

Kyoto Mechanisms and EUETS Phase 2

EURACOAL Emissions Trading Workshop
17th April 2007

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Kyoto Basics

- Protocol adopted 11th December 1997
- In force from 16th February 2005
 - 90 days after 55 parties ratified with 55% Annex 1 emissions covered
 - Now ratified by 169 countries covering 61.6% of Annex 1 emissions
- Legally binding emission targets for Annex 1 Parties who have ratified
 - Industrialized countries that were members of the OECD (Organisation for Economic Co-operation and Development) in 1992, plus countries with economies in transition (the EIT Parties)

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Kyoto Mechanisms

- Three mechanisms
 - Clean Development Mechanism
 - Joint Implementation
 - Emissions Trading
- Principles
 - To enable Annex 1 Parties to access cost-effective opportunities to reduce emissions or to remove carbon from the atmosphere in other countries
 - While the cost of limiting emissions varies considerably from region to region, the benefit for the atmosphere is the same, wherever the action is taken
- Includes all six greenhouse gases

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CDM Projects

- Designed to allow industrialised countries investing in clean projects in developing countries to gain emissions credits
- Methodologies approved by Executive Board – also registers projects and issues credits
- Prices initially dominated by 'low-hanging fruit'
 - Reductions of HFCs from chemical plants
 - Methane from landfill gas drainage projects

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JI Projects

- Similar to CDM except both countries are Annex 1 Parties
 - Track 1 for countries with effective accounting in place – ERUs transferred without supervision
 - Track 2 for countries which cannot meet this criterion – supervised by international body similar to CDM

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Terminology

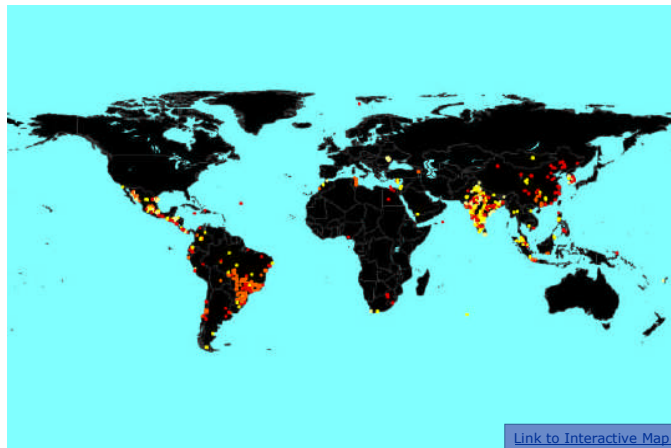
- **JI – Joint Implementation**
 - Project implemented by one Annex 1 party in another
 - Generates ERUs (Emission Reduction Units)
- **CDM – Clean Development Mechanism**
 - Project implemented by an Annex 1 party in non-Annex 1 party
 - Generates CERs (Certified Emission Reductions)
- **Greenhouse gases**
 - Carbon dioxide (CO₂); Methane (CH₄); Nitrous oxide (N₂O); Hydrofluorocarbons (HFCs); Perfluorocarbons (PFCs); Sulphur hexafluoride (SF₆)
- **AAUs – Assigned Amount Units (for trading between Annex 1 Parties)**
- **RMUs – Removal Units (for land use/forestry activities)**
- **Annex 1 Parties – countries with binding emission targets**
 - Europe, Canada, Japan, Russia etc
- **Non-Annex 1 Parties – developing countries with voluntary participation**
 - China, India, Brazil, South Africa etc

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CDM Project Locations



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CDM Methodologies

- Energy industries (renewable/non-renewable sources) 25*
- Energy distribution 1
- Energy demand 7
- Manufacturing industries 13
- Chemical industries 7
- Transport 2
- Mining/mineral production 1
- Metal production 2
- Fugitive emissions from fuels (solid, oil and gas) 6
- Fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride 2
- Waste handling and disposal 16
- Afforestation and reforestation 9
- Agriculture 4

