

ClimateMundial

Impact of EU Emissions Trading on the Brazilian Renewable Energy Sector
Brazilian Chamber of Commerce Workshop - London, 19 April 2013

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Climate Mundial in brief

Climate Mundial provides the following services to its clients:

Advisory

We provide impartial professional advice to clients covering new business initiative assessment, commodity price risk management, commodity derivatives, and project management.

Execution

We support clients with execution services, covering project development, commercial contract negotiation, dealing in derivatives for clients as agent, portfolio management & trade support.

Market Commentary

Climate Mundial provides its clients with in depth analysis into the global carbon markets and regulatory frameworks; provided on a subscription or bespoke basis.

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A Focus on Our Research

Climate Mundial's views, analysis and research into carbon markets is frequently published by leading global news agencies and closely followed by market participants and regulators alike. Below is a selection of recent examples:

Bloomberg News (BN):

Half EU Carbon Glut Caused by High Prices, Climate Mundial Says, 1 February 2013

<http://www.bloomberg.com/news/2013-02-01/half-eu-carbon-glut-caused-by-high-prices-climate-mundial-says.html>

Washington Post (USA) & Bloomberg News (BN):

Carbon Glut Fueled by Generous EU Cap, Climate Mundial Says, 8 February 2013

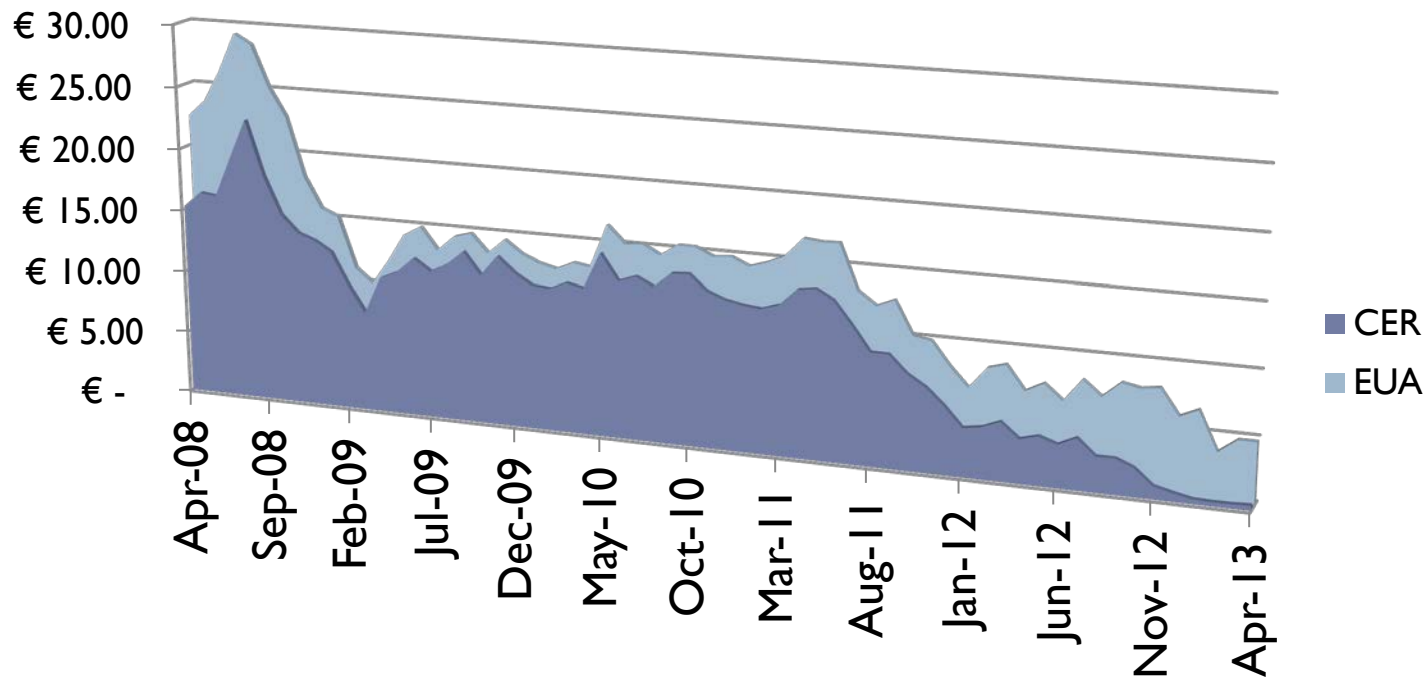
<http://washpost.bloomberg.com/Story?docId=1376-MHSVR86JTSF90I-7U5HSIB78PQ8SG0U4EPDAD46CJ>

