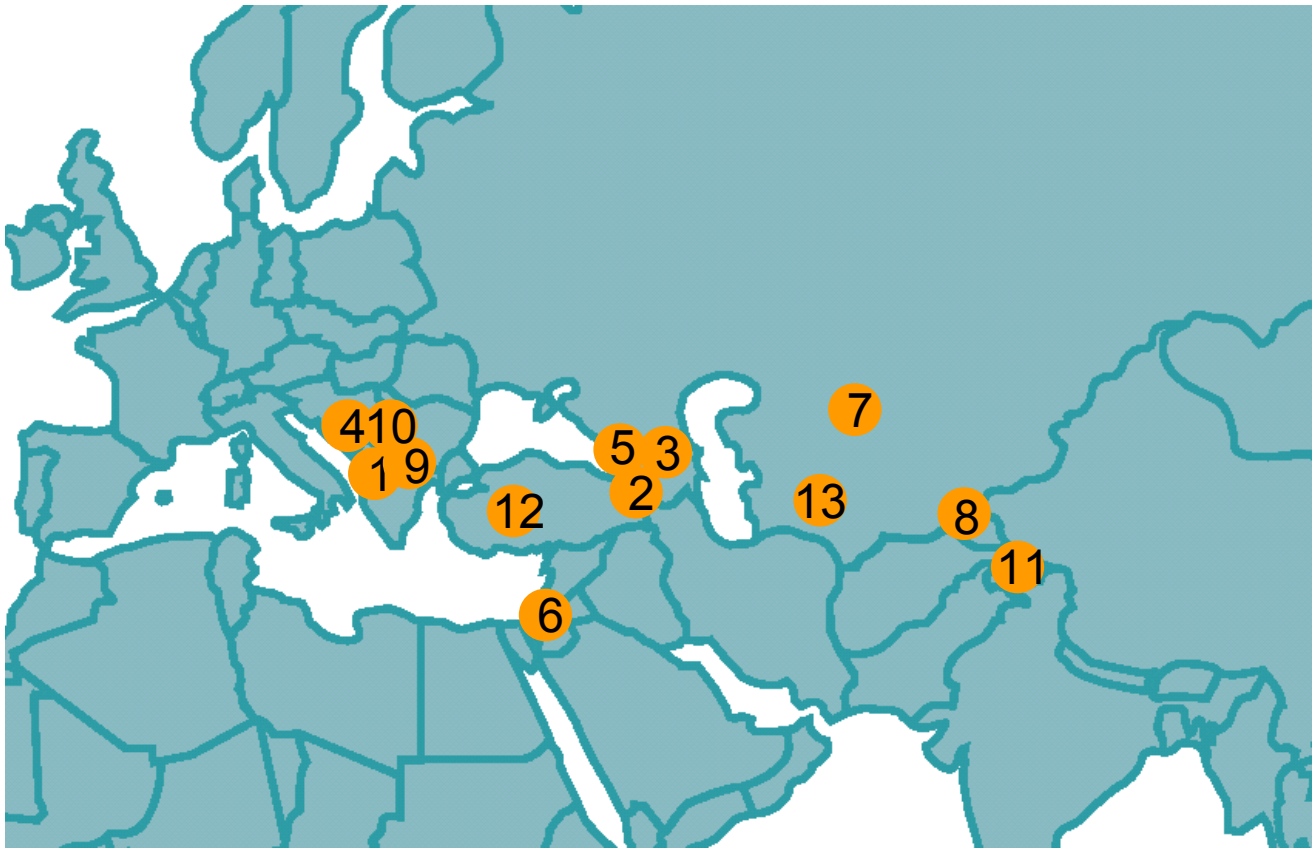
(5. Slovenia)

6. Turkmenistan

7. Ukraine

Non of them has a DNA

Possible UNECE CDM - Parties



Source: Joint Implementation Quarterly • March 2004

1. Albania
2. Armenia
3. Azerbaijan (DNA)
4. Bosnia Herzegovina
5. Georgia (DNA)
6. Israel
7. Kazakhstan
8. Kyrgystan
9. Rep. of Mazedonia
10. Serbia Montenegro
11. Tajikistan
12. Turkey
13. Uzbekistan

