

Deutsche Bank Commodities

Recent developments in the Carbon Market
February 2008

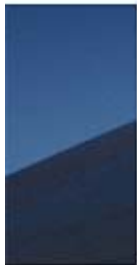
Theodore Backhouse

Deutsche Bank Environmental Financial Products

☎ +65 6423 7982

☎ +65 9815 5814 (m)

✉ theodore.backhouse@db.com



A Passion to Perform.

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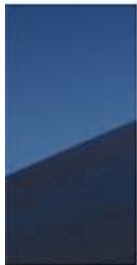


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Disclaimer

I. Deutsche Bank in the Carbon Markets



Deutsche Bank in the Carbon Markets

Deutsche Bank is a proud to be a leader in the global carbon markets

- **In the emissions markets established under the Kyoto Protocol, Deutsche Bank:**
 - is involved in over 50 projects with total expected reductions of over 185m tonnes CO₂e
 - is one of only 2 banks in the Prototype Carbon Fund, the world's first carbon fund (April 2000)
 - is the only bank involved in the Umbrella Carbon Facility, the world's largest public sector deal (\$719mio)
 - structured, syndicated and wrapped the world's largest private sector CER deal (28m tonnes)¹
 - continues to source emissions reductions projects in LATAM, Asia, and Africa, leveraging extensive local relationships and expertise via Deutsche Bank's extensive branch network
 - has experience of a wide range of methodologies in a wide range of jurisdictions
- **Deutsche Bank plays a significant role in the secondary Kyoto emissions reductions markets:**
 - market-maker to all major emissions brokers and emissions traders
 - provides a wide range of value-added structured emissions products for compliance buyers and voluntary buyers, including “guaranteed delivery certificates”
 - provides a wide range of related services such as emissions certificate accounts, credit facilities etc.
 - provides emissions reductions investment products to institutional and retail investors, including cash-settled derivatives

Deutsche Bank in the Emissions Markets

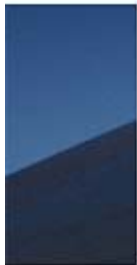
- **Deutsche Bank is in discussions with select Annex 1 nations regarding:**
 - providing advice and assistance regarding emissions trading, policy, and Kyoto compliance
 - “greening” of AAUs to increase AAU saleability
 - arranging inter-governmental sales and purchases of greened AAUs
 - structuring and establishing various “green funds” to purchase emissions reductions certificates for both the public and private compliance sectors
- **In the European Union Emissions Trading Scheme (EU-ETS), Deutsche Bank:**
 - is a major market-maker and active trader of EUAs
 - is able to leverage an extensive European power and energy trading business
 - provides a wide range of value-added structured emissions products related to power and energy
 - works closely with the European commission, member states, and industry organisations on the ongoing development and implementation of EU-ETS policy and practice

Deutsche Bank CDM & JI Origination Network

- Deutsche Bank continues to source emissions reductions projects, leveraging an **extensive branch network** with similarly extensive local relationships and expertise
- In addition to existing contracts, Deutsche Bank is currently speaking to a further **35+ institutions** with the potential for **>50mio tonnes** of emissions reductions certificates
- Deutsche Bank has 63,000 employees in 1,717 branches in 73 countries
- For CDM coverage, Deutsche Bank has offices in China (**since 1872**), India, Brazil (**since 1911**), Thailand, Chile, Argentina, Mexico, Korea, Colombia, Egypt, Malaysia, and Nigeria
- For JI coverage, Deutsche Bank has offices in Russia (**since 1881**), Romania, Ukraine, Bulgaria, Czech Republic, Hungary, Poland, and New Zealand