Based on the research White Paper of 23 January 2013:

“Reforming Europe's emissions trading system: a solution that encourages energy efficiency but does not collapse demand for allowances; achieved through appropriate reforms to the ETS”

European Emissions Trading System

Monthly average price data from 1Q2008 to 2Q2013 for Certified Emissions Reductions (CER) and European Allowances (EUA)

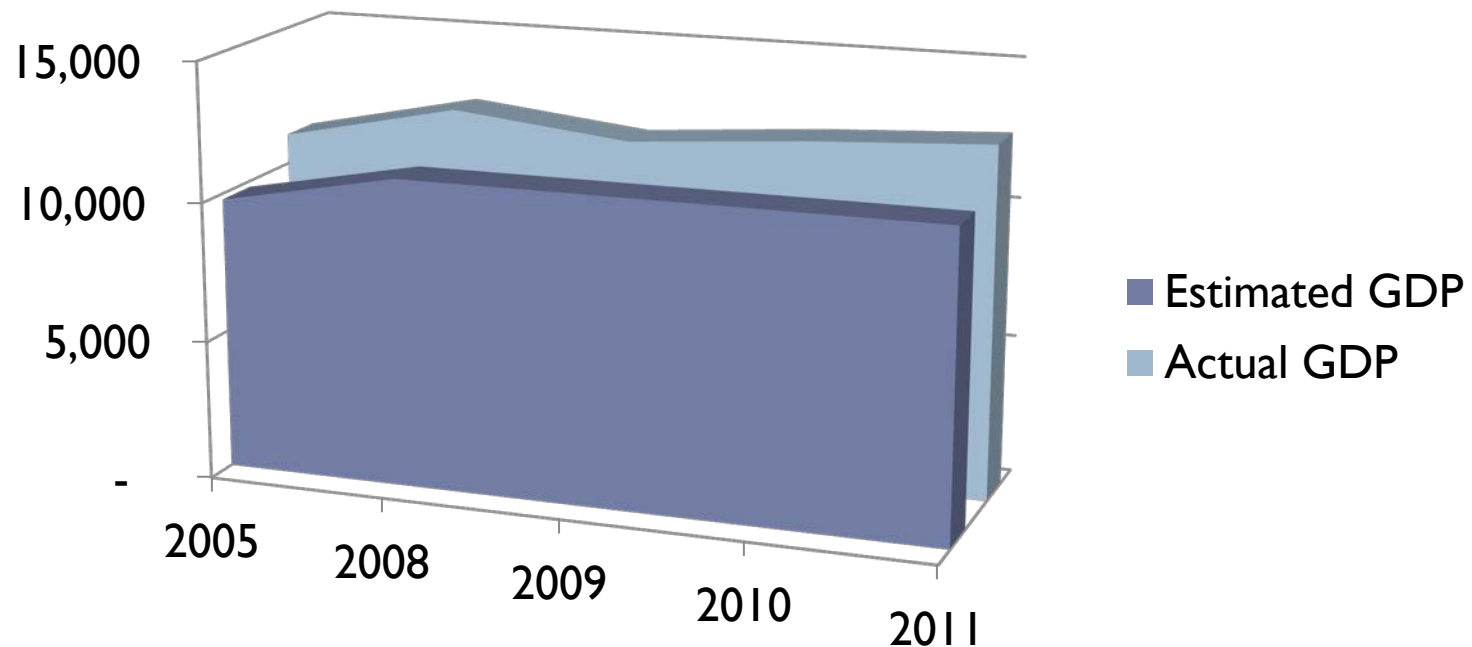


Source: Climate Mundial analysis of data from ICE Emissions (www.theice.com/emissions)

Note: Prices are based on front month or quarter contracts for the relevant period

