From EU ETS to CA ETS - Twenty Lessons from the European Union Emissions Trading Scheme (EU ETS) for Trading as a Greenhouse Gas Management tool in the California Emissions Trading Scheme (CA ETS) post 2012.

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Introduction

Beginning in 2005, the European Union (EU) has implemented an emissions trading scheme, operated in two phases – the ‘pilot’ period (2005-07) and the Kyoto phase (2008-12). In the pilot phase, it covers about 45 per cent of the EU’s carbon emissions embracing ~11,500 installations in electricity generation and heat production (>20MW), oil refineries, iron and steel, pulp and paper, cement and lime, and bricks glass and ceramics. About 2.2 billion tonnes of CO_2 allowances were issued annually in the pilot phase. This compares with annual emissions of about 0.35 billion tonnes in California. The European scheme is linked to the Clean Development Mechanism (CDM) whereby greenhouse gas reducing projects in developing countries get support from allowance holders in developed countries, and the ensuing reductions can be used to contribute to meeting their emissions trading obligations. The allocations in the European scheme in the Kyoto phase (2009-12) are likely to be reduced by about 8 per cent, with further reductions in the 2013-2020 period.

Although these are early days, there are a number of lessons to be learnt from this initiative that are relevant to the potential mobilisation of trading in the California post-2012.

Core Proposition

If a California scheme can be designed and implemented so that it is compatible with, and linked to, the European scheme from 2012, the combined force of these can transform the world. Some early lessons from the European experience are presented below to encourage the development of a California trading scheme (CA ETS) and its compatibility with the

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European Union Emissions Trading Scheme (EU ETS) and linkage to global mechanisms.

I. The European scheme learned lots from the US in two respects.

- The early failed efforts in the US, where there were restrictions on trade, and transactions costs choked the development of the market.
- The acid rain scheme, where most of these lessons were internalised, and the market worked.

Lesson 1: It's now time to return the favour.

II Miracles happen, and people evolve.

Getting what you want is not always for the best. The European Union opposed trading in the Kyoto negotiations, but fortunately did not prevail.

Lesson 2: Don't get too oppressed or depressed by prevailing policies and attitudes – this game is not for sissies, and it's for the long haul

III The European Scheme involved achieving a sufficiency of convergence across a continent of diverse economies and cultures.

Allowance allocation and implementation mechanisms were developed in 25 countries (now 27) with 23 official languages, GDP per capita ranging from $43,000 in Ireland to $14,000 in Latvia; the European Union comprises the largest economy in the world [GDP of 13.4 trillion USD (2005)] with close to 500 million people.

Lesson 3 For California, in comparison, getting a quality trading scheme underway should be a breeze….

IV. History is always a surprise – most allowance price predictions got it wrong.

The price stayed in the 15-30 Euro ($19.5 – 39.0) a tonne range for about 12 months – higher than most expectations.

Lesson 4: Bet against the pundits

V. Keep it simple

The European Union scheme has no price caps, is cap and trade instead of baseline and credit, based on installations, there is no need for permission to trade, one gas initially (CO_2), and the sectors included are readily identifiable - electricity and heat (>20MW) and most heavy industry.

Lesson 5. Resist complexification

VI. Let the market work

There have been great swings in allowance price, but no price cap. Price does what it should do in every well functioning market, it allows demand and supply to balance. The biggest change came when real information on the demand and supply balance prevailing for year 2005 became available in April 2006, showing the most countries and sectors were 'long'. There was an immediate downward adjustment, from €30 to about €12, and this has continued. The fall has been exacerbated by the fact that there is virtually no banking allowed between the pilot and Kyoto phases. This means that those now (2007) holding allowances surplus to requirements must sell before year-end if they are to capture any value.