II. The Kyoto Protocol Emissions Reductions at the Sovereign Level

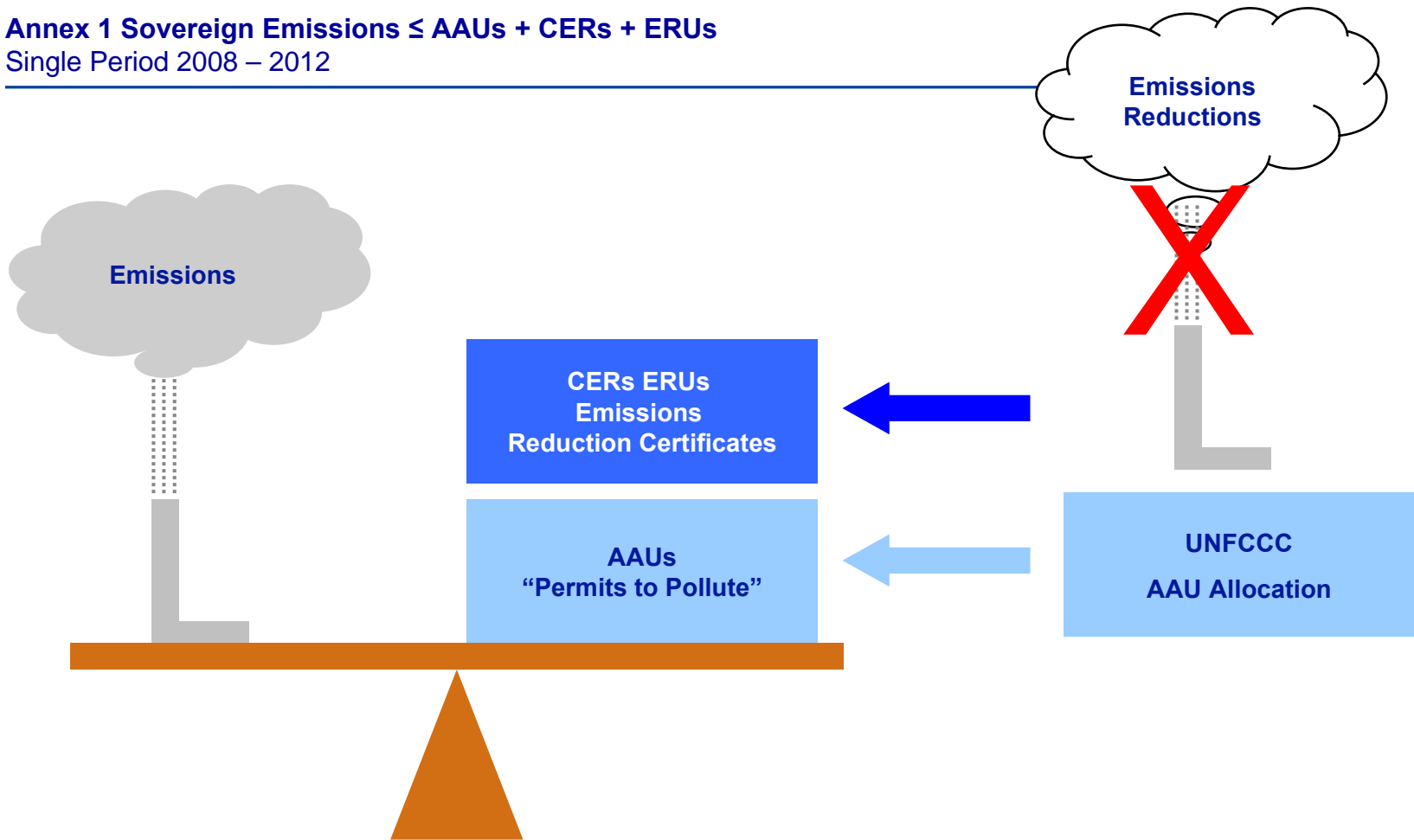


The Kyoto Protocol

- Emissions reductions are achieved via a “cap and trade” mechanism in which Annex 1 nations are issued **Assigned Amount Units (AAUs)** at levels equivalent to their permitted emissions levels
- The Annex 1 nations must then:
 - Reduce their emissions to levels equal to their AAU allocation, OR ...
 - Purchase additional AAUs from other Annex 1 nations to cover surplus emissions, OR ...
 - Purchase **emissions reductions certificates – Certified Emissions Reductions (CERs) or Emission Reduction Units (ERUs)** – to cover surplus emissions
- **CERs and ERUs** are emission reductions from projects approved under the Clean Development Mechanism (CDM) and Joint Implementation (JI)
- There is a price difference between emission reductions traded under the ETS and the Kyoto mechanisms