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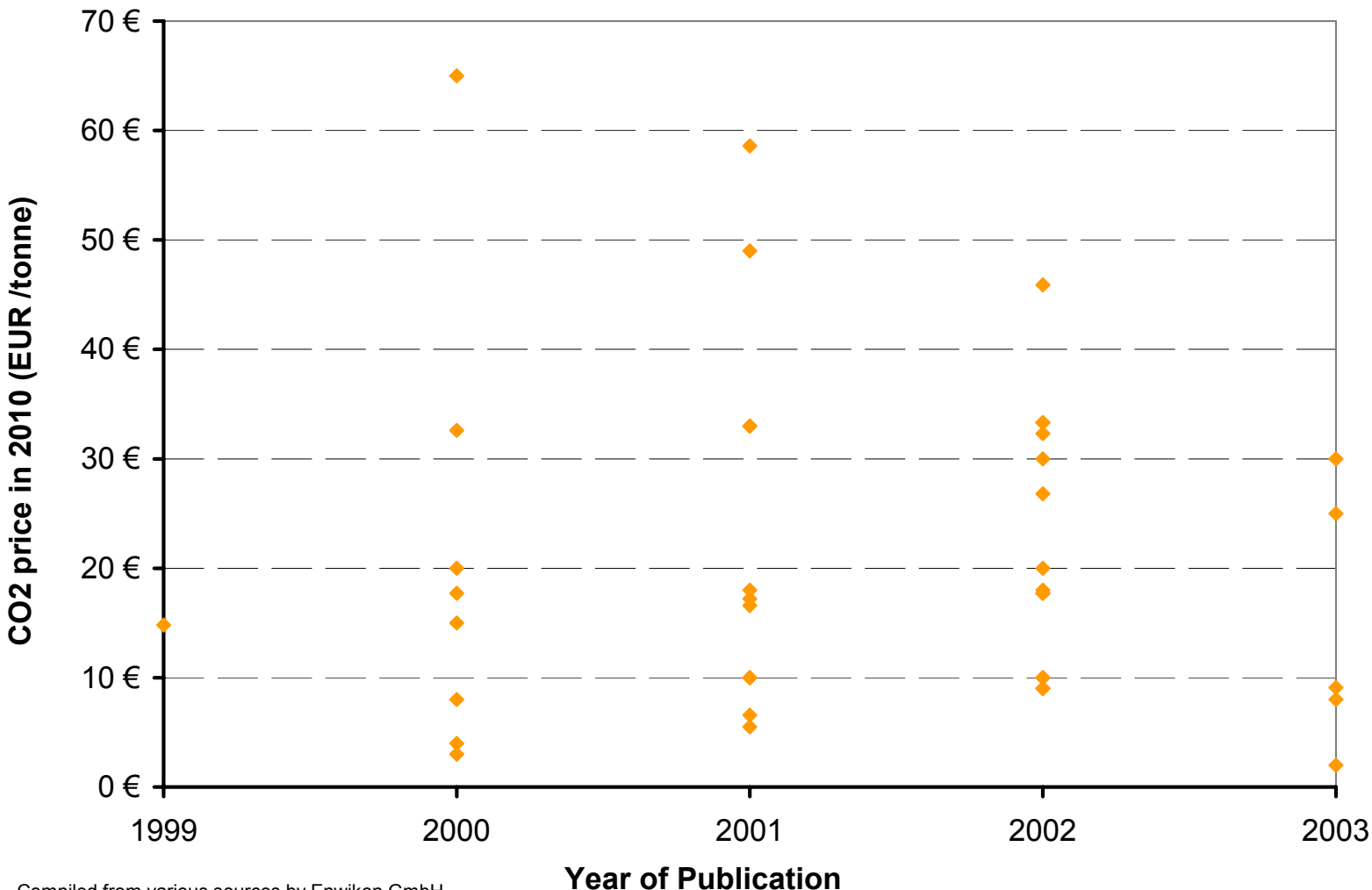
How to encourage JI/CDM investments in host countries

