

WHY EMISSIONS TRADING SCHEMES?

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WHY EMISSIONS TRADING SCHEMES?

This paper addresses the question: ***Why emissions trading schemes?*** The emissions are carbon emissions to the atmosphere and there are two aspects of the question.

Firstly, why should emissions be subject to any regulatory scheme? Secondly, why should regulation take the form of a trading scheme?

The effects of emissions trading schemes is discussed in the context of the threats and opportunities facing the forest products and paper industry. In doing so it is necessary and important to reflect on the wider context in which policies are being introduced to curb the levels of emissions of carbon into the atmosphere.

AUSTRALIAN PULP & PAPER

The pulp and paper industry and its emissions is essential to the life of the nation and every citizen. It is hard to imagine a living person who neither uses pulp and paper products nor on whose behalf such products are used.

Australian plants produce approximately 5 million tonnes of wood pulp for paper & paperboard and paper and paperboard (Food and Agriculture Organisation, 2006). In manufacturing this product, this Australian industry emits slightly in excess of 1.2 tonnes of CO₂ per tonne of pulp and paper (A3P, 2004). Accordingly, the total emissions from Australian pulp and paper production exceed 6 million tonnes. That is around 1.1 per cent of total Australian emissions. It is not huge but it does matter, just as every drop of water matters in drought.

THE BROADER CONTEXT

Almost two years ago, the policy arm of the US Democratic Party – the party which was then still to select Barak Obama as its candidate for the Presidency – assessed the significance of climate change and the appropriate policy response. In its report, the Democratic Policy Committee said

Even the most stringent mitigation efforts cannot avoid further impacts of climate change in the next few decades, which makes adaptation essential, particularly in addressing near-term impacts. Unmitigated climate change would, in the long term, be likely to exceed the capacity of natural, managed and human systems to adapt (Democratic Policy Committee (USA), 2007).

We are well to remember that that Report was made as part of the scene setting for the forthcoming political contest for the most powerful elected office not just on the surface of the Earth but significantly for us here today, within the global atmosphere.

In the same year, all significant Australian political parties campaigned for the introduction of climate change policies including emissions trading schemes. The now Government promised a scheme to operate from 2010.

Since then we have become even more aware of the overwhelming evidence that climate change has a very high probability of causing catastrophic effects on people just like you and me, if not you and me, our children, grandchildren and other family members. In March 2009, 2500 of the world's top technical experts met. These were the people who understand better than any others how weather systems work, how weather systems affect other systems such as agriculture, ocean currents and food supply and how human organisations and societies respond to change through political and other governance processes. After deliberating, these leading scientists issued a

statement confirming this worrying message (International Scientific Congress Climate Change, 2009).

Complexity of the System

The breadth of expertise represented in that conference indicates the complexity of the environmental system within which we live.

Compare it with pulp and paper plants, which are immensely complicated machines that are a tribute to human ingenuity. Their design is sophisticated and mature. However, they handle a relatively small number of variables in the nature of the fibre which enters a processing and manufacturing plant, physical and human inputs which transform the fibre and specifications of the final products. The relationships between the individual elements of the production system are generally relatively simple and linear.

Our environmental system is a type of complex adaptive system known as a complex evolving system.

Complex Evolving Systems have 10 key features: (1) self-organisation; (2) emergence; (3) connectivity; (4) interdependence; (5) feedback; (6) far from equilibrium; (7) space of possibilities; (8) co-evolution; (9) historicity & time; and (10) path-dependence. It is characteristic that these can lead to the creation of new order – a transition to a new state in which the system produces different outcomes, such as a different climate (Mitleton-Kelly, 2003). As the name suggests, a complex evolving system evolves. The internal relationships, that is the relationships between elements within the system, change in response to both its internal and its external environment, which in turn affects how the system performs as a whole and its outcomes.

The relationships can be quite non-linear. System outcomes are expressed as probabilities and degrees of confidence in that those probabilities are accurate. A relatively small change such as, say volcanic ash discharges by one volcano into the upper atmosphere, can reach a tipping point that triggers a cascade of effects producing changes in food production world-wide. This is a system of which we are a part; it is not one that we can manipulate at will as we have assumed we could, quite unquestioningly.