The Kyoto Protocol – Emissions vs. Permits & Certificates

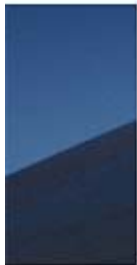
Annex 1 Sovereign Emissions \leq AAUs + CERs + ERUs
Single Period 2008 – 2012



Sovereign AAU Surplus/ Deficit

Region	AAU Allocation 2008-2012 MT/yr	Actual Emissions 2003 MT/yr	Change in Emissions 1990-2003 %/yr	AAU Surplus 2008-2012 MT/yr	Example Change in Emissions 2003-2012 %/yr	Example Emissions 2008-2012 MT/yr	Example Surplus 2008-2012 MT/yr
EU-15	3,904	4,187	1%	-283	2%	4,811	-907
Japan	1,116	1,339	2%	-223	2%	1,539	-423
Canada	560	740	3%	-180	2%	850	-290
Other Western Europe	165	186	2%	-21	2%	214	-49
Subtotal				-707	Subtotal		-1,669
Russia	3,040	1,877	-4%	1,153	2.5%	2,233	807
Ukraine	979	527	-5%	452	2.5%	627	352
Poland	531	384	-2%	147	2.5%	457	74
Other Eastern Europe	861	561	-3%	300	2.5%	667	194
Subtotal				2,052	Subtotal		1,428
TOTALS	11,156	9,811		1,345		12,138	-242

III. Recent developments Europe



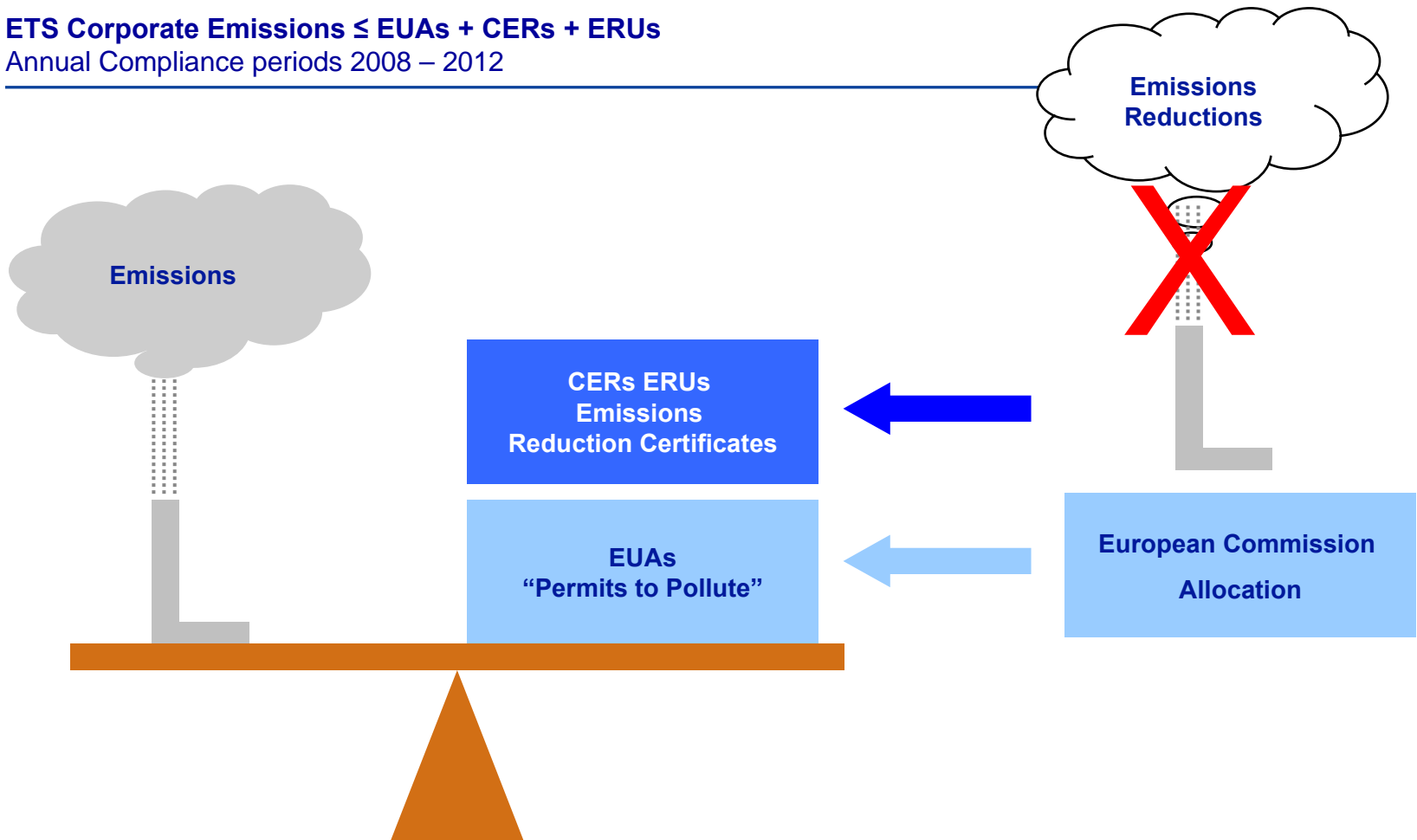
The European Trading Scheme (ETS)