European Emissions Trading System

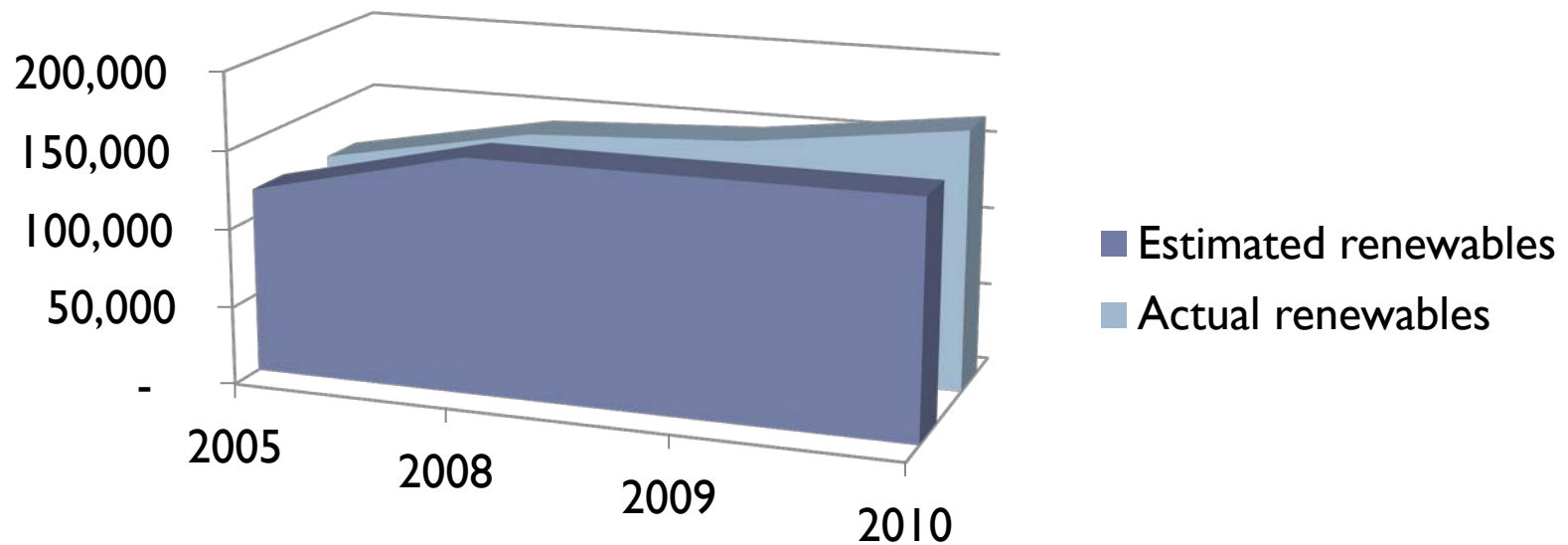
Gross domestic product comparison:



Notes: All quantities shown in €1 billion. Actual values derived by Climate Mundial based on Eurostat data and emissions data in European Environment Agency: *Greenhouse Emissions Trends & Projections in Europe 2012* and GDP estimates sourced in European Commission: *European Energy & Transport, Trends to 2030 (2005 edition)* and Phase II National Allocation Plan tables at: http://ec.europa.eu/clima/policies/ets/pre2013/nap/documentation_en.htm