Current Carbon Prices (Forward Trades)

- Kyoto Units (ERU, CER)
  - PCF, 2001 - 2003 — 3-5 USD /t CO_2e
  - ERUPT-1, 2001 — 8.5 EUR /t CO_2e
  - ERUPT-2, 2002 — 4.8 EUR /t CO_2e
  - CERUPT-1, 2001-03 — 3.5 - 5.5 EUR /t CO_2e
- EU allowances
  - 2003 – May 2004 — 7 - 14 EUR /t CO_2e
- ... vs. Commission estimate for EU allowances in 2008-12: < 13 €/t CO2, with linking of ETS to Kyoto Mechanisms

Sources: PCF; carboncredits.nl (for ERUPT / CERUPT); PointCarbon (EU Allowances); Linking Proposal (Commission Estimate)

The Million Dollar Question: What Price for CO_2 in 2010?

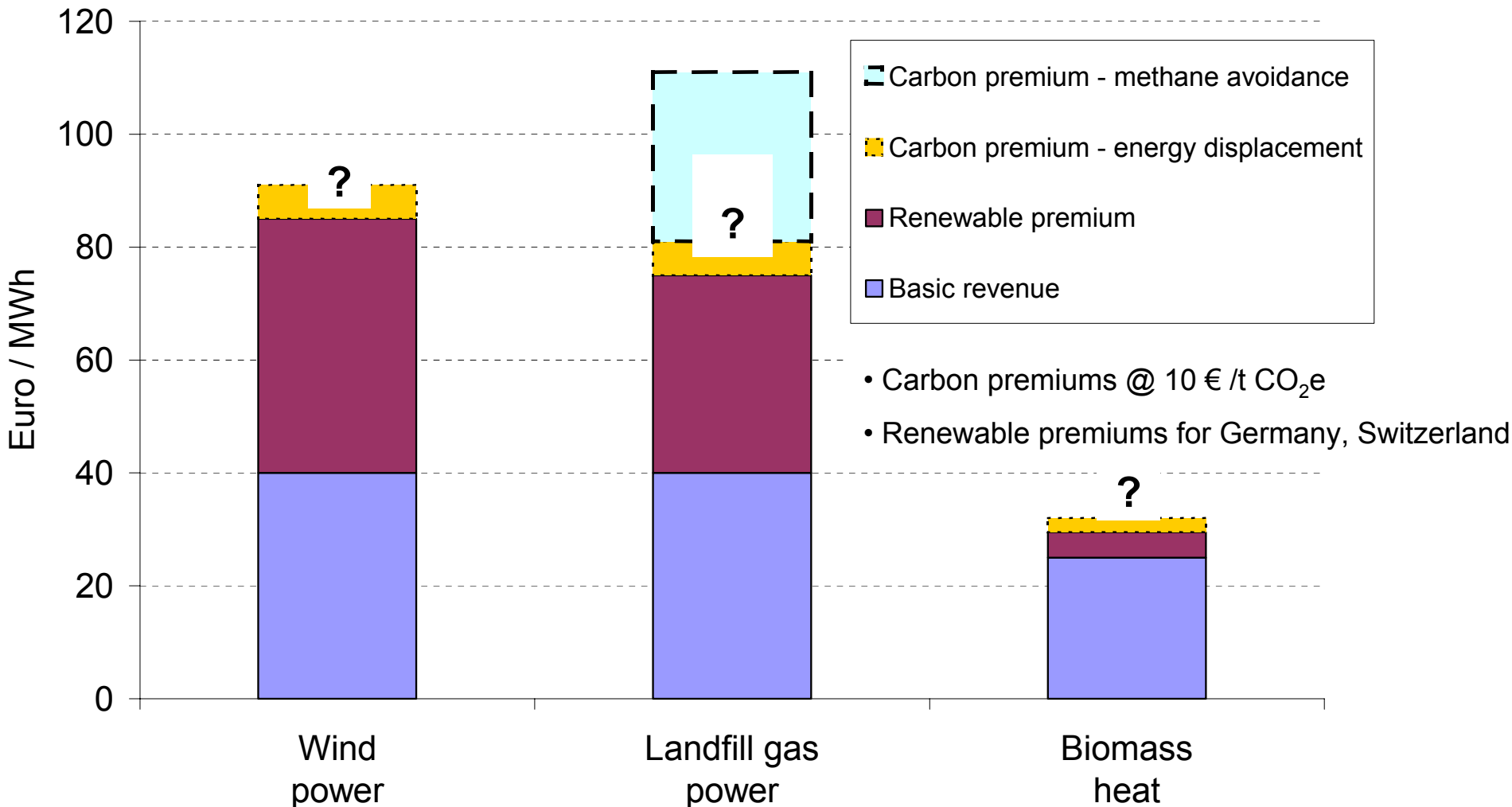


Compiled from various sources by Enwikon GmbH
Assumption: 1 USD = 1 EUR

Emission Reduction and IRR-Increase: Example Wind Farm

• Size of wind farm	10 MW
• CO_2 emission reduction (world average)	30,000 t / year
• Investment	10 Mio Euro
• Yearly return from CO2-certificates (10 Euro / t CO2)	300,000 Euro
• **IRR-increase (10Euro / tCO_2)**	**3.0%**

Renewable and Carbon Premiums: What Range Are We Talking About?



Tradable 'JI Credits' for Renewables: Barriers in European Union

- Kyoto Protocol's Joint Implementation mechanism allows for tradable GHG reduction certificates to RE (and other) projects
- Applies for industrialised (Annex 1) countries, especially Central & Eastern Europe
- But in EU: No tradable GHG certificates for reductions in emissions that are capped under the GHG trading scheme

➢ No JI credits for indirect CO_2 reductions at thermal power plants

- Renewable JI projects face strict additionality requirements:
