KARVY
COMTRADE LIMITED

Carbon Credit Futures

From
Research Desk
Bhavana Glory

Agenda

- Introduction
- Kyoto protocol (KP)
- KP Mechanisms
- Global Trading System
- Indian Scenario
- Benefits of Carbon Trading

Introduction

Climate Change

Rapid Industrial Growth

↓

Increased energy consumption

↓

Increased CO2 and other GHG emissions

↓

Global Warming due to increased concentration of GHG

- Increasing sea level
- Changes in wind and precipitation
- Changes in Crop yields

United Nations Framework Convention on Climate Change

- 165 nations signed the 1992 United Nations Framework Convention on Climate Change (UNFCCC) at Rio de Janeiro
- The Convention divides countries into two main groups - Annex I & Non-Annex I Countries
- Annex I (developed countries) agreed to reduce their GHGs by 5.2 % below 1990 levels in 1st commitment period 2008 – 2012

UNFCCC cont..

- Convention is based on three principles
  - Common but differentiated responsibility
  - Precautionary approach
  - Sustainable Economic Growth and Development
- The Kyoto protocol defined how to bring down the emissions in COP 3 in 1997

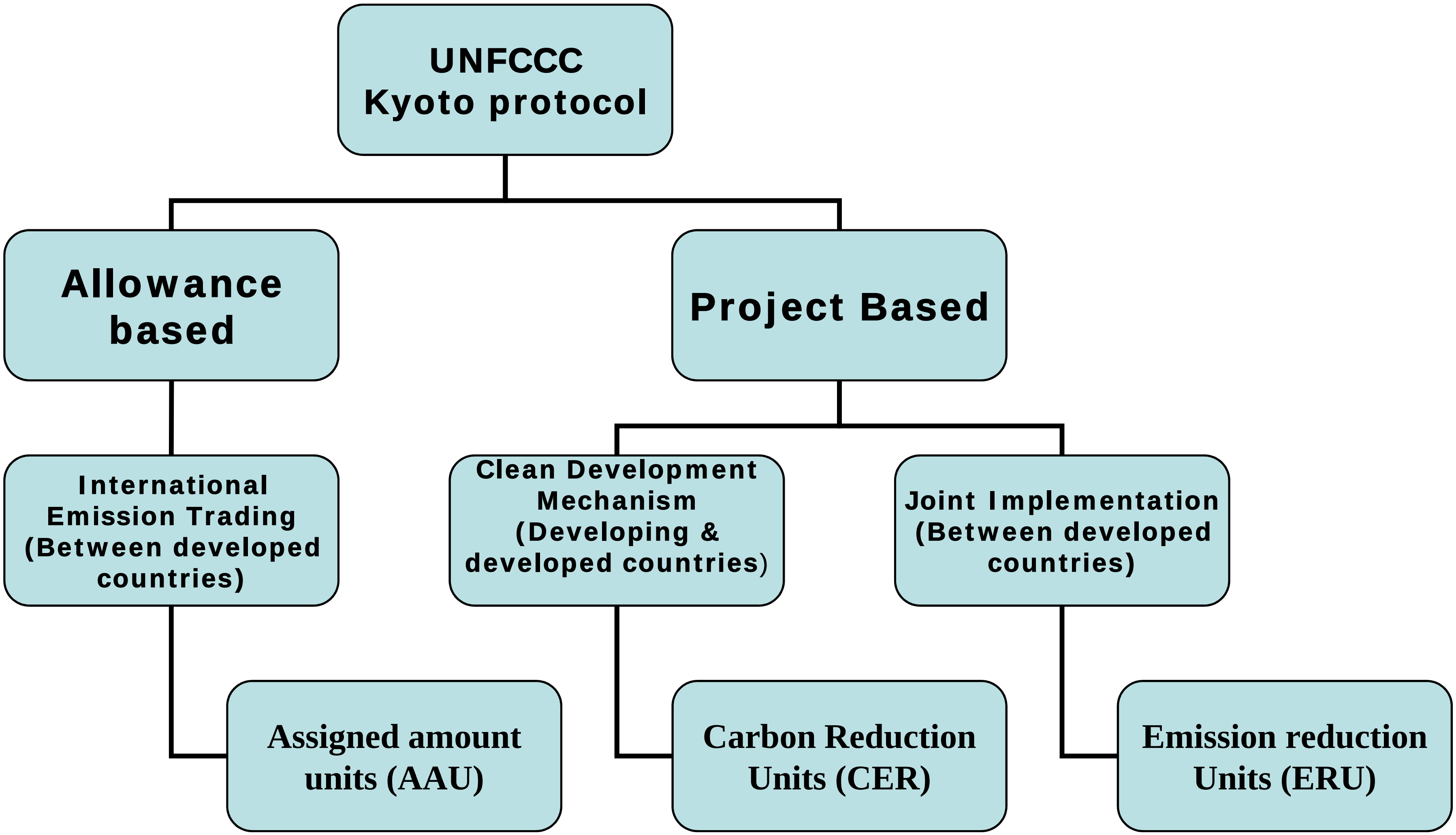
Kyoto Protocol

Kyoto protocol

- The Kyoto Protocol is only binding 'industrialized' or 'developed‘ countries. These are states listed in Annex 1 of the UNFCCC
- The protocol commits developed countries to specific targets for reducing their green house emissions
- Each country has a prescribed number of 'emission units' which make up the target emission
- The Kyoto Protocol provides mechanisms for countries to meet their emission targets

KP mechanisms

KP Mechanisms



International Emission Trading (IET)

- Emissions trading (ET) is a mechanism that enables countries with legally binding emission targets to buy and sell emissions allowances among themselves
- Each country has a certain number of emission allowances (amount of carbon dioxide it can emit) in line with its Kyoto reduction targets
- The IET allows industrialized countries to trade their surplus credits on the international carbon credit market

International Emission Trading cont..

