

# **Reflections on the European Union Emissions Trading Scheme (EU ETS) – what can we learn?**

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# Three phases

- Phase 1 (Pilot) 2005-07
- Phase 2 (Kyoto) 2008-12
- Phase 3 (Post Kyoto) 2013-20 and indefinitely thereafter
  
- Cap and trade
- Covering power sector and heavy industry - > 40% of Europe's GHG emissions
- Trades in 2007 valued at €24.1 billion

# Key Sources

- Ellerman, A Denny and Joskow, Paul L. 2008. *The European Union's Emissions Trading System in perspective*, Pew Center on Global Climate Change, Washington DC, May 54p.
- Convery, Frank, De Perthuis, Christian, Ellerman, Denny, 2008. *The European Carbon Market in Action: Lessons from the First Trading Period – Intermediate Report*, March 39p.
- Volume 1 number 1 (special issue on EU ETS) of *Review of Environmental Economics and Policy 2007*
- Osmosis

## **Second Mover Advantage - The European scheme learned lots from the US**

- **Mistakes to avoid**
- **Acid Rain to learn from**

**Miracles happen, and people evolve.**

*The stone which the builders  
rejected has become the  
corner stone.*

# III. People and institutions matter

Edward Mortimer: *A nation..is a group of people united by a common dislike of their neighbours, and a shared misconception about their ethnic origins*

- Politicians
- Bureaucrats
- Business

#### **IV. Europe can lead effectively and Kyoto was important**

President Bush rejection of Kyoto  
was key stimulus



## V. Panic can be a useful motivator

- Under business as usual, the Union would not meet its collective Kyoto target; - ‘something must be done’
- Denmark and the UK developing their own schemes
- Union has no money – can’t buy its way out of the challenge

## **History is always a surprise – most allowance price predictions got it wrong and ‘new’ abatement actions emerged.**

- Higher than expected priced early on
- Utilities (short) in the market
- Others (long) not selling
- Delay in registry set up (Poland)

### *Sources of abatement*

- Lignite to hard coal
- More use of biomass
- More carbon efficient coal generation in the UK
- More use of zero carbon blast furnace slag in cement production.

# Keep it simple

- No price caps
- Cap and trade
- No need for permission to trade
- One gas initially (CO<sub>2</sub>)
- Sectors included are readily identifiable and monitored

# Let the market work, but help it work better

Pilot phase - great swings in allowance price, but no price cap.

Why?

- Infrequent (annual) provision of data on supply of and demand for allowances
- Inability to carry forward (bank) allowances into the next period.

*Solution*

- Quarterly reporting
- Banking and borrowing over long periods
- The most important actors in meeting the climate change challenge are the Innovators – don't set a ceiling on their ambition by setting a ceiling on the CO<sub>2</sub> price.

## IX. The trading impulse takes hold quickly

- Adam Smith

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

- Market emerged very quickly.
- Many options for trading - one third of trading taking place on exchanges
- ECX (London) by far the largest, offering spot, forward and futures contracts.

# X. Reduction in emissions is quickly achieved.

## *Pilot phase*

- Natural gas prices rose sharply
- Coal prices did not increase proportionately.
- Strong incentive for utilities to revert to coal
- Carbon price acted as a 'wedge'

## *Independent estimates by:*

- Ellerman and Buchner (2008)
- Delarue *et al* (2008)

*Annual reductions* in 2005 and 2006 from the counterfactual of about 50-100 million tonnes of CO<sub>2</sub> were achieved

Consistent with the performance of overall performance documented by the European Environment Agency (2007).

**The European horizon – 2005-2012 – is too short on its own to induce major new capital investment in carbon reduction and carbon-reducing innovation.**

- **Current EU proposal is:**
- **Set a mandatory reduction target of 20 per cent to be achieved by 2020**
- **Extend horizon indefinitely, but to 2020 initially**

**Free allocation of allowances was necessary to get sufficient Member State support, but the implications in terms of pass through in electricity prices are proving contentious.**

## Member States and industry insisted on free allocation

- In de-regulated electricity markets - Germany, UK, Netherlands – the pass through was estimated at 40-70 per cent of the CO<sub>2</sub> value
- In more regulated markets – France, Spain, Ireland – pass through was typically not permitted.
- Main stimulus to the introduction of auctioning in Europe from 2013



# Competitiveness has. not yet emerged as a major phenomenon

- *Ex ante* analyses - outcomes depend crucially on assumptions
- Main negative effects on sectors - e.g. aluminium – not in scheme who have to deal with higher electricity prices
- Sectors in scheme (steel, pulp and paper, cement, ceramics and glass, refineries) - no observable effect on profits, market share, output. **But**
- High commodity markets
- Free allocation

May have buffered effects

## **XIV. The Importance of the Pilot Phase (and luck) in achieving a scarcity price**

Even with oversupply

- Got a strong price for 16 months - function of ignorance and keen buyers (utilities)

Good luck

- Supply of allowances for the Kyoto phase (2008-12) has been cut by 6.5 per cent relative to emissions in the pilot phase.