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Lesson 6. Help the market to work

The sharp price oscillations in EU ETS are in part a product of (a) infrequent (annual) provision of data on supply of and demand for allowances and (b) constraints on temporal trading (3 and 5 year periods). Instead of an annual *ex post* official balance showing the realities as regards emissions and allowances held, examine the costs and benefits of providing periodic, e.g. quarterly, data. This will cost and also 'complexify', but may pay off in terms of smoother price adjustments. Provide a long period for banking and borrowing – this in any event is more appropriate for emissions that have a residence time of 100 years - and make the market as wide and deep as feasible.

The most important actors in meeting the climate change challenge are the CCIs – the California Climate Innovators. The CCIs see reducing carbon and other greenhouse gas emissions as an environmental challenge and a commercial opportunity. Do not presume to set a ceiling on their ambition by setting a ceiling on the CO_2 price. And do not transfer the wrong lessons from the inept liberalisation of the California electricity market, or the NOx market (very thin, no or inadequate banking and borrowing) to the CO_2 market.

VII. People love to trade and to gamble.

Access is available to all, and the market emerges very quickly The futures market in Europe appeared over a year before the regulations and registries etc were finalised. By August 2006, there were 7 brokers and 5 exchanges in operation, serving buyers and sellers at a variable cost of 0.01 to 0.05 Euro cents per tonne.

Lesson 7. Indulge their passions

VIII. Reduction in emissions is quickly achieved.

As the pilot phase took off, natural gas prices rose sharply - in the EU they are linked to oil prices – while coal prices did not. There was a strong incentive for utilities that could do so to bring relatively carbon intensive coal fired plant on line and move them up the dispatch order. But this required the acquisition of more allowances, which increased their price, and this in turn changed the calculus in some cases in favour of less carbon intensive natural gas. So the CO_2 market acted as wedge, limiting the extent of the default to coal. In the first year of the pilot phase, reductions below the counterfactual of 3-5 per cent were achieved.

Lesson 8. Abatement does not wait on new investments in carbon reducing technologies. Management actions begin to give an immediate payoff

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

It is too early to definitely conclude that this is the case, but all the feedback from those in the trading scheme is that they need a longer horizon to justify major investment.

To provide more assurance, the current EU proposal is to set a mandatory reduction target of 20 per cent to be achieved by 2020, and to reflect this in the allocations to the trading scheme.

The EU scheme is likely in any event to become a permanent feature of the economy, because it: 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. It is already characterised by 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; and no evidence that competitiveness is being damaged.

Lesson 9. Make sure that the horizon for investors is long enough to trigger carbon reducing investment and innovation.

X Ensuring the integrity of the system

Europe learned these lessons from the acid rain programme. There are strict provisions in regard to monitoring, verification and enforcement embedded in the Directive, and backed by the European Court. However, application in the pilot phase seems in some countries to be uneven. As in the acid rain programme, enforcement is automatic, not dependent on unspecified civil and criminal penalties. Non compliance is a lot more costly than going to the market

Lesson 10: Symmetry in these provisions is crucial if linkage between EU ETS and CA ETS is to be achieved. The automatic enforcement provisions in EU ETS are to be preferred to the civil and criminal penalties in RECLAIM NOx.

XI. You need an informed, dedicated, well-resourced and focused organisation with the authority to drive the process.

The European Commission fulfilled this function in Europe. It has the singular responsibility for initiating legislation, and for ensuring its implementation. It deployed a small team of economists to lead the process, fully supported by the organisation. It learned the key lessons from the US, notably to: keep the system as simple as possible, resist pressures to give exemptions; not allow *ex post* adjustments. The Commission interacted and negotiated with the two key decision-making entitities - Member States and with the European Parliament - with a combination of cajoling and informed pressure.

Lesson 11. The organisation with the responsibility to drive the California scheme must have comparable capacities, skills, authority and resources.

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

The European scheme is 'linked' to the Clean Development Mechanism (CDM) whereby emissions abatement in projects that reduced emissions in developing countries could be counted as reductions for the firms paying for such reduction. This animated the CDM market, which heretofore had been moribund, and encouraged and facilitated China and India in particular to become involved, including the establishment in China of a carbon trading exchange in Beijing that 'could establish the Chinese capital as a centre for the global trade in carbon credits' (*Financial Times*, February 6, 2007, p.1).