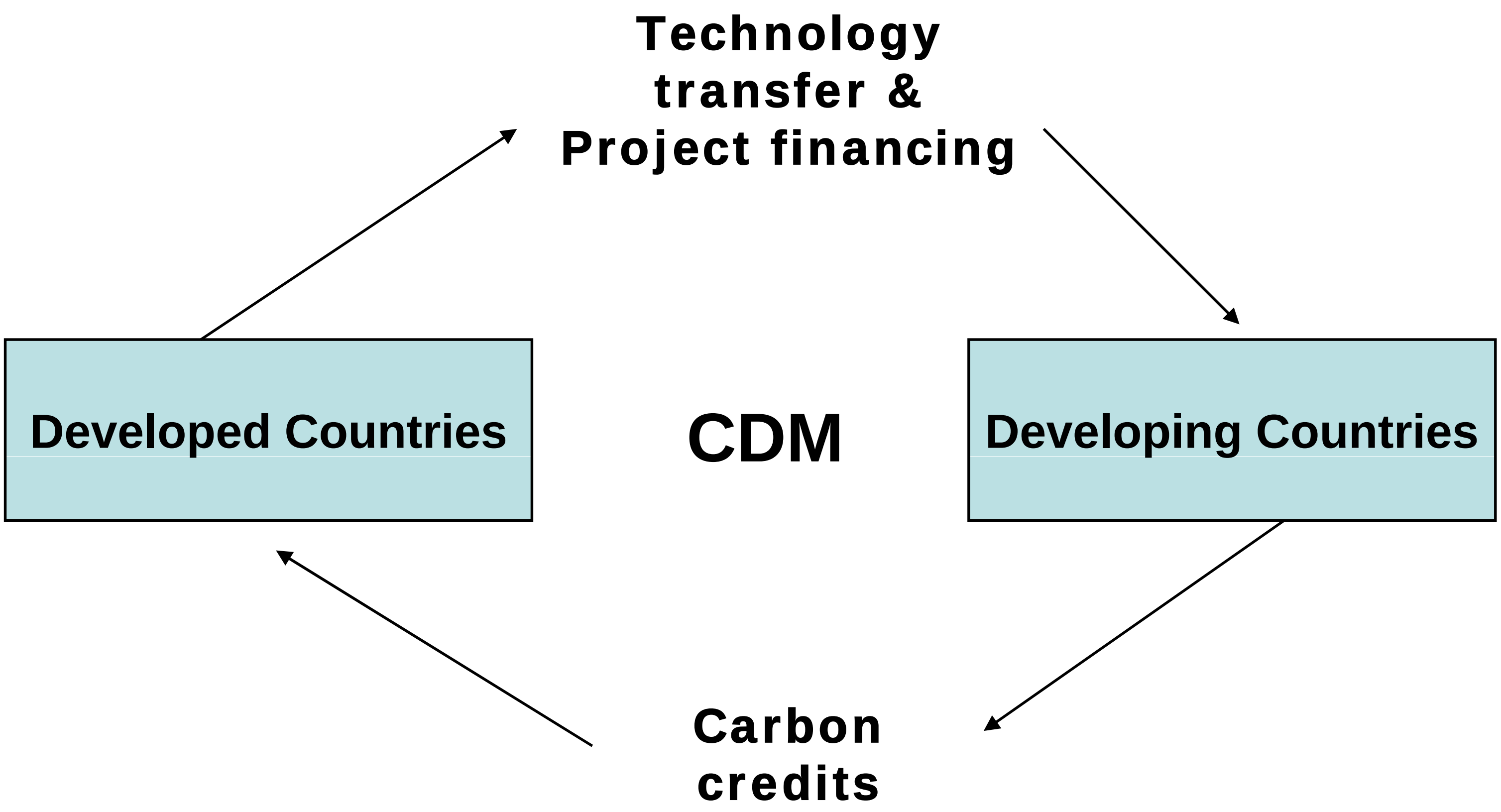
- Emissions trading transfers "assigned amount units" or AAU
- The buyer will then use the credits to meet their emissions targets
- A global Carbon Market is estimated to be around $30 billion
- Currently, futures contracts in carbon credits are actively traded in the European exchanges (ECX)
- Many companies actively participate to manage the risks associated with trading in carbon credits

International Emission Trading cont..

- Participants include project enablers, public utilities, manufacturing entities, brokers, banks, and others
- Buyers – Annexure I countries
- Suppliers – Non annexure I countries

Annex I

Clean Development Mechanism



CDM cont..

- The purpose of CDM is reduce to emissions and also contribute to sustainable development in developing countries
- The CDM is administered by the CDM Executive Board (CDM Board) which reports and is accountable to the Conference of Parties (COP).
- A Carbon emission reduction (CER) is given by the CDM Executive Board
- One CER is equivalent to one tonne of carbon dioxide reduced

Institutional Framework in CDM

- Developing country is the Project Developer
- Annex 1 countries are the Buyers , Investors
- The project is approved by Designated National Authority
- An institution which verifies the essential pre requisites for CDM projects is the Operational Entity (OE)
- An institution which certifies the Emission Reduction is the Operational Entity
- An institution which Issues CER is Executive Board (EB)

Steps in CDM Project

- Project Idea
- Project Idea Note (PIN)
- Project Design Document (PDD)
- Approval by DNA
- Project validation by OE and Registration by EB
- Monitoring by Entities
- Verification by OE
- Issuance of CER by EB

India & UN

- GOI is a signatory to UNFCCC and ratified the convention in November 1993
- The ministry of Environment and Forests is the prime ministry for coordinating the climate change policy
- GOI established designated National Authority (DNA) known as National CDM Authority

CER – Source of Generation

Industries like

- Agriculture
- Energy (renewable & non-renewable sources)
- Manufacturing
- Metal production
- Mining and mineral production
- Chemicals
- Afforestation & reforestation