A complex system may not return to its previous state once a tipping point is passed. Instead, there can be the creation of a new order, in which the system makes a transition to operate according to a new dynamic and evolves in new directions.

An important aspect of the functioning of complex evolving systems, their capacity to adapt to changes in their environment, is the degree of central regulation.

If the level of internal control is too rigid, creativity and innovation are less likely to emerge, reducing the potential for the system to adapt. Conversely, if the system is anarchic, that is, if there is an absence of centralised controls setting the systems' overall rules, powerful sub-systems emerge which compete with each other at the expense of the performance of the total system. This issue of the extent of central regulation is crucial to answering the question "why emissions trading schemes?" – a point to which I return below.

Climate scientists have increasingly sophisticated complex system computer models which attempt to simulate the functioning of the climate system. Climatic records are used to build models that explain past weather patterns and develop capacities to predict the effects of natural and human impacts. This modelling shows the potential for the creation of a new order if human impacts are not curbed. The Earth will survive but the atmosphere may be quite inhospitable to human life in anything like the numbers and standards of living now existing, if at all. This is our greatest concern. It is this concern that drives us to find ways of curbing emissions.

The increase beyond about 280 parts per million (ppm) CO₂ in the atmosphere is due to things that we and our fellow humans have done and do. The overwhelming view of the top technical experts is that it must stop increasing beyond its current level of about 385 ppm and be reduced to stabilise somewhere below 350 ppm.

The question then becomes: what can we as human societies do to achieve such reductions?

Market Responses

In Australia we have long accepted the potential of market forces to achieve the policy objectives we seek. It is reasonable for us to ask whether they can address this emerging crisis.

The limitations of market self-regulation have been starkly apparent since the dramatic financial sector market failure effects since September 2008.

The failure of markets to account for the externalities of burning fossil fuels is massive. The lag times are far too long. Perversely, for individual emitters and even whole national economies to act in an environmentally sustainable manner may be to undermine their short-medium term economic viability. Reliance on the market threatens to destroy the entire social system within which markets operate and serve.

Corporate Social Responsibility

Corporate social responsibility (CSR) is sometimes held out as a basis for businesses operating in an environmentally sustainable manner.

The definition advocated by my co-authors and myself is:

CSR is acceptance by a corporation of responsibility for the social impact of its activities, including effects on the natural environment (Coghill, Black, Holmes, & Stubbs, 2005).

It is thus a form of self-regulation which would eliminate CO₂ discharges, if accepted by all emitters and understood it to oblige them to reduce and ultimately do away with dangerous emissions of all substances, especially if combined with the concept of a social licence to operate. A social licence to operate is the principle that a company's operations depend on informal and formal approvals including under corporations law and other legal architecture which collectively constitute a "licence"; this creates a mutual obligation for the company to operate in the public interest. The social licence to operate is important in some industries and in the ethical conduct of some companies.

Notwithstanding the social licence to operate and without going through the arguments, we can simply note that emitters rarely act to fully implement such CSR obligations and parliamentarians have balked at imposing CSR (Parliamentary Joint Committee on Corporations and Financial Services, 2006).

The practice of CSR again suggests that evidence-based decision-making must reject market self-regulation as an answer to climate change.

ONLY GOVERNMENT CAN BE EFFECTIVE

From a systems perspective, we can see that the anarchy of self-regulation is incapable of providing the coordinated long-term actions required to curb climate change.

Only government, through Parliament, has the authority to set rules for the whole of society. It can do this because it has a monopoly of the legitimate use of coercive power – the administration of justice and the use of police powers.

That is not necessarily to reject markets. Most markets are regulated i.e. they operate according to rules. In Australia those rules are either set by Parliament or exist under powers created in laws passed by Parliament, or some combination.

WHY REGULATE EMISSIONS

We have thus reached the point whereby effective action requires some form of regulation by government. There are three main options: direct government control, commonly called 'command and control'; taxes directly on carbon emissions or indirectly via energy consumption; or emissions trading schemes. Policies leading to reduced emissions through efficiencies in energy production and consumption are also important (Duval, 2008).

