

# The Carbon Market – a European Viewpoint

Presented at

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*CCS Bridging the Transition*, Dublin Castle, March 12, 2010

# Key Message

The European Union Emissions Trading Scheme (EU ETS) a key piece of the policy jigsaw for sustaining CCS.

But allowance prices not likely to be sufficiently high on their own to support CCS coal plants so that such plants can compete commercially with alternative fuels.

Complementary measures likely to be needed.

# Key Source

*Pricing Carbon*, by Ellerman, Convery and De Perthuis, Cambridge University Press, 2010.

Co-ordinator of EU Research Networks on market based instruments and emissions trading.

# Why a market for CO<sub>2</sub>?

Valuable and increasingly scarce environmental endowments such as atmosphere's capacity to absorb greenhouse gasses are not charged for or traded.

No Price reflecting scarcity emerges – use is 'free.' and what is free is overused and abused.

Correction for this market failure essential if environment is to be protected.

# Options for adjusting to market failure – tax or trading

## **European Experience**

Tried to impose a tax – failed

Edmund Burke: *To tax and to please, no more than to love and be wise, is not given to men.*

Tried to create an allowance market for CO<sub>2</sub> – the European Union Emissions Trading Scheme (EU ETS) - and succeeded.

Impulse towards property and trade is  
strong....

**Machiavelli:** *So long as the great majority of men are not deprived of either property or honour, they are satisfied.*

Adam Smith: *Man is the only animal that makes bargains; one dog does not change bones with another dog.*

# How EU ETS Works

Decide on:

1. Period
2. Unit to be traded
3. Overall cap
4. Coverage
5. Allocation of allowances to firms
6. Upstream or downstream
7. Compliance – monitoring, reporting and verification (MRV) –
8. Banking and borrowing
9. Trading
10. Price Emerges
11. Costs and Benefits
12. Performance and achievements
13. Implications for Carbon Capture and Storage

# Period, Units, Cap

## Three **periods**

Pilot (2005-2007); Second (2008-2012) Third (2013-2020)

## **Units**

Tonnes of Carbon dioxide per annum, called European Union Allowances, or 'EUAs'

**Cap** – decentralised in pilot (sum of Member State Caps) – very loose.

But centralised by Commission in third period.

Now tight - Cap for 2020 is -21%, from 2005 base

# Coverage and Allocation

## **Coverage**

- power sector, refineries, cement, pulp and paper, ceramics and glass, iron and steel.

## **Allocation**

- free in pilot period, some auctioning in second period, all emissions for power sector to be auctioned in third period

# Upstream or downstream, Compliance

Upstream means energy producers and importers

Downstream means energy users at installation (e.g. power station of cement factory) level

European Decision to go downstream

## **Compliance**

– monitoring and reporting annually, with independent verification (MRV) – automatic fines if emissions exceed allowances held.

# Banking and borrowing

Banking means that you can carry forward surplus allowances to future years.

Borrowing means that you can borrow from future year to meet this year's obligations.

**Pilot period (2005-07).** Banking and borrowing allowed within the period, but *not* carried forward to the second and third.

**Second and Third Periods (2008-2012, and 2013-2020)**

Banking and borrowing allowed across the periods

# Trading

Some installations are left 'short' others with more than they need, or they abate (long')