Joint Implementation

- Projects between industrialized nations to earn emission offsets
- It is done because of geographical or cost implications
- Emission reduction units (ERUs) created through joint implementation is treated in the same way as those from emissions trading

Global Trading System

European Union Emission Trading Scheme

- It's an example of Cap and trade system
- The European Union Emission Trading Scheme (EU ETS) is the largest multi-national, greenhouse emissions scheme in the world. It commenced trading in 2005
- Under Kyoto EU committed to reduce 8% 1990 levels of emissions in 2008 to 2012

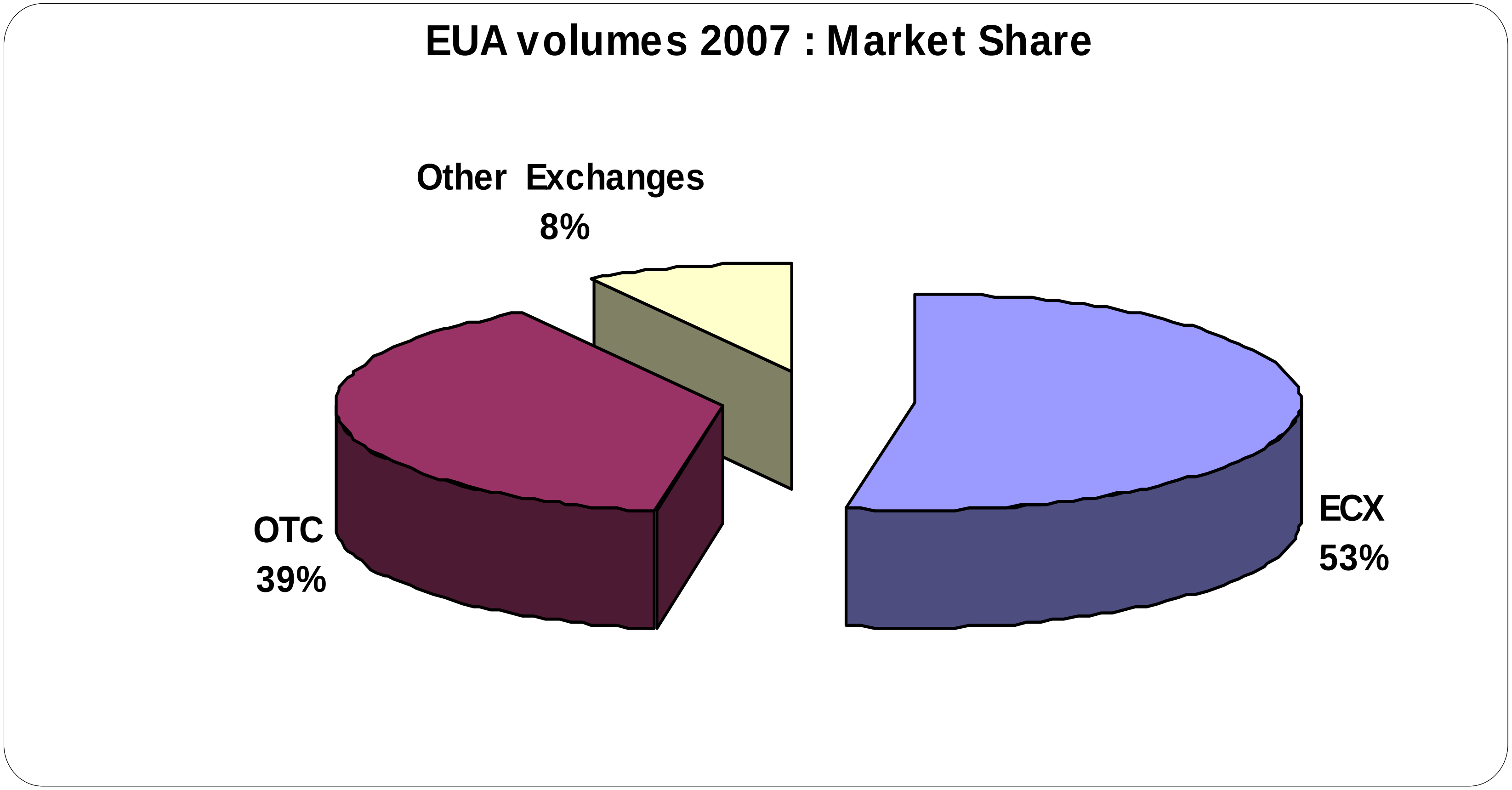
EU ETS cont..