European Emissions Trading System

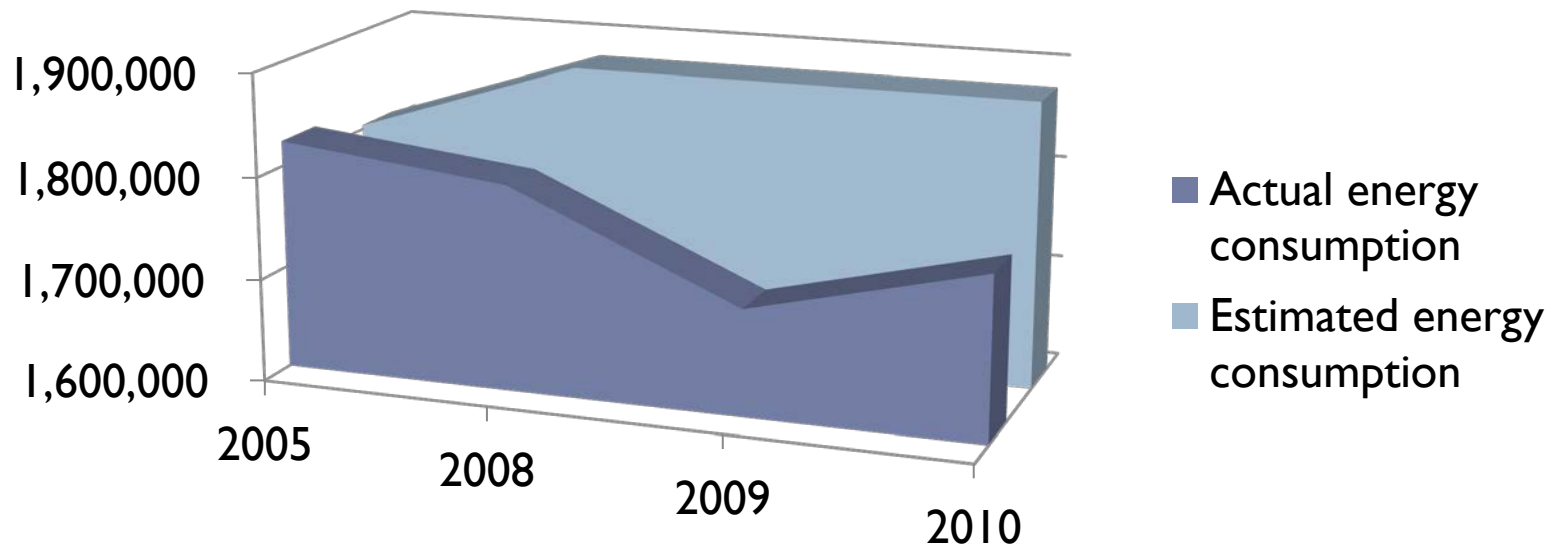
Renewable energy generation comparison:



Notes: All quantities shown in Millions of Tonnes of Oil Equivalent. Actual renewable energy generation levels taken from Eurostat data and emissions data in European Environment Agency: *Greenhouse Emissions Trends & Projections in Europe 2012*. Estimated renewable energy generation levels taken from European Commission: *European Energy & Transport, Trends to 2030 (2005 edition)*.

European Emissions Trading System

Gross inland energy consumption comparison:



Notes: All quantities shown in Millions of Tonnes of Oil Equivalent. Actual renewable energy generation levels taken from Eurostat data and emissions data in European Environment Agency: *Greenhouse Emissions Trends & Projections in Europe 2012*. Estimated renewable energy generation levels taken from European Commission: *European Energy & Transport, Trends to 2030 (2005 edition)*.

European Union ETS

Emissions intensity comparison:

Member state	Parameter	2008	2009	2010	2011
United Kingdom	NAPII	0.440	0.420	0.410	0.400
	Actual	0.348	0.365	0.345	0.317
	Primes			0.278	
Spain	NAPII	0.510	0.510	0.510	0.510
	Actual	0.371	0.348	0.335	0.332
	Primes			0.414	
Greece	NAPII	0.720	0.710	0.700	0.690
	Actual	0.566	0.530	0.514	0.546
	Primes			0.586	
Austria	NAPII	0.310	0.310	0.300	0.300
	Actual	0.309	0.291	0.298	0.273
	Primes			0.262	