- The ETS covers the power generation sector and cement, metal, glass and pulp industries
- ETS corporates are issued with EU Allowances (EUAs) equal to their allowed emissions
- Every year the ETS corporate must:
 - Reduce their emissions to equal their EUA allocation, *OR* ...
 - Purchase additional EUAs from other ETS corporates to cover surplus emissions, *OR* ...
 - Purchase emissions reductions certificates (CERs and ERUs) to cover surplus emissions
- The ETS has separate phases, each with separate EUA contracts:
 - Phase 1: 2005-2007, with 40 EUR/tonne fine every year for non-compliance*
 - Phase 2: 2008-2012, with 100 EUR/tonne fine every year for non-compliance*
- Developing world nations can participate in the ETS by generating CERs and ERUs via the Clean Development Mechanism (CDM) or Joint Implementation (JI)

* In addition to retro-purchasing sufficient EUAs to achieve compliance

European Trading Scheme – Emissions vs. Permits & Certificates

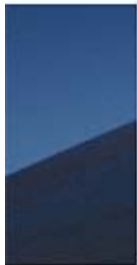
ETS Corporate Emissions \leq EUAs + CERs + ERUs
Annual Compliance periods 2008 – 2012



Recent Developments in the ETS

- **January 23rd 2008:** European Commission publishes review of European Trading Scheme
- Recommendations include:
 - Tighter EUA caps over 2012-2020
 - Increased auctioning of permits
 - Far tighter cap on the use of CERs/ERUs, spreading 2008-2012 cap over 2012-2020
- In the wake of the report
 - Both EUAs and CERs prices declined by more than 20% in Europe
 - EUAs have since recovered
 - CERs plateau at a lower level
 - EUA/CER spread significantly increased