- The Kyoto protocol sets targets to countries
- The States list down the amount and method of allocating allowances to facilities under NAP
- The total allowances granted = Kyoto target
- Determinants of demand
- Volumes are tracked by National registries
- Registries keep track of the allowance ownership transfers

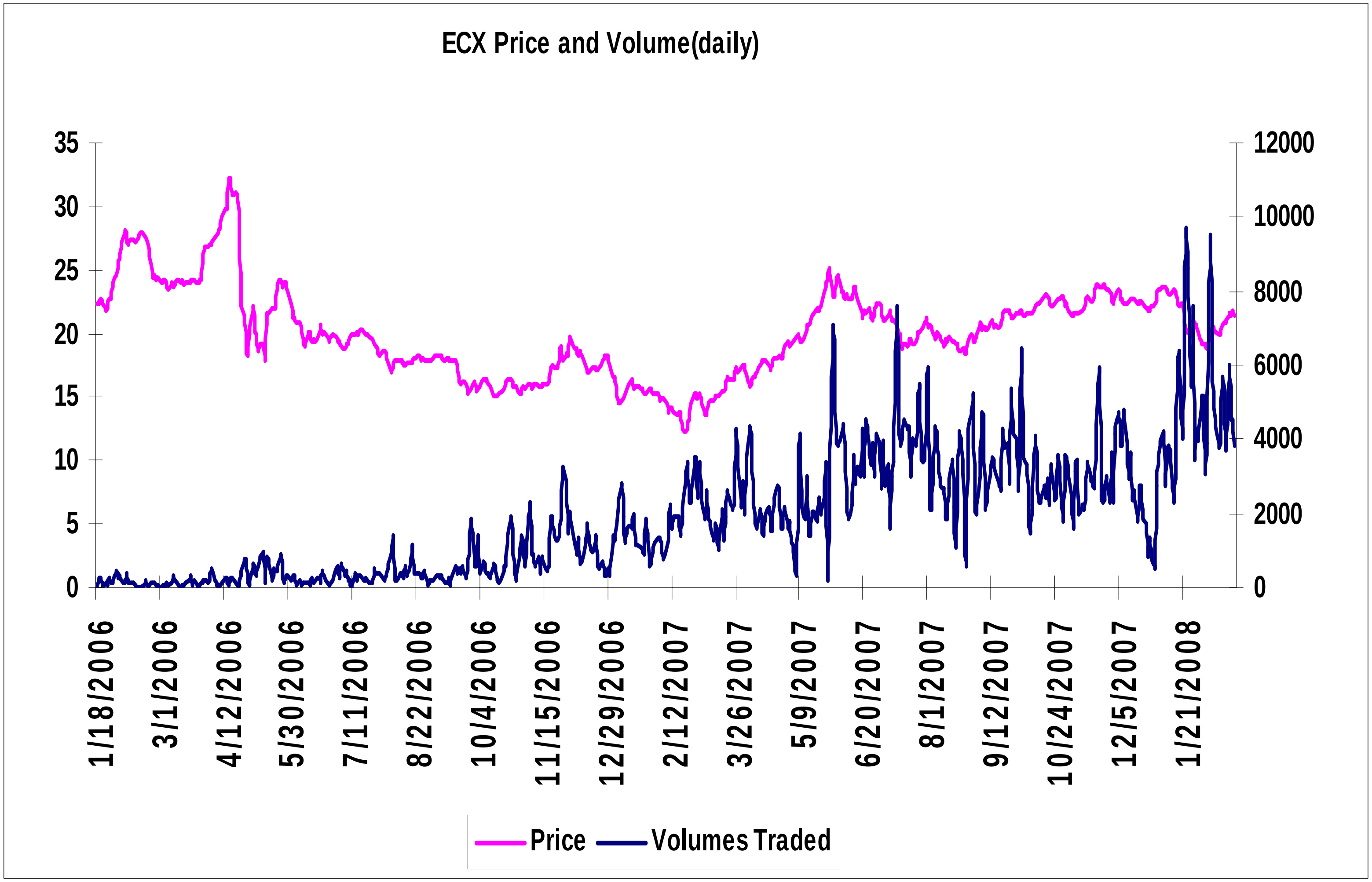
European Climate Exchange

- ECX is the most liquid marketplace for trading CO2 EU allowances, under the EU ETS
- Offer trading contracts on European union allowances
- EUA is right to emit one tonne of Carbon dioxide