  - Projects must go beyond existing incentives to promote RE
  - Projects must beat Acquis Communautaire
  - ➢ E.g., no JI credits for landfill gas use due to landfill directive

Tradable 'JI Credits' for Renewables: Some Scope Remains in Europe

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- EU-15 and Accession Countries:
  - JI credits possible for small heat-sector projects, some methane-avoiding projects
- Other European countries: Scope for JI credits is intact
  - e.g: Romania, Bulgaria, Russia, Ukraine, Ex-Yugoslavia
- Precise scope to be clarified by national regulations, following entry into force of Kyoto Protocol

CIS-Countries:
Tradable 'CDM Credits' for Renewables

- Kyoto Protocol's Clean Development Mechanism allows for tradable GHG reduction certificates to GHG abatement projects, incl. renewable energy
- Eligibility Requirements:
  - Project located in developing country (= non-Annex 1 country)
  - Additionality: Emission reductions not business as usual
  - Project contributes to sustainable development of host country
- Potentially, billion $ market, relevant for viability of renewables
- Operative CDM requires entry into force of Kyoto Protocol
- To date, no CDM certificates have been issued;
  only forward trades have been agreed

Conclusions for Renewable Energy

Understand policy drivers for RE technologies, by region:

Europe:

- Renewable energy policies will drive RE development up to 2012
- Carbon can provide handsome upside in some instances

CIS Countries:

- Carbon finance likely to become important for renewables
- Likely that remaining barriers can be reduced