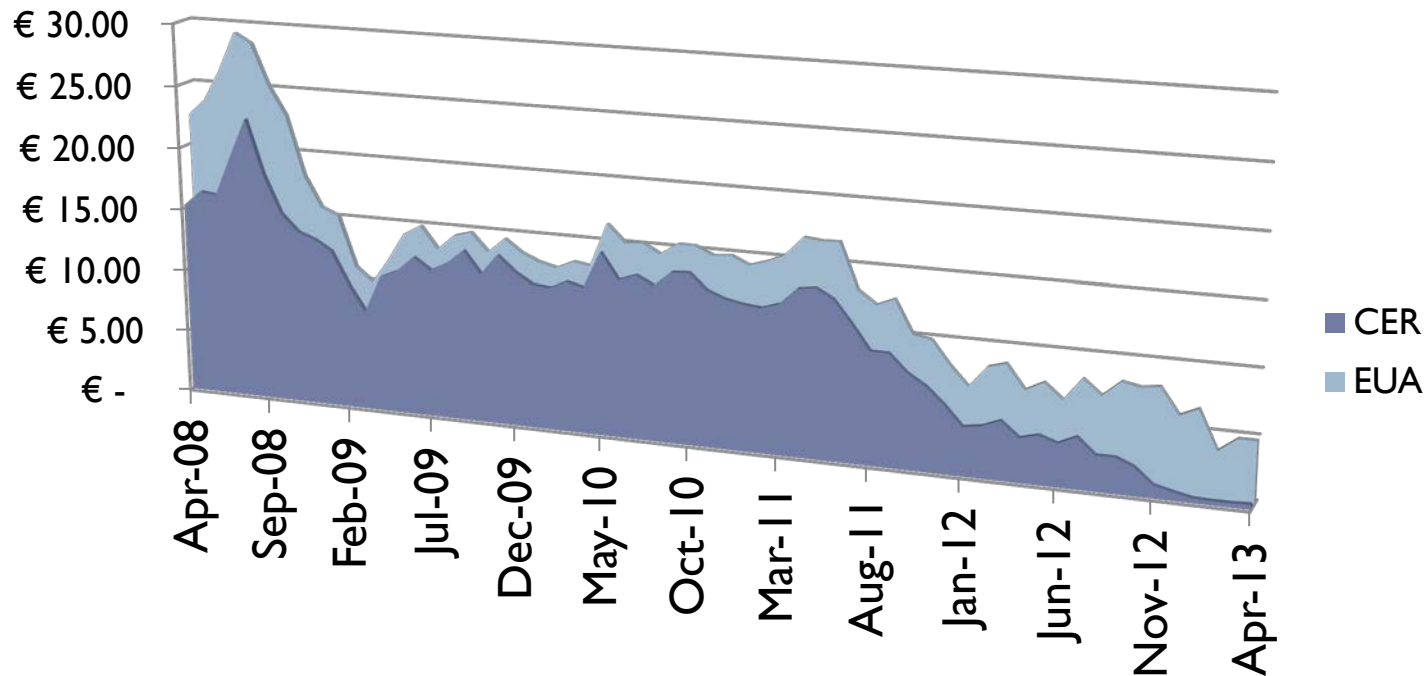
Notes: All quantities shown in Mt/€1bn. NAPII values taken from published NAP Tables at:

http://ec.europa.eu/clima/policies/ets/pre2013/nap/documentation_en.htm. Actual values derived by Climate Mundial based on Eurostat data and emissions data in European Environment Agency: *Greenhouse Emissions Trends & Projections in Europe 2012*.

PRIMES values taken from European Commission: *European Energy & Transport, Trends to 2030 (2005 edition)*

Brazil and the EU ETS: Carbon Finance

Monthly average price data from 1Q2008 to 2Q2013 for Certified Emissions Reductions (CER) and European Allowances (EUA)