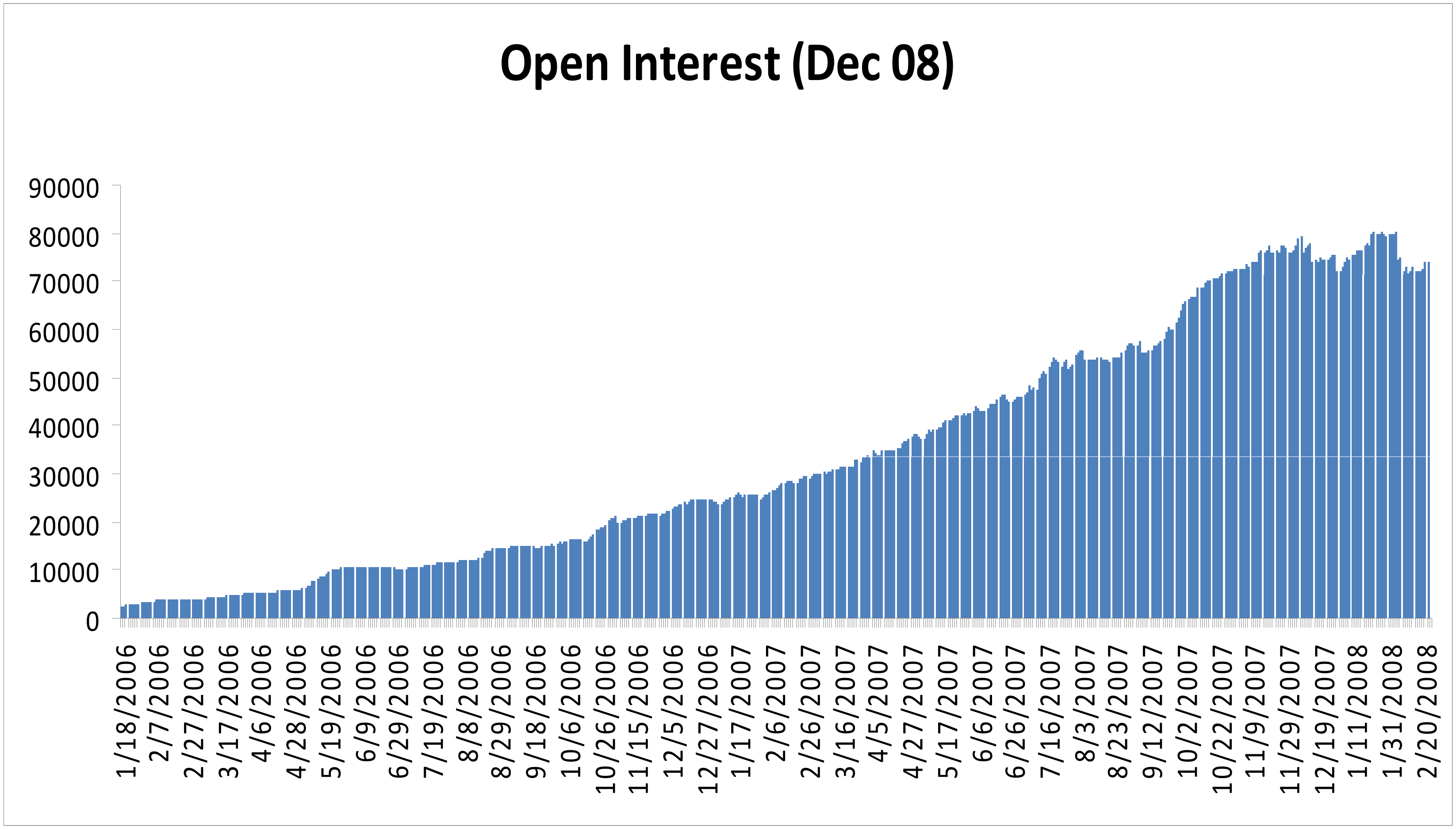
Global EUA Trading Scenario



Price and Volumes at ECX



ECX Open Interest




MOZ8 -- ICE ECX EMISSION Dec08
Daily 9/3/07 - 2/28/08
Last 21.03
High on 11/21/07 24.20
Average 21.83
Low on 01/22/08 18.60
EMAVG on Close(10) 21.1683
EMAVG on Close(20) 21.0189
EMAVG on Close(50) 21.2928
24.00
23.00
22.00
21.47
21.00
20.00
19.00
Open Interest 74945
High on 01/28/08 80512
Average 71645
Low on 09/07/07 55007
80000
70000
60000
Contract Volume 10.00
10000
5000
0
Sep 14
Sep 28
Oct 15
Oct 31
Nov 15
11/27/07
Nov 30
Dec 14
Dec 31
2007
Jan 15
Jan 31
Feb 14
Feb 29

ECX Members List

- Accord Energy
- ADM Investor Services International
- All Energy Trading
- Ambrian Commodities
- Atel Trading
- Bache Commodities
- Banc of America Securities
- Banco Santander Central Hispano
- Barclays Capital
- Bear Stearns International
- BHF - Bank
- BNP Paribas Commodity Futures
- BP Gas Marketing
- British Energy Trading
- Calyon Financial
- CEZ
- Citadel Equity Fund
- Citigroup Global Markets
- Climate Change Capital
- Credit Suisse Securities
- Deriwatt
- Deutsche Bank
- Dresdner Bank
- EDF Trading
- E.On UK
- EDP
- E&T Energie Handelsgesellschaft
- Electrabel
- ELECTRA Deutschland
- Endesa Generacion