REGULATORY OPTIONS

Command and Control

Command and control regulation could operate similarly to other regulation of pollution discharges by environment protection agencies. Businesses would be licensed to discharge specified amounts of CO₂, which would be monitored by the government agency or under audited self-monitoring. Breaches of limits would be liable to prosecution and sanctions up to withdrawal of licence and enforced closure of the plant in extreme cases.

In the most inflexible of command and control regimes, the agency specifies the technology to be applied. The effect is to stultify innovation.

Setting the initial quotas and progressive reductions for individual businesses and each discharge point would become a bureaucratic nightmare for both the regulator and industry. Regulation of this type becomes more and more complicated and burdensome as loopholes and special cases are identified and addressed (Teubner, 1983).

However, any system will ultimately rely on sanctions which are intolerable for emitters that fail to comply with limits to their entitlements.

Carbon Tax

Systems which rely on environmental tax reforms (ETRs) related to the amounts carbon emitted in association with specified purposes are used in several comparable countries, such as Denmark, Germany, Sweden and the United Kingdom. The actual basis of calculation varies. It can be related to the CO₂ emissions, the mass (weight) of the carbon source or the price of the product. There may be discounts or other incentives built into the ETRs.

For industry, a carbon tax has the advantage of predictability. An enterprise knows that a particular impost is added its costs and it can include these in its product pricing. If the impost can be absorbed and passed on to customers, there is little incentive to reduce emissions (Chichilnisky & Heal, 1995; McDonald, 2009).

For government and citizens, this same feature is the obvious disadvantage of a tax on carbon use. The objective is a fall in CO₂ emissions, not an increase in tax revenue. For many uses such as transport, the relationship between price and use is very elastic – large price rises produce relatively small changes in long-term consumptive behaviour.

Thus on theoretical grounds carbon taxes might be expected weak and ineffective instruments for driving down emissions. Overall, Europe's brief experience is encouraging when the objective of reducing emissions is examined. Over 10 years industry energy intensity improved by up to 30 percent (Enevoldsen, 2005), but this is not dissimilar to improvements made elsewhere without carbon taxes.

Greenhouse gas (GHG) emissions reduced by an average of 3.1% by 2004 for Denmark, Netherlands, UK, Finland, Sweden and Germany, with the largest reduction recorded for Finland (5.9%) (Andersen, 2008). In the period up to 2006 the falls in emissions were modest (COMETR, 2007; Environmental Tax Policy Institute, 2008).

Emissions Trading

The Australian carbon pollution reduction scheme, as published in early 2009, is a cap and trade emissions trading scheme (ETS). ETS schemes were successfully introduced in USA to reduce sulphur emissions that were causing acid rain. It was only later that they were introduced in the European Union to curb CO₂ emissions.

The EU ETS has had and continues to receive strong criticisms, largely due to the volatility of market prices for allowances. Some see this as reflecting fundamental flaws in a carbon ETS scheme (Simms, 2009). However, the most recent volatility is associated with the Global Financial Crisis and reflects a major drop, but not collapse, in demand for allowances and hence market value. It may be argued that that is actually how markets are intended to operate.

Viewed from afar, it may be that the lesson is that EU allowances should be withdrawn from the market by government buy-outs, just as many governments have recently intervened to support financial markets. In the case of EU ETS allowances, the permanent re-setting of emissions at a lower aggregate figure would serve valuable environmental, economic and social purposes.

The Australian scheme began with monitoring and reporting of CO₂ emissions by businesses, commencing with the largest emitters. However, the Australian carbon pollution reduction scheme applies only to the estimated 1000 enterprises which emit 25,000 tonnes or more of CO₂ per year.

Companies subject to the ETS will be required to obtain Australian carbon pollution permits for the year ahead, commencing July 2010. Certain categories of emitters will be issued free permits whilst most will have to purchase them. Whether issued free or purchased, the permit holders will be limited to emissions no greater than the total permits they hold. Used permits equal to the volume of CO₂ emitted must be surrendered at the end of the 12 months.

The special case of energy-intensive trade-exposed industries is discussed below.

The total of all permits will be progressively reduced each year. The amount by which the total will reduce by 2020 is highly controversial. The Government's policy is at least five percent, or 15 percent if an international agreement is in place.

