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_2)
- 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_2 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_2 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_2 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_2 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_2].
- 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_2, 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

Wislawa 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_2 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.