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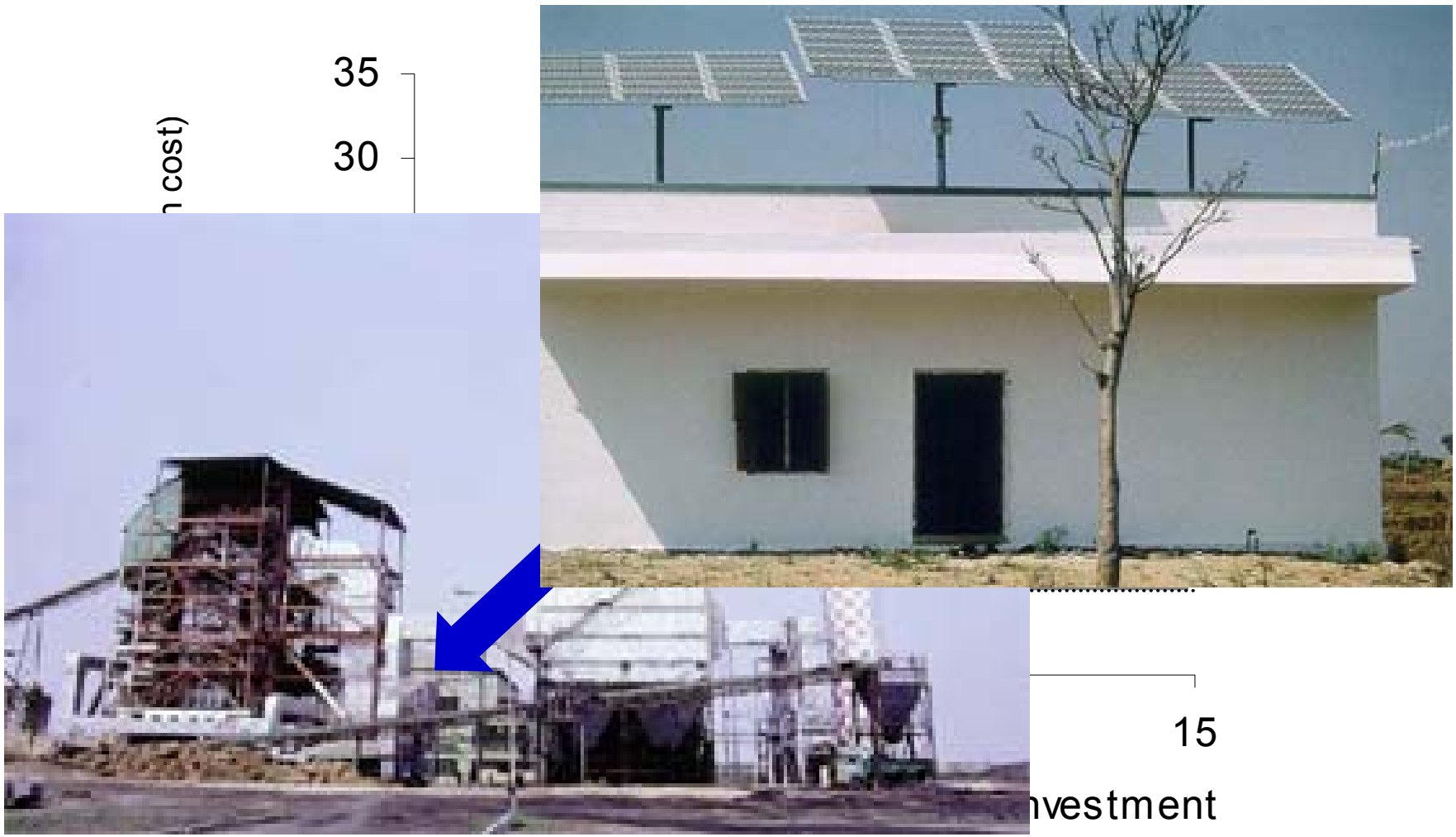
Conventional and GHG Project Cycle

	Conventional project cycle	GHG certificate generation
Idea		
Development	Project development	Baseline, Validation, Project approval
Implementation	Realisation of the project concept	Bilateral agreements (MoU), Credit purchase agreement
Operation	Steering and control of the project	ERU / CER production, Monitoring, Verification, Certification
Termination / Exit		