- Fimat International Banque
- First New York Securities
- Fortis Bank Global Clearing
- Gazprom Marketing & Trading
- GH Financials
- Goldman Sachs International
- HSBC Bank
- ICAP Securities
- IMC
- Infinium Capital Management
- Insence Trading Curacao
- Jane Street Capital
- JP Morgan Securities
- Jump Trading
- KfW
- Kyte Broking
- Lehman Brothers International
- Limestone trading
- Madison Tyler Trading
- MAN Financial
- Marex Financial
- Marquette Partners
- Marubeni Corporation
- Merrill Lynch Commodities
- Merrill Lynch International
- Mizuho Securities USA
- Monument Securities
- Morgan Stanley & Co International
- Natexis Commodity Markets
- Optiver US
- Optiver VOF
- Rand Financial Services
- RBC Capital Markets Corporation
- Sagacarbon
- Saxon Financials Energy
- Schnell & Co.
- Scottish Power Energy Management
- SEB Futures
- Sempra Energy Europe
- Shell Energy Trading
- Shell Int. Trading & Shipping Company
- Smartest Energy
- Spectron Energy Services
- Starmark Trading
- TFS Derivatives
- The Kyte Group
- ThyssenKrupp
- Tradelink
- Tullett Prebon
- UBS
- UBS Clearing & Execution Services
- Universal Data
- Verbund
- Wachovia Bank
- XConnect Trading

Indian Scenario

How Carbon Credit works?