## **But a Half Loaf is Better than No Bread**

- Efforts to introduce tax from 1992 to 1997 failed
- Not an option for the EU in this life, and perhaps not in the next.
- Auctioning 'deferred' to get the show on the road

## **XVI. Ensuring the integrity of the system**

- Enforcement is automatic, not dependent on unspecified civil and criminal penalties.
- Non-compliance is a lot more costly than going to the market.

**A key benefit of the European Scheme has been to animate greenhouse gas reducing projects in third countries**

- European scheme 'linked' to the Clean Development Mechanism (CDM)
- Animated the CDM market, which heretofore had been moribund
- Encouraged and facilitated China and India in particular to become involved

## **Complement trading with other policies that drive the innovation impulse.**

Key feature - provides an immediate and tangible cash dividend to greenhouse gas reducing innovation.

E.g. With an allowance price of €25 per tonne:

- Innovation that reduces emissions by 2 million tonnes of CO<sub>2</sub> per annum immediately on implementation yields a cash dividend of €50 million annually.
- Large expansions in funding for R&D
- Range of supports for the development of carbon neutral renewables

# Coverage and Flexibility

European scheme does not include road transport

- Excise duties on petrol (gasoline) and diesel are high in Europe [The excise duties on gasoline in Germany is equivalent to €275.20 per tonne of CO<sub>2</sub>].
- Governments did not wish to risk the loss of this revenue
- Environmentalists worried that if trading were substituted for the tax, the environmental achievements of the tax would be compromised.

Proposal to include aviation

- No taxes to be foregone on aviation fuel.

Domestic offsets being studied

**XX. Allowances are tonnes of CO<sub>2</sub>,  
not tons of carbon**

Adopt the European convention



# XXI Dealing with new Entrants

- Free allocations set aside by Member States for new entrants.
- Weakened the environmental effectiveness of the scheme
- No new entrant reserve in Acid Rain programme

# XXII Policy is a process

European philosophy – if we build it, they will come...

- Periodic Review and correction
- Efforts in EU ETS to facilitate linkage with other capped schemes

# The Future 1

Wislawe Szymborska

*Take dioxide: a lightweight, but mighty in deeds;  
What about octopods, what about centipedes?  
I could look into prices, but don't have the nerve:  
These are products I just can't afford, don't deserve.  
Isn't sunset a little too much for two eyes  
That, who knows, may not open to see the sun rise?*

Europe has had the nerve to 'look into prices,' and EU ETS is the result.

## Likely to become permanent feature because:

- Has strong political support – no Member State leader opposes its continuance
- Is producing results
- Is more congenial and lower cost to emitters than command and control at individual plant level
- A number of vested interests, including: a large group of traders who like to make money; bureaucracies established to issue allowances, set up registries and monitor performance;
- Free allocations that involve billions of assets transferred to emitters
- No evidence that competitiveness is being damaged

# XXIV The Future 2

The Commission has made proposals, which include:

## ***Revision of emissions trading Directive:***

- Cap tightening –stepwise reduction to achieve 20 per cent by 2020
- Centralisation ('harmonisation') of – cap fixing, allocation, monitoring verification and enforcement
- Auctioning of allowances (power and..)
- Leakage provisions for the non power sectors – more free allowances and/or 'equivalent effort' required of imports to EU
- Banking (including CERs) over 13 years - 2008-2020
- New CERs post 2012 parked pending UN agreement
- Exclude small-scale installations (but equivalent effort?)
- Effort sharing – distribute 10% of auctioned allowances to poorer Member States

# More Commission Proposals

## ***Capping non-trading sectors***

- Distribution of mandatory cap between the trading and non-trading sectors
- Effort sharing by EU 27

## ***3. Renewables Directive***

- Mandatory targets (-20 per cent)
- Effort Sharing by EU 27
- Trading in excess of the mandatory target

## ***4. Promotion of Carbon Capture and Storage (CCS)***

- Demonstration as key requirement
- Include emissions 'stored' in EUETS
- Commercialisation by 2020 with CO<sub>2</sub> price of 30-40 per tonne

# XXV Lessons for California

- If certainty is important, emission trading ensures that you meet the cap for the sectors covered.
- Make sure that you create scarcity early on – you need a price signal right away.
- Provide an early-on review period that allows you to correct dysfunction.
- Keep it simple, report quarterly, and allow banking and borrowing.
- Don't cap allowance price – you need to signal to innovators that you are on their side.
- Complement the price signal with other support for research development and innovation.
- Auction revenues compensates for electricity price rises. They can be used to compensate the most vulnerable and to further intensify abatement.
- Confine coverage to sectors whose emissions can be monitored and verified, and allow expanded coverage of sectors and gasses as it becomes feasible.