For industry, the advantage is that the aggregate amount of reduction is known, although it is not specified for individual businesses or sites. The disadvantage is that the market value of Australian carbon pollution permits will be unknown beyond the first three years, during which it will be fixed by regulation.

The advantage for Government and citizens is that the amount and rate of reduction in CO₂ emitted will be assured. There will be revenue from the sale of permits but their purpose is to reduce emissions, not raise revenue.

INTERNATIONAL IMPLICATIONS

The effects of the Australian carbon pollution reduction scheme on energy-intensive trade-exposed industries (EITE) such as the pulp and paper industry is legitimate and deserves to be treated with respect. The URS Report *The Role of the Pulp and Paper Industry and the Case for Trade-Exposed Emissions-Intensive Status* argues the case well.

The Report was a response to the CPRS Green paper so it is not surprising that it does not focus on the future of international arrangements such as the Kyoto Agreement and its successor to be negotiated at the **COP15 United Nations Climate Change Conference Copenhagen 2009** in December.

Important as domestic arrangements are to the protection of Australian pulp and paper plants from competition by plants that fail to meet sustainability standards, even more important is that all countries take effective action to curb CO₂ emissions and that there are efficient means of spreading and sharing the burden across the globe.

That will require an international framework for adjusting and reducing CO₂ emissions in politically acceptable ways.

Duval, in a review for the OECD, argues that carbon taxes have important limitations for the purpose. He said:

Another important limitation of price instruments is the difficulty to design them in a way that overcomes income distribution, competitiveness and other political economy obstacles to adoption and compliance both across and within countries. Permit trading may be less vulnerable than a tax in this regard, because it allows more flexible, more credible and more discrete burden-sharing agreements, builds up a clear constituency (permit holders) with an interest in enforcing the policy in the future, and enables some degree of sovereignty to be maintained in implementation at the country level. Technology transfers, e.g. through buying out patent rights on clean technologies before subsidising their transfer to developing countries, may also contribute to burden-sharing (Duval, 2008, p.32).

These considerations help us understand why emissions trading schemes and carbon credits are central to the negotiations in Copenhagen.

It is now crucial that every person and every organisation puts their weight behind the success of those negotiations. No meeting has ever been more important to the well-being of mankind than the United Nations Climate Change Conference Copenhagen 2009.

Every leader, whether democratically elected or selected by processes such as in China, will be acting with one eye to the future of mankind and one to the future of his or her domestic constituency. Many will be have, ringing in their ears, the loud protests of the squeaky wheels defending their present day interests.

It will be a tragedy for mankind if its leaders were go to the United Nations Climate Change Conference Copenhagen 2009 unaware of the level of domestic support for effective and concerted action to create new, more sustainable futures and secure long-term jobs. They must be given that awareness to give them the confidence to argue for courageous, visionary leadership and reforms that set directions for such a future. Every one of us has the capacity to make some contribution to that outcome through our local community, our workplace and our elected representatives.

CONCLUSION

We began by asking: firstly, why should emissions be subject to any regulatory scheme and secondly, why should regulation take the form of a trading scheme?

The answer to the first is clear and unequivocal: the threat which our actions pose to the atmosphere on which our lives depend can only be met by regulation that reduces CO₂ emissions. Self-regulation is inconsistent with the proper functioning of the complex evolving system of which human society is a part.

The answer to the second must recognise that we are seeking to intervene in a highly complex evolving system of which our society is one sub-system, to remedy damaging effects we have caused to the climatic elements of the system.

Rigid command and control regulation would risk stultifying the very creativity and innovation needed to make adaptive change, but nonetheless must be available to restrain recalcitrant polluters.

Carbon taxes have certain merits but cannot guarantee the reductions in emissions need to save us from ourselves.

Emissions trading schemes enable us to regulate and reduce emissions whilst leaving open the opportunity for creativity and innovation. Furthermore they are suited to the type of international regime necessary to share the effort and the benefits of effective action.

Most of all though, our leaders need to hear from us that the long-term sustainability of our environment in order to protect future investment and jobs must be the overwhelming objective of their leadership.

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