IV. Market Risk and the CDM in Thailand



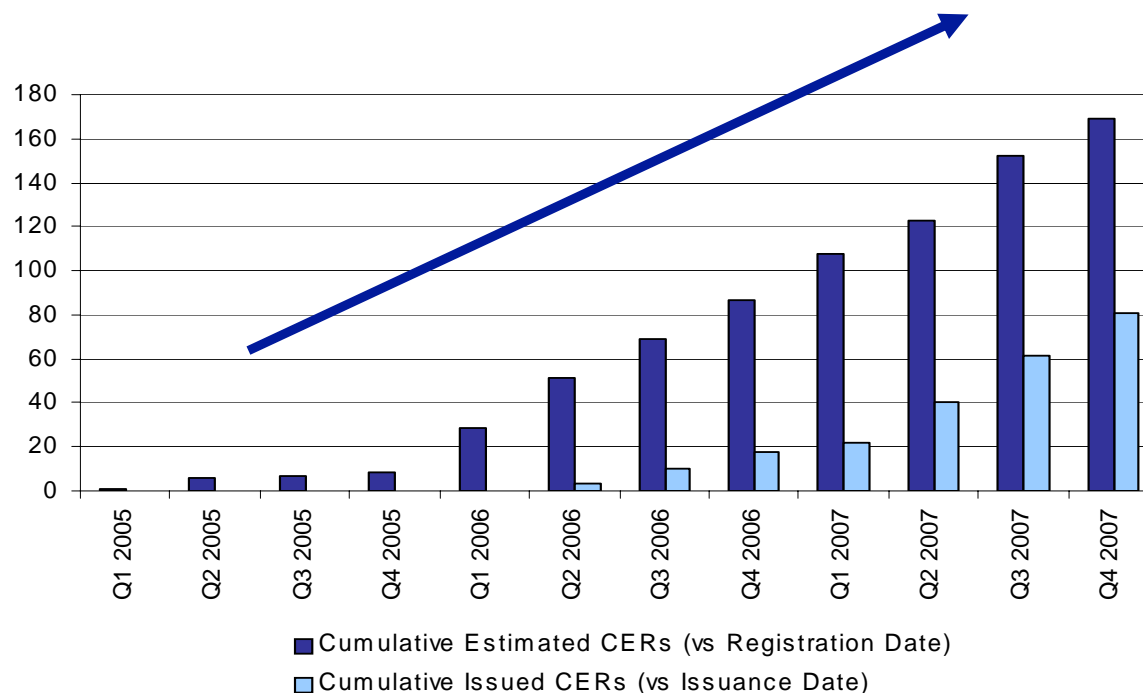
CDM in Thailand

- Thailand has a strong presence in the CDM arena amongst the South East Asian countries, with 5 registered projects
- Energy and waste sectors offer the maximum potential for CDM projects in Thailand, which has also been laid down as a priority in the National Energy Policy
- The current pipeline of projects could see a high number of “un-hedged” project owners
- DB represents a solid counterparty for hedging