* Number of approved methodologies in each category shown

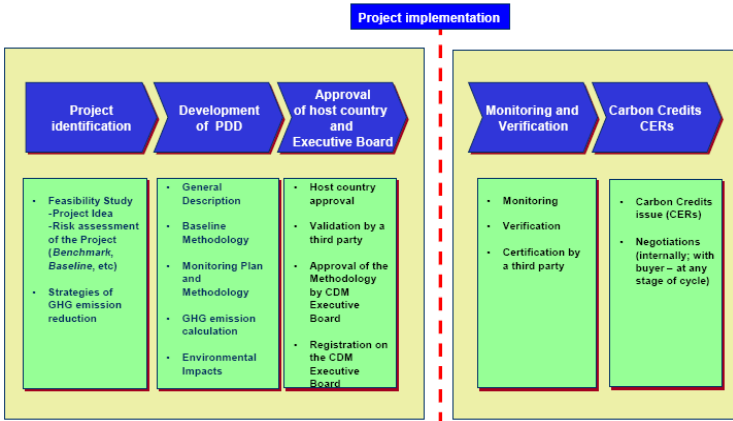
[Link to Updated List](#)

Source - UNFCCC
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CDM Project Cycle



Source - ICF International March 2007
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Sectoral CDM Examples

- Landfill and wastewater gas recovery
 - Landfill sites in almost every major city
- Afforestation/Reforestation
 - Much of Africa is under pressure of unsustainable natural resources management
- Gas Flaring
 - Nigeria and Algeria
 - An approved methodology is available
- Fuel Switching and co-generation
- N₂O abatement
 - Fertilizer manufacturers
- Community-based renewable energy and energy efficiency projects

Source – ICF International March 2007

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Examples of Specific CDM Project Details

- | | |
|---|---|
| <ul style="list-style-type: none">• Project title – Graneros Plant Fuel Switching Project• Host Parties – Chile• Authorized Participants – Nestlé Chile• Other Parties Involved – Japan• Authorized Participants – Electric Power Development Co Ltd.• Activity Category(ies) – Manufacturing industries/Fuel switch• Activity Scale – LARGE• Methodologies Used – Industrial fuel switching from coal and petroleum fuels to natural gas without extension of capacity and lifetime of the facility• Amount of Reductions – 19,438 metric tonnes CO₂ equivalent per annum• Status – Registered | <ul style="list-style-type: none">• Project title – Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin, China• Host Parties – China• Authorized Participants – various farms in China• Other Parties Involved – Japan• Authorized Participants – BioCarbon Fund• Activity Category(ies) – Reforestation on degraded land• Activity Scale – LARGE• Methodologies Used – Reforestation on degraded land• Amount of Reductions – 418,464 metric tonnes CO₂ equivalent by 2012• Status – Waiting for DNA approval |
|---|---|

Source – ICF International March 2007

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CDM Projects – Clean Coal Examples

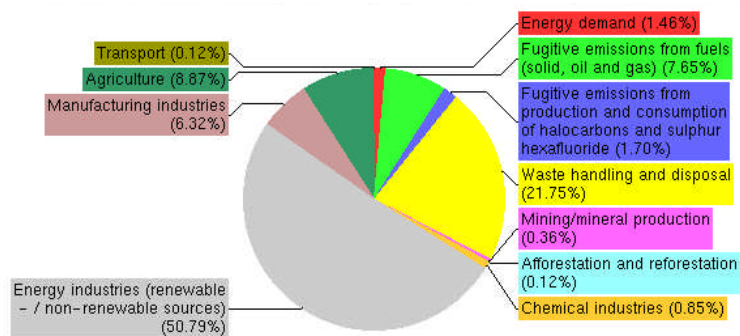
- Coal mine methane capture and utilisation
 - Approved methodology
 - Four projects under registration – generating 4m CERs annually
- Higher efficiency coal plant
 - Two submissions received
 - Ultra-supercritical in China
 - Supercritical in India

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Registered Project Activities by Scope

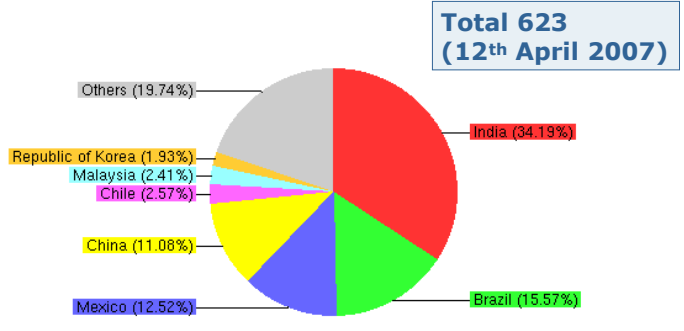


Source - UNFCCC
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Registered Project Activities by Host Party



Total 623
(12th April 2007)