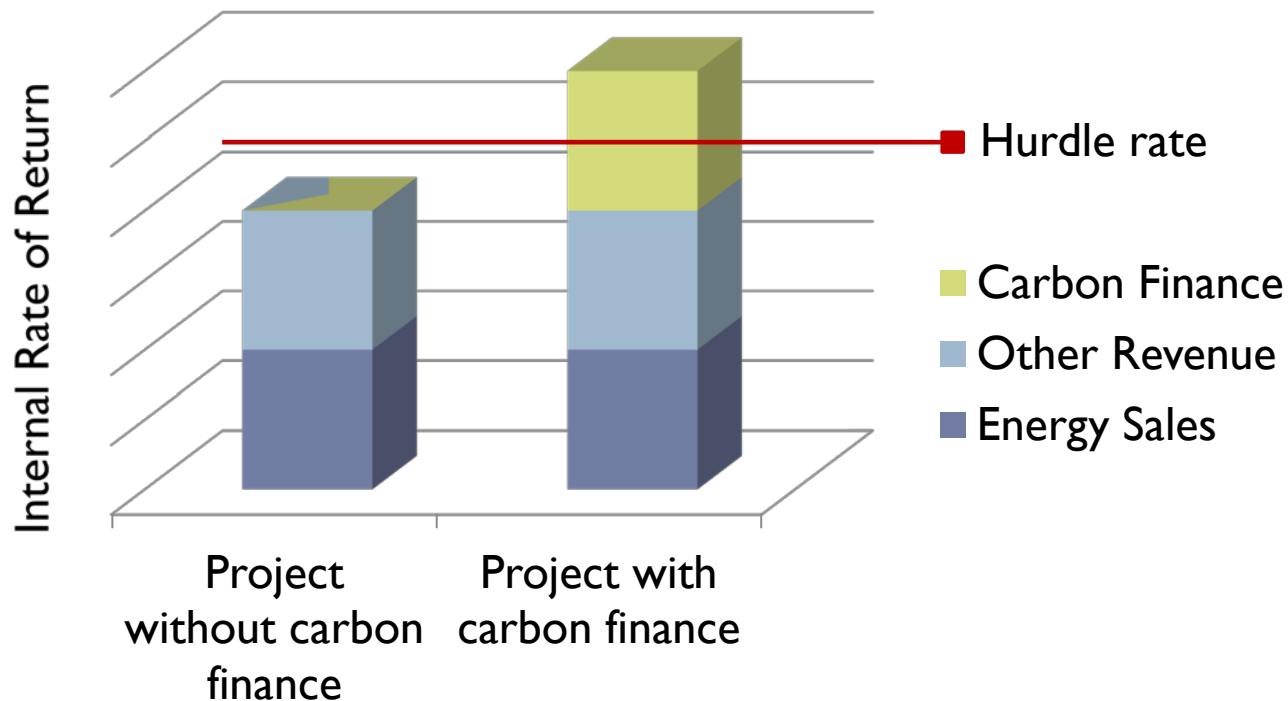


Source: Climate Mundial analysis of data from ICE Emissions (www.theice.com/emissions)

Note: Prices are based on front month or quarter contracts for the relevant period

Brazil and the EU ETS: Carbon Finance

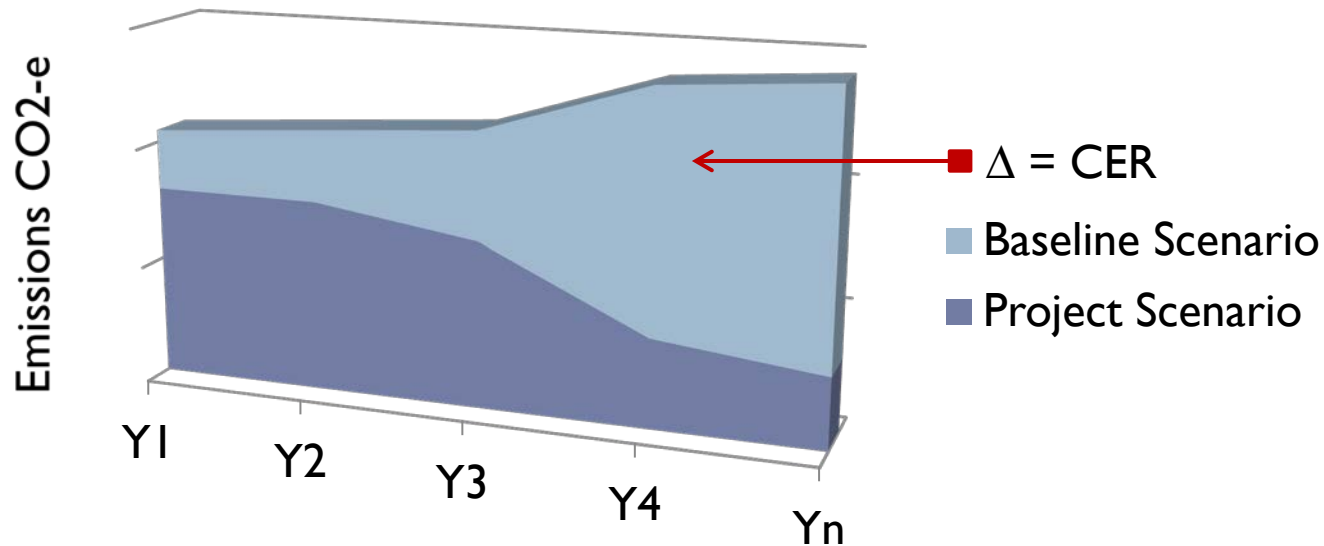
Without Carbon Finance the Project would not have been implemented



Note: This is a theoretical example developed for illustration purposes only

Brazil and the EU ETS: Carbon Finance

Emissions are lower under the Baseline Scenario than the Project Scenario. As the project's operation is measured and verified, the Delta (Δ) is issued as CERs



Note: This is a theoretical example developed for illustration purposes only

Clean Development Mechanism in Brazil

Breakdown of investment into Registered CDM Projects in Brazil, Latin America and Worldwide based on year of registration (in US\$ millions)