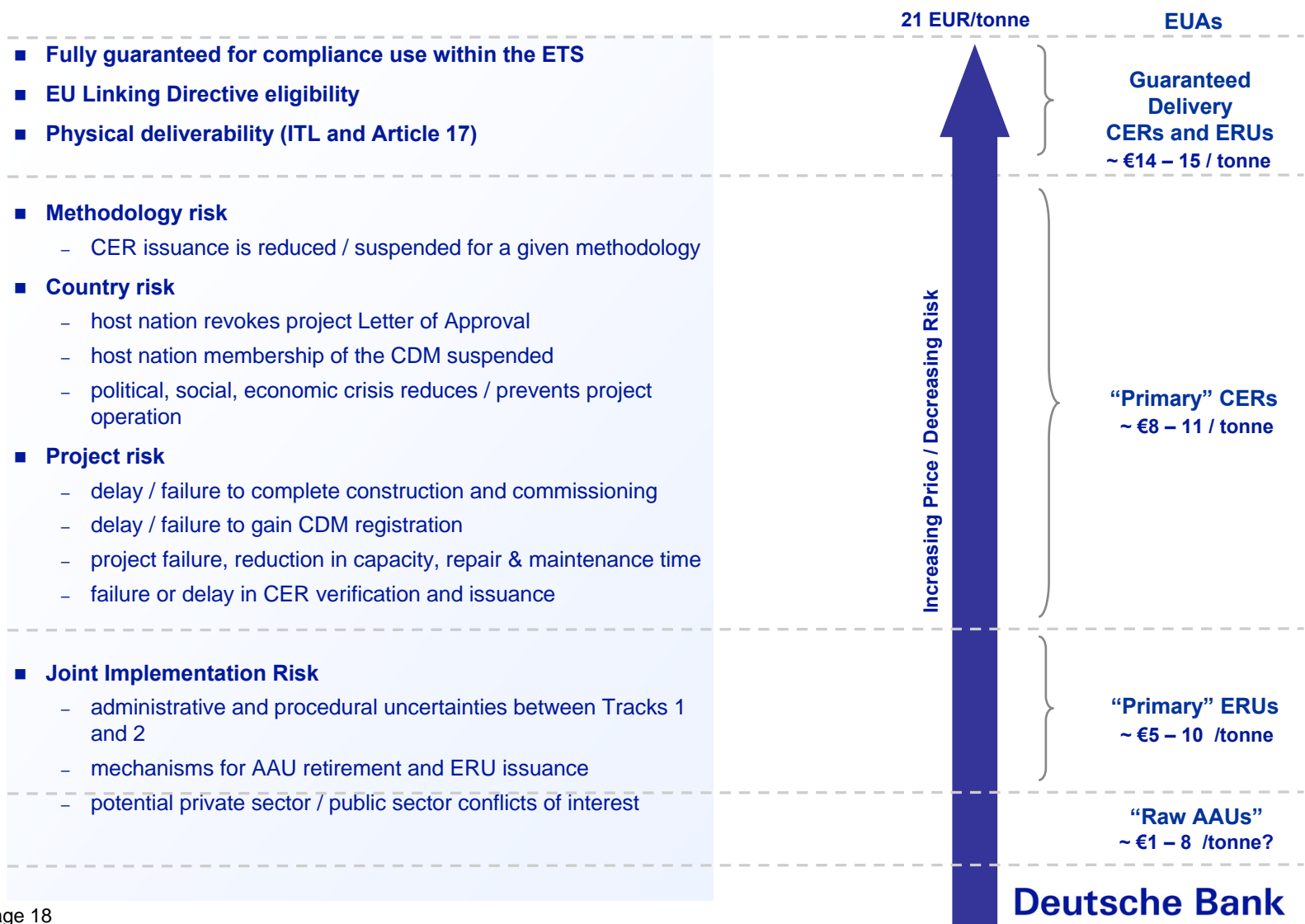


Increasing Risks in the CDM market

- **23 January 2008:** European Commission publishes ETS review recommending a tighter limit on CER/ERU usage in Europe between 2008 and 2020
- **11 February 2008:** Japan and Russia announce talks on potential sale of Russia's surplus AAUs
- Potential cooling of global economy could lead to reduced emissions and reduced demand
- Rapidly increasing CER and ERU supply threatens supply/demand balance



CERs/ERUs Price and Risk Factors



21 EUR/tonne

EUAs

Increasing Price / Decreasing Risk

Guaranteed Delivery CERs and ERUs
~ €14 – 15 / tonne

"Primary" CERs
~ €8 – 11 / tonne

"Primary" ERUs
~ €5 – 10 /tonne

"Raw AAs"
~ €1 – 8 /tonne?

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Emissions Markets Glossary

AAU	Assigned Amount Unit
CDM (EB)	Clean Development Mechanism (Executive Board)
CER	Certificate of Emissions Reductions
CH₄	Methane
CO₂	Carbon Dioxide
CO₂e	Carbon Dioxide Equivalent
ERPA	Emissions Rights Purchase Agreement
ERUs	Emissions Reduction Units (issued under the JI)
ETS	European Union Emissions Trading Scheme
EUA	European Union Allowances
GHG	Greenhouse Gases
GWP	Global Warming Potential
HFCs	Hydrofluorocarbons, including HFC-23
ITL	International Transactions Log
JI (SC)	Joint Implementation (Supervisory Committee)
LoA	Letter of Approval
NAP	ETS National Allocation Plan
N₂O	Nitrous Oxide (also known as “ NOX ”)
SF₆	Sulphur Hexafluoride
SO₂	Sulphur Dioxide (also known as “ SOX ”)
PDD	Project Design Document
PFCs	Perfluorocarbons, including Perfluoromethane (CF ₄) and Perfluoroethane (C ₂ F ₆)
RMUs	Removal Units
UNFCCC	United Nations Framework Convention on Climate Change

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