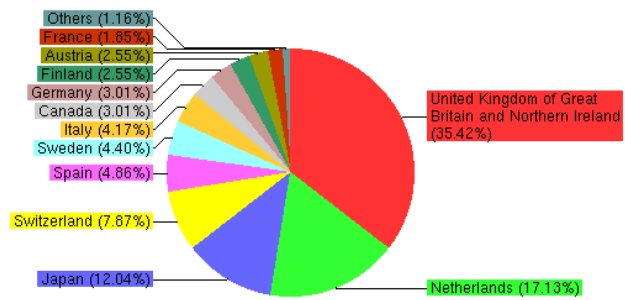
[Link to Updated Chart](#)

Source - UNFCCC
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Registered Projects by Investor Parties



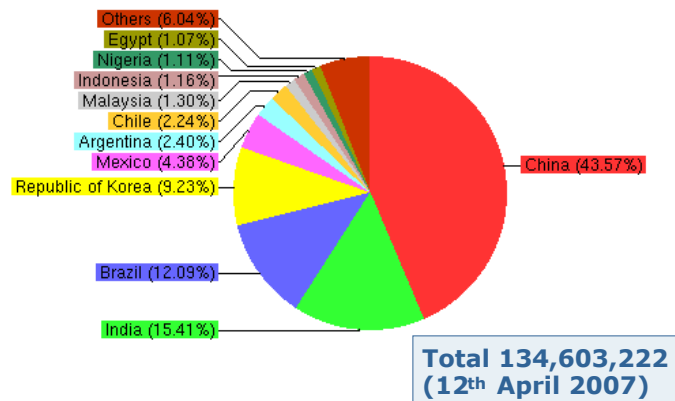
[Link to Updated Chart](#)

Source - UNFCCC
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Expected Annual Average CER's by Host Party



[Link to Updated Chart](#)

Source - UNFCCC

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CER Prices

- Prices vary widely
 - Most contracts for CERs not yet created
 - Chinese (unofficially) demanding minimum price of around €6
 - India higher (big demand for projects)
- Emission Reduction Purchase Agreements (ERPA) Prices:
 - €4 to €9 (buyer takes most risk)
 - €7 to €11 (seller takes most risk)
- Issued CERs
 - €11 to €13
 - Closely tracking 2nd phase EUETS (at a discount)

Source - carbonpositive Feb07

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Rationale for use of JI/CDM within EUETS

- Increase of compliance options for entities
- Reduction in allowance price and compliance costs
- Increase liquidity of the EU emissions trading market
- Stimulate demand for JI/CDM credits
- Contribution to host countries' Sustainable Development
- Promotion of the transfer of environmentally sound technologies to third countries
- Drive environmental policy integration in EU external policies and contribute to the EU Strategy on Sustainable Development

[Link to Presentation](#)

Source – EU Commission
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Linking Directive

- Directive 2004/101/EC - 27th October 2004
- Enables ERUs & CERs to be used in EUETS Phase 2
 - Not generated by nuclear facilities
 - Not from carbon sink enhancement projects
 - Avoid double counting
 - Subject to limits in NAPs in accordance with 'Criterion12'
 - 1 ERU or CER = 1 EUA

[Link to Directive](#)

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Determination of the JI/CDM Limits

"...the use of the mechanisms shall be supplemental to domestic action and that domestic action shall thus constitute a significant element of the effort made by each Party included in Annex 1..." (Marrakesh Accords)

- Consider base year, 2004, and projected 2010 emissions
- 'Effort' is highest of these minus Kyoto target
- 50% of this is maximum use of JI/CDM
- This is reduced by any Government purchases
- Limit expressed as percentage of emissions cap
- Subject to an allowed minimum of 10%

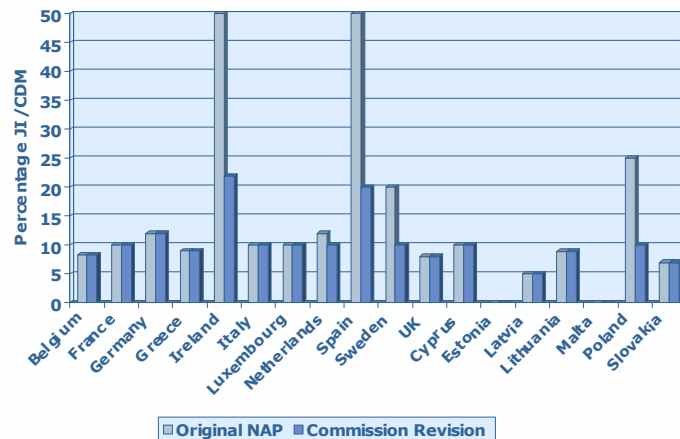
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Percentage JI/CDM in NAPs