Lesson 12. Linkage cosmopolitanises and globalises trade. A partnership of Europe and California will help drive the gradual inclusion of the emerging Asian and other hubs in addressing the climate change challenge. Such inclusivity is essential if the global challenge is to be met successfully.

XIII. Complement trading with other policies that drive the innovation impulse.

The key feature of trading is that it provides an immediate and tangible cash dividend to greenhouse gas reducing innovation. If the allowance price is €15 per tonne, an innovation that reduces emissions by 2 million tonnes of CO_2 pere annum immediately on implementation yields a cash dividend of €30 million annually. In Europe, the availability of this dividend is being complemented by large expansions in funding for R&D and a range of supports for the development of carbon neutral renewables.

Lesson 13. Providing an integrated package of supply side measures to innovators in California to complement the innovation dividend yielded by the trading scheme will maximise the potential for the emergence of both incremental and break through technologies and management systems.

XIV. **A scarcity price must emerge**

We need a price for CO_2 that, however imperfectly, tells the world that the capacity to absorb more greenhouse gas is scarce, and must be paid for. The pilot phase of the European scheme was focused mainly on getting the system up and running. Allocations were mostly free, and were perceived as generous relative to likely demand, which would imply a low price. However, a combination of force which included delays in bringing on supply from Poland (10 per cent of total allocations), the fact that utilities were short and entered the market to cover their positions as needed, inadequate information (until April 2006) on the volume of demand and supply meant that price moved into the €15-30 per tonne range over the April 05-06 period, and this achieved the effect of making people sit up and take notice. However, as the demand supply realities have been recognised post April 06, the price has fallen sharply, reaching €1.70 per tonne for 2007 vintage allowances on February 10, 2007.[3] In contrast, the forward price for allowances in 2008 is €14.10. These two prices recognise two realities; there is a 'surplus' of allowances in the pilot phase that can't be carried forward, and the supply of allowances for the Kyoto phase (2008-12) is likely to be cut by 8-10 per cent relative to the pilot phase.

Lesson 14: Make sure that the volume of allocations issued is such that a 'strong' price signal emerges. If CA ETS and EU ETS are linked, of course there will be price convergence.

XV. Coverage and Flexibility

It is notable that the European scheme does not include road transport, which is recognised as the main source of growth in emissions. This is because 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, and environmentalists worried that if trading were substituted for the tax, the environmental achievements of the tax would be compromised. Conversely, there is a proposal to include aviation in the scheme, because it is a rapidly growing source of emissions, and there are no taxes to be foregone on aviation fuel. There is an examination ongoing in Europe at present of the feasibility, costs and benefits of allowing domestic offsets – where verified reductions are achieved in projects and sectors not now included in the trading scheme can qualify for carbon allowances in EU ETS. The outcome of these deliberations may allow such an evolution.

Lesson 15: There is no need to include everything in an emissions trading scheme. It may be that other instruments – e.g. excise duties, mandated energy efficiency standards for new housing – are effective and politically and institutionally more practicable. But what's included needs to be sufficient to provide a wide range of abatement opportunities, to provide enough

[3] All price data from the relevant PointCarbon website: http://www.pointcarbon.com/article20462-914.html?articleID=20462&categoryID=914

competition so that no one company can influence allowance price, and the system needs to be flexible, so that new sectors and activities can be added as appropriate over time. The potential for including domestic offsets in California should be studied in parallel with the European analyses.