Technology	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Brazil	48	30	1,272	242	276	233	251	300	2,734	5,386
LATAM	48	494	3,453	1,857	1,599	1,439	790	3,078	17,267	30,025
Worldwide	53	911	9,489	13,951	15,580	31,157	51,173	80,215	153,890	356,419

Source: United Nations CDM Project Data (www.cdm.unfccc.int) & UNEP Risoe CDM Project Pipeline Data (www.uneprisoe.org)

Beyond the Clean Development Mechanism

Breakdown of CDM Projects in Brazil (registered or seeking registration)

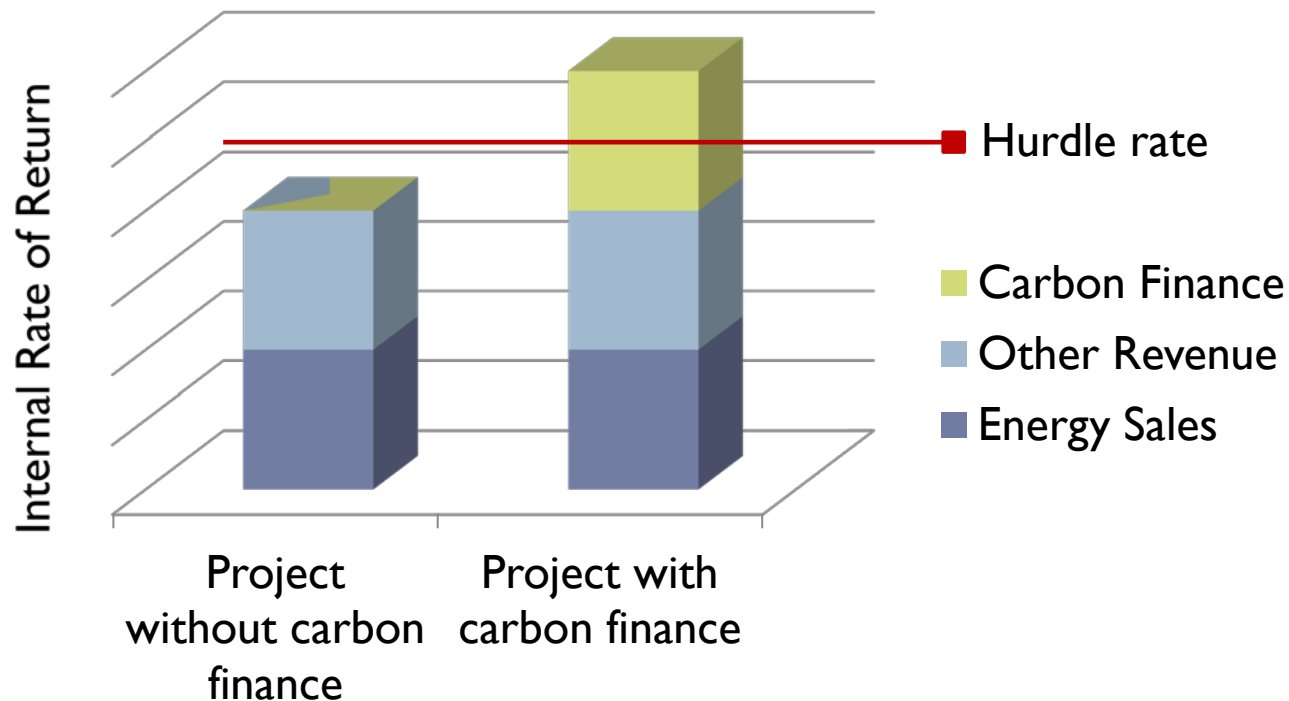
Technology	Projects (Number)	Installed Capacity (MWe)
Wind	76	5,848
Biomass	66	1,486
Landfill/Methane/Fugitives	142	Not applicable
Solar	1	3

Note: There were also 113 hydro projects, both small and large scale, either registered or in validation as of the date of this presentation

Source: United Nations CDM Project Data (www.cdm.unfccc.int) & UNEP Risoe CDM Project Pipeline Data (www.uneprisoe.org)

Brazil and the EU ETS: Carbon Finance

Without Carbon Finance the Project would not have been implemented



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Beyond the Clean Development Mechanism



BOLSA VERDE DO RIO DE JANEIRO

A BVRIO



Source: Bolsa Verde do Rio de Janeiro (www.bvrrio.org)

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