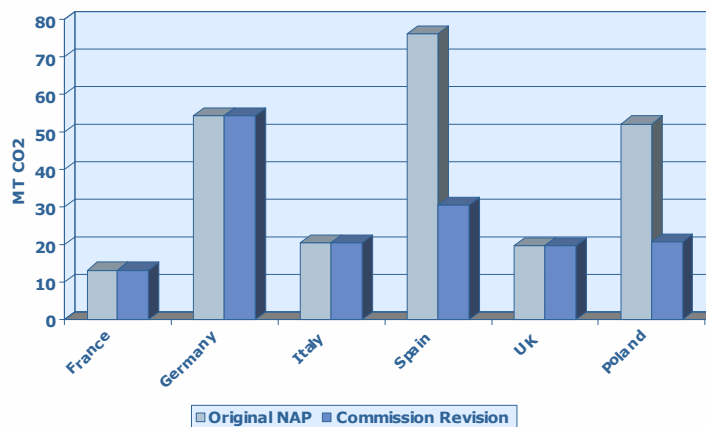
Source – Fraunhofer ISI/EU Commission

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JI/CDM Tonnages in NAPs for Top 6 Emitters



Italy based on draft NAP

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EUETS Key Price Drivers

- Phase 1
 - NAP1
 - Relative fuel prices and potential fuel switching
 - Weather

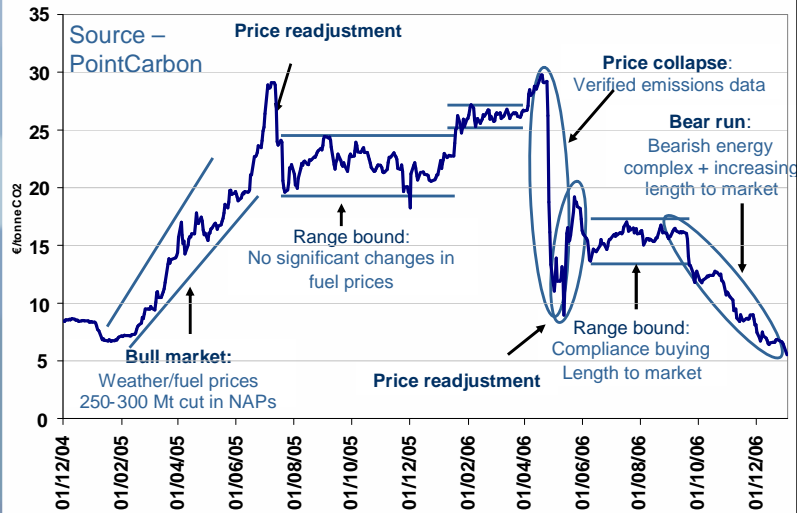
Over-allocation in
NAP1 led to price
collapse

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EUETS Phase 1 Price Track



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EUETS Key Price Drivers

- Phase 1
 - NAP1
 - Relative fuel prices and potential fuel switching
 - Weather
- Phase 2
 - NAP2
 - **CDM and JI project credit supply**
 - Relative fuel prices and potential fuel switching
 - Weather

Over-allocation in NAP1 led to price collapse

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Impact of JI/CDM on Phase 2

- Based on 18 plans considered so far, an estimated 181 million tonnes CO₂ from JI/CDM are allowable
- Uncertainty remains over outturn for some NAPs
- But limiting factor likely to be availability of CERs/ERUs – not ability to use them

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Phase 2 Prices – The View of PointCarbon

- Central case scenario suggests that the market will be cleared with CER / ERU as marginal emission reduction
- However, considerable downside uncertainty on CER / ERU credit supply
- Marginal abatement could still come from Europe if credit supply less / emissions higher
- If so – fuel, weather and economic performance all become key price drivers BUT
- Power sector fuel switching would remain likely source of marginal emission reduction in the period

Source – PointCarbon Feb 2007
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Summary

- Linkage with Kyoto mechanisms greatly increases potential liquidity of EUETS
- 623 CDM projects registered expected to generate 134m CERs per annum
- CERs at a discount to EUETS 2nd phase carbon prices
- Estimated 180m CERs/ERUs allowable after 18 NAPs considered
- JI/CDM could be decisive in balancing EUETS phase 2 allowances and driving permit prices

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Thank You

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