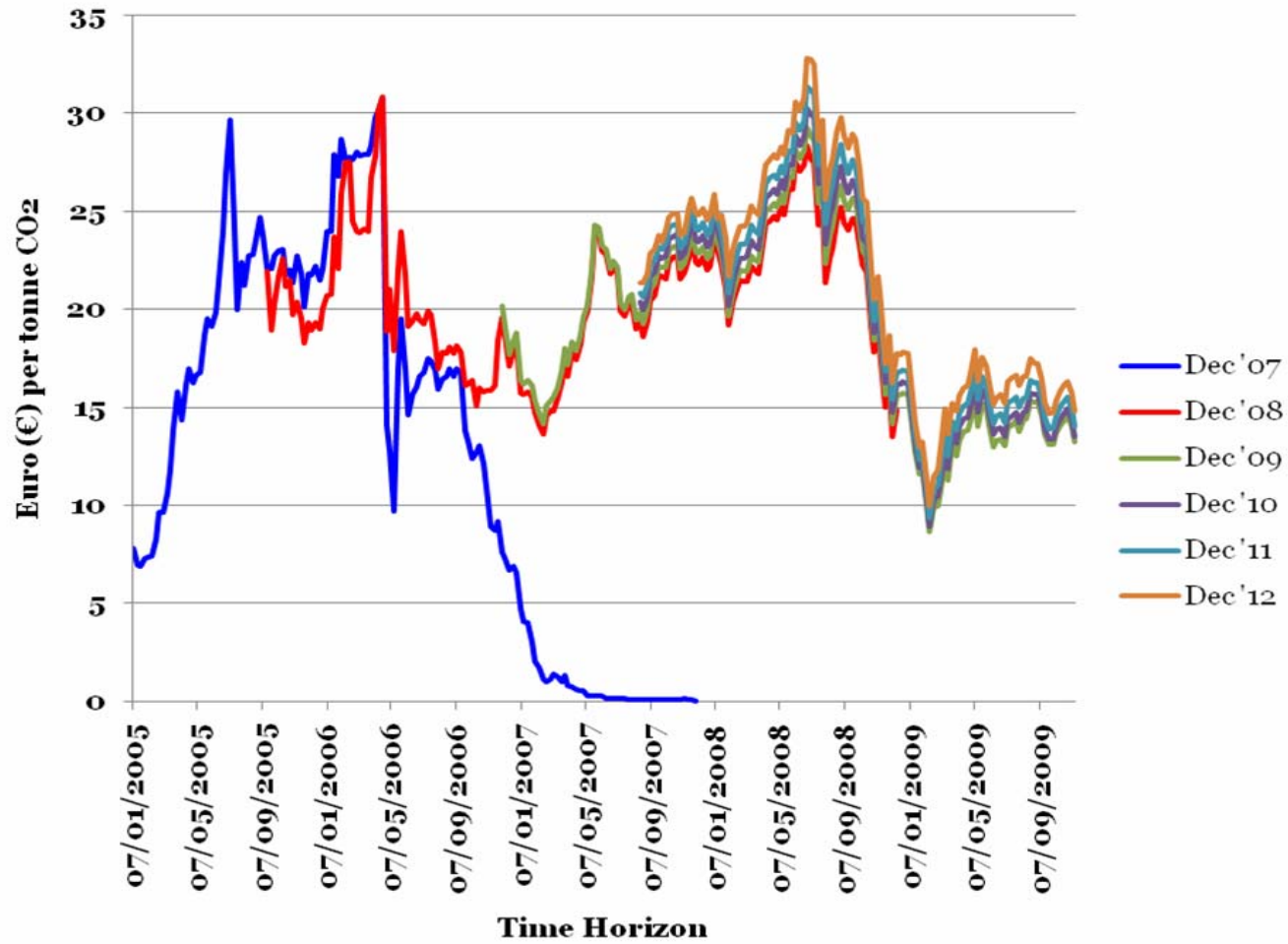
Those short must either reduce their emissions, buy allowances from those who are long, or some combination, to cover their emissions.

This trading creates a price.

But: *Where there is money there is always bad behaviour* (Alan Bennett)

Hackers have been observed in Germany and UK

### EUA Price Evolution (Jan '05 - Nov '09)



# Costs

Aggregate costs were negligible for the pilot period

Ex post (after the fact) evidence:

Average price for 2005 and 2006 was €18

Abatement in range 50-100 million tonnes

Implied cost of €0.45-0.9 billion

EU GDP 13-13 trillion dollars

Abatement as % of GDP      0.0125%

# Learning by doing

## **First period**

- – cap too loose, free riding by member states
- Allowance price collapsed in 2007 because no banking into second and third periods
- Rent capture by some utilities – some passed on the value of the allowances in electricity prices, even though they

## **Response for second and third periods**

- Centralise control – Commission in stead of Member States
- Tighten cap -
- Auction allowances – applies to power sector from 2013

# Performance and Achievements

Small costs, huge benefits

Main gain –

1. An intellectual and *operational* centre of gravity around which to organise and deliver effective climate change policy
2. A guaranteed reduction in emissions by 21% by 2020 from the trading sectors
3. No negative impact on competitiveness in pilot phase

Probably **helping** competitiveness in second period – deep recession has allowed some companies to cash in allowances received for free – helps cash flow

May be problems for some firms from 2013 if full auctioning introduced.

## **Overall**

Brings climate change from boiler room to board room

Europe chisels in stone

The rest of the world knits in wool

## **Carbon Capture and Storage (CCS) and allowances**

Key feature- emissions from power plants have to be 'covered' by allowances.

- The power sector does not have to buy allowances to cover carbon that is effectively captured and stored. This comprises a subsidy for CCS, and is a key driver for sustaining the policy once the investment has been made.
- BUT Allowance prices sharply down on expectations because of the recession.

# Price Prospects for EUAs

Current price (March 8, 2010) is €13.11 per tonne – a product of low demand due to slump.

Estimates of price 'needed' to make CCS viable are in range of €30-50 per tonne.

Are allowance prices in the future likely to rise more than three fold?

If *vigorous economic growth* in Europe beyond what most expect takes place, then we will see a rise, but....

# Fallibility of Price and all Economic Forecasts

An economic forecaster is like a cross eyed javelin thrower.

He doesn't win many accuracy contests,  
But he does keep the crowd's attention.

# Prudent Assumption

Prudent assumption is that, with a -21% reduction in cap, price will not move towards €30-50 per tonne.

## Options

1. Tighten the cap – to -30% as proposed as part of the Copenhagen deal that never happened
2. Command and Control: Require coal fired plants to 'do' CCS from 2020.

Poland and others will vigorously oppose these.

1. Subsidise CCS from other sources – some income from auction of allowances already earmarked
2. Achieve breakthrough that reduces the subsidy needed...

# Monitoring Reporting and Verification (MRV)

Exemption from allowance requirements only applies if the carbon capture and storage is 'real'.

Issues of how to demonstrate this, and the costs of doing so.

THANKS