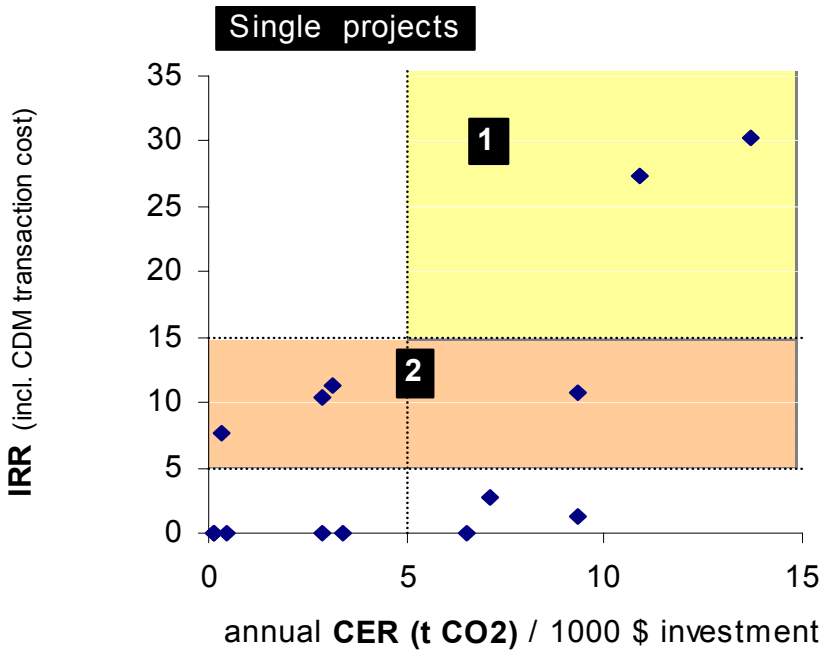
Commercial investor's requirements

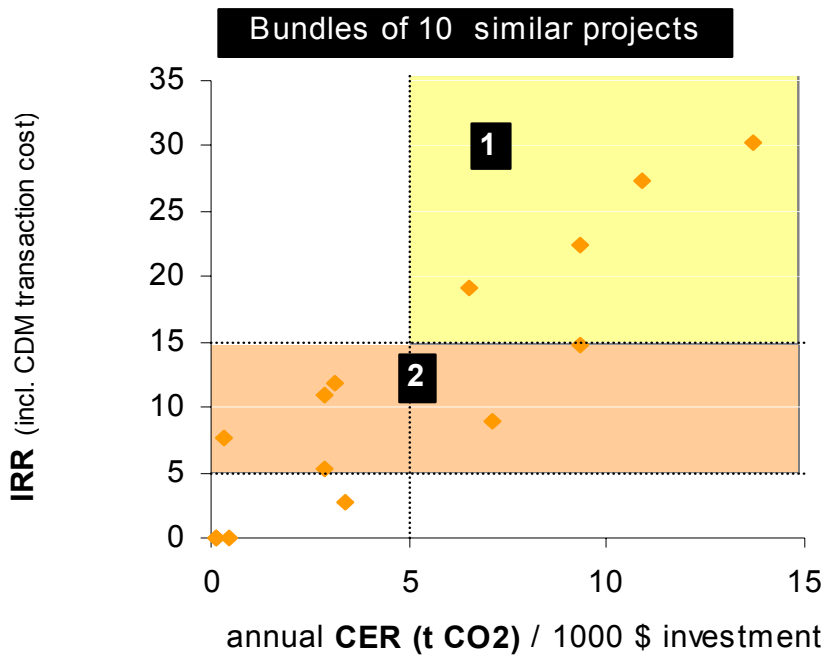
- IRR (including international transaction cost) > 15%
- Reasonable annual CER production: > 5 t CO_2 / 1000 USD invested
- Reasonable project specific risk

Most projects will not attract int. investments



Project bundling: Results





Public Private Partnerships (Private Perspective)

- institution and capacity building
- seed money
- guarantee schemes
- CER purchase agreements

for CDM in general

- bundling institutions
- co-investment
- foster unilateral CDM

especially for small-scale CDM

Requirements to motivate the private sector for PPP

- Minimal additional bureaucracy
- Fast decision procedures

Prerequisites for the Promotion of Renewable Energy Projects in UNECE Transition Countries

	Benefit of		
	CO_2	PPP	Bundling
• Commercially not interesting enough	+	+	+
• Missing economy of scale	0	0	++
• High project risk	+	++	0
• High country risk	+	+	++

Combine Renewable Energy Expertise with CO_2 Credits, PPP, Project Bundling

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Thank you !

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