An Example:

- British Petroleum in UK emitting more than the accepted norms of UNFCCC
- Tie up with Subsidiary in India or China Under CDM
- The credits arising out of the use of the new technology are sold to counterparts in Europe
- Thus a carbon credit market is created

Carbon trading in India

- Bilateral trade
- No fixed norms of emission reduction by government.
- Potential Participants
- Registry

Carbon Trading in India cont..

- Multi Commodity Exchange of India Ltd. (MCX) entered into a strategic alliance with CCX in September 2005 to initiate carbon trading in India.
- Offers Mini version of ECX CFI & CCFE SFI
- The tie-up would provide immense scope and opportunity for domestic suppliers to realize better prices for their carbon credits
- India being a major supplier of carbon credits, the tie-up between the two exchanges is expected to ensure better price discovery of carbon credits

Price Influencing factors

- EUA prices
- Supply & Demand
- Electricity
- Natural gas
- Level of economic activity

India's potential

- India – Non Annexure I country, has a large scope in emissions trading
- India and china together contribute to $5 billion of the global carbon trade estimated at $30billion
- It is one of the leading generators of CERs through CDM
- Analysts forecast that its trading in carbon credits would touch US$ 100 billion by 2010
- Currently, the total registered CDM projects are more than 300, almost 1/3rd of the total CDM projects registered with the UNFCCC
- The total issued CERs with India as a host country till now stand at around 34 million, again around 1/3rd of the total CERs issued by the UNFCCC

Benefits of Carbon Trading

- Sellers and intermediaries can hedge against price risk
- There is no counterparty risk as the Exchange guarantees the trade
- The price discovery on the Exchange platform ensures a fair price for both the buyer and the seller
- Players are brought to a single platform, thus eliminating the laborious process of identifying either buyers or sellers with enough credibility

Contract Specifications

- Symbol: CFI
- Description: CFIMMYY
- Available contracts: Dec 2008 to Dec 2012
- Expiration Date: 15th December of the contract year
- Trading Unit: 200 ton of carbon credits
- Price quote: Rs per ton
- Margin: 6%
- Daily price limits: 4% (As per FMC approval)
- Delivery option: Both option
- Reference Market: ECX

MCX and ECX

Exchange	Timings	Contract Size	Tick size
MCX	10:00 AM to 11:30 PM.(IST)	200 tons	0.50 rupees
ECX (ICE)	12:30 PM to 10:30 PM.(IST)	1000 tons	1 cent

Price Movement	ECX (Euro)	MCX (Rupees)
Average Price movement in a day	0.39 Euro	38
Maximum price movement in a day (2007)	4	228
All time high (2007)(per ton)	26	1482
All time low (2007) (per ton)	11.8	672.6

Hedging the Price Risk – An Example

- Suppose ABC Co. wants to buy carbon credits at the end of year 2008. The current price is Rs.1300 per tonne and it expects the prices to up to Rs.1400 per tonne. To save itself from such an increase in price, the company decides to hedge on exchange platform.
- Buy at Exchange @ 1300 and then square off at the year end @ 1400. Earn profit of Rs.100. Later in future buy carbon credits at OTC market @ 1400. The net purchase price will be locked at Rs.1300.

Hedging the Price Risk – An Example

- Suppose ABC Co. wants to buy carbon credits at the end of year 2008. The current price is Rs.1300 per tonne and it expects the prices to up to Rs.1400 per tonne. To save itself from such an increase in price, the company decides to hedge on exchange platform.
- Buy at Exchange @ 1300 and then square off at the year end @ 1400. Earn profit of Rs.100. Later in future buy carbon credits at OTC market @ 1400. The net purchase price will be locked at Rs.1300.

KARVY COMTRADE LIMITED

Thank You