XVI. A Half Loaf is Better than No Bread

The emissions trading scheme has emerged as the pan-European policy instrument of choice in part because an effort to introduce a Europe-wide carbon tax failed. Because tax measures require unanimous approval of all 27 Member State governments, it has no chance of succeeding. There remains much academic debate about how much more desirable a tax would be. But it's not an option in this life, and perhaps not in the next. Likewise, a strong case can be made for auctioning allowances, and using the revenues to reduce distorting taxes elsewhere. But the Commission judged that insistence on auctioning most of the allowances would have engendered such virulent opposition and acrimonious debate that no action would be the outcome. So in the pilot phase a very modest degree (<1%) of auctioning took place, this will increase in the Kyoto phase (2008-12) and is likely to be further extended in the post Kyoto period. A gradual evolution to a hybrid of free and auctioned is in prospect.

Lesson 16: The most important thing is to get a strong price signal that engenders cost effective action quickly, and that supports innovators. Avoid cul-de-sacs where debate and head butting replaces action.

XVII The Relationship between price effects, environmental effectiveness and equity.

Trans-frontier interconnection in the European electricity market is very partial, which means in effect that – with the exception of the Nordic countries – this market comprise a series of weakly linked national markets, some of which are fully deregulated with competition from a variety of suppliers – e.g. the UK – and others much less so – e.g. Ireland, still with one dominant State owned incumbent. In fully competitive markets, most of the value of CO_2 allowances gets immediately passed through in higher electricity prices. This has the environmental benefit of signalling to electricity consumers that the costs of CO_2 emissions are real, and encouraging conservation actions. It also strongly incentivises utilities to shift the balance of production to less carbon intensive supply and innovators to supply carbon reducing technologies. However, the pass through does raise equity issues, since utilities get most of their allowances for free, but can pass on the opportunity costs to consumers. Mapping the full distributional effects of the ensuing rent would require identifying how much of it is captured in value added taxes and taxes of company profits, and taxes on dividends flowing to shareholders – including in some cases governments as owners. In more regulated markets, the regulator may only allow utilities to capture the additional costs incurred to purchase whatever allowances are needed at the margin, and this weakens the incentive effects for both consumers and utilities, but is likely to be perceived as fairer.

Escalation in oil and (especially) natural gas prices occurred in Europe coincident with the establishment of the trading market, driven in part by local Russia-Europe geopolitical developments.[4] This engendered considerable price turbulence and prices rises to consumers, so there has not yet been singular public focus on the price effects per se of the trading market, but this may change if and when 'normal' conditions resume.

Lesson 17: It is useful to allow the pass through so as to get the incentive effects; however the regulatory frameworks and the need to adapt to equity concerns must also be recognised. The important thing is to get a price signal. Trace the full distributional effects of different allocation models so as to be fully informed, recognising the complexities involved, and that a degree of 'unfairness' is inevitable.

XVIII Allowances are tonnes of CO_2, not tons of carbon

Lesson 18: Adopt the European convention

XIX. Dealing with new Entrants

In EU ETS, there ar a free allocations set aside by Member States for new entrants. This has weakened the environmental effectiveness of the scheme, in particular as some carbon intensive new projects have been so supported.

Lesson 19: No free allocation for new entrants

XX. Policy is a process

It is common to hear European and Californian efforts to address climate change characterised as fruitless, as they only account for a relatively small and diminishing share of global emissions. This rationale has been a basis for inaction at US Federal level. However, by providing a price signal, other things begin to happen, including for example the triggering of action in China in regard to the Clean Development Mechanism and prospective setting up of a carbon exchange in Beijing. As innovators begin to emerge, their successes, driven by the profits to be captured in the context of the trading scheme, will spill over to enhance global performance.

Lesson 20. Regard the California initiative as a first step. Over time, help link markets and technologies so as to gradually globalise the effort and incrementally bring in other countries and activities, with Europe as a key partner in this regard.

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[4] Europe is very dependent on Russian gas supply, providing Germany, Italy and France respectively 39, 31 and 24 per cent respectively of domestic requirements. Disputes between the Russian state-owned gas supplier Gazprom and Ukraine over the price of natural gas and the prices for transition of Gazprom's gas on the main artery to Europe started in March 2005, and was only (partially) resolved in January 2006, and Gazprom continues to have potentially supply interrupting issues with other countries.