

A view to our emissions trading scheme

Whether it is the centrepiece of Australia's efforts to reduce greenhouse gas emissions as the government claims, or just one of a raft of measures as others argue it should be, Australia's emissions trading scheme (ETS) is taking shape. **Robin Taylor** provides perspective on what and who is involved.

As Professor Ross Garnaut said when releasing his Draft Report in early July, Australia is not early in entering the global emissions trading market; other developed countries are already well into testing emissions market mechanisms. The European Union has had an emissions trading scheme since 2005, and Japan, Canada and New Zealand are all developing schemes. In the United States too, some state-based schemes already exist.

At home, the process isn't totally new – both NSW and the ACT have already made forays into emissions trading with schemes.

The Garnaut Draft Report calls for a broad-based emissions trading scheme (ETS) for Australia which includes the energy and transport sectors but excludes agriculture initially, due to the difficulty of measuring greenhouse gas emissions from that sector. Professor Garnaut says the interaction of the ETS with support for research, development and commercialisation will assist the transition to a near-zero emissions energy sector by mid-century.

The Australian mitigation efforts must be part of an effective global undertaking and Professor Garnaut has developed his proposed scheme on the basis of a short transitional period of Australian mitigation, directed at hopeful achievement of a sound global agreement.

Setting the right limits

Australia's average annual emissions entitlement limit under the Kyoto Protocol is currently 108 per cent of 1990 emissions over the period 2008 to 2012. Since we are already achieving this target (mainly due to the halt in land clearing in NSW), unless the cap on annual emissions is tightened, there will be little need for companies to buy permits. Under the Garnaut proposal, an emissions limit or 'cap' would be guaranteed or fixed for a period of five years and then updated every year by one year.

Adjunct Professor of Social Science and Planning at RMIT University and environmental consultant Alan Pears believes the Garnaut report is inconsistent by, on the one hand, acknowledging the

seriousness of global climate change and the need for urgency, while on the other hand foreshadowing a slow tightening of the cap on emissions and hence a slow transition to a high carbon price.

'If we don't start to see significant carbon prices until 2013 it is a long delay, [particularly] when people are talking about large cuts by 2020, which in Australia's case means reversing a growth trend as well as then reducing carbon emissions,' he says.

'An ETS is an important element of climate change policy, but we need to be driving a lot of other elements as well. Unless other policies are starting to reduce our emissions and change our demand, politically it will be very difficult for the government to bring in a good quality emissions trading scheme.'

How the scheme works, and for whom

Features of the proposed scheme are government-auctioned permits which could be banked or borrowed – effectively allowing business to emit now and pay later, or vice-versa. The sum of all the



The EU Emissions Trading Scheme now involves 30 member countries, including those of the UK. London hosts a carbon exchange that turns over billions of Euros under the scheme.

Mike Liu, iStockphoto

permits issued equals the total amount of greenhouse gases that may be emitted to the atmosphere, effectively within the Kyoto target. Deciding the number of permits to be issued will be based on incoming and verified emissions data and the cap set on emissions.

Sectors not covered can participate by creating offsets (e.g. tree plantations) that can be sold to liable parties within the scheme. This mechanism has been developed already to some extent by the voluntary sector and state-based monitoring schemes.

The aim of a well-designed ETS is to send price signals – or positive incentive – through the economy, effectively reflecting the scarcity value of target-limited emissions of greenhouse gases to the atmosphere.

Climate Change Minister, Penny Wong, has said that about 1000 companies will need to obtain permits under the government's proposed 'Carbon Pollution Reduction Scheme'. These are companies that emit more than 25 000 tonnes of carbon pollution per year. Further fine details of the government's intentions under the trading scheme were outlined in the July Green Paper,¹ including intended strategies to guard against any adverse outcomes.

How will compliance be managed?

With such a relatively small number of companies required to acquire permits, introducing an emissions trading scheme is

quite different from introducing something like the GST where every business in Australia had to comply.

Senior CSIRO economist Steve Hatfield Dodds says there is a lot the companies have to do in terms of working out bookkeeping systems, administration and the right formula to calculate their emissions.

'While it's more difficult than the GST for those small number of companies, the rest of us feel the effect through increased prices. The design is clever because you get those changes in behaviour with quite low compliance costs.

'With very few exceptions, nobody is actually going to be measuring carbon emissions. It's not a matter of putting a gizmo in a smoke stack and measuring carbon as it goes past, it is really about getting the accounting systems in place,' he says.

Emissions will be calculated and companies must submit permits worth the amount emitted at the end of each year.

'With some companies such as those running, say, liquid natural gas plants, likely to have liabilities for \$100s of millions, getting the fifth decimal place right in the emissions volume data is pretty important,' says Hatfield Dodds.

Under the government's proposed scheme there will be 'make good' provisions – companies that are caught underreporting their carbon emissions will face a fine or some other penalty, in addition to having to pay back what they didn't pay or find permits and acquit them.

Professor John Quiggan of the School of

Economics at the University of Queensland believes the real compliance difficulties are with more diffuse sources of carbon pollution not included in the scheme, and validating offsets.

'What certifiers are going to be recognised and how are they going to do the job? At the moment we have wildly varying standards. For example, with air ticket measures, where you have carriers claiming you can offset your emissions for as little as one dollar when the real cost is going to be more like \$20 even for a relatively short flight,' he says.

In his Draft Report, Professor Garnaut stated that the ETS is likely to cannibalise the market for measures such as green power and greenhouse-friendly offset schemes. That remains to be seen.

However, failure to address the impact of voluntary actions by parties outside the scheme, such as households or small businesses, to reduce their greenhouse gas emissions – associated with key companies in the ETS – is a major weakness of the Garnaut approach according to RMIT Professor Pears. For example, if a business reduced its annual greenhouse gas emissions by five tonnes through the introduction of energy efficiency measures, under the ETS their gas or electricity supplier no longer has to provide that energy and, therefore, does not have to buy the equivalent five tonnes' worth of permits. Under a fixed cap scheme, this leaves five tonnes of extra permits available for other emitters and, because the



Some critics say agriculture should be included in an emissions trading system, otherwise it will not accurately reflect the significant contribution to greenhouse warming of methane emissions from livestock. Carl Davies, Sciencelimage

¹ www.greenhouse.gov.au/greenpaper/summary/index.html

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Farmers participating in the Australian Master TreeGrower course at Dorrigo, NSW. Rowan Reid

competition for permits is reduced, their price is also reduced.

'It's a problem that can be easily fixed,' says Professor Pears. 'The government should be able to reduce Australia's cap based on real and documented reductions by parties outside the scheme.'

Associate Director of the ANU Centre for Climate Law and Policy (CCLP) Andrew Macintosh, meanwhile, feels that over the long term the voluntary emissions contribution will be accounted for. 'Ultimately it is achieving the aim – of reducing net emissions from electricity and improving energy efficiency, whoever the users are.'

Factoring in agriculture

The high emissions intensity of electricity generation and the high levels of emissions from agriculture are two examples of unusual characteristics of Australia's emissions profile, but agriculture is not included in the proposed scheme.

Professor Barry Brook, Director of the Research Institute for Climate Change and Sustainability at the University of Adelaide, says that people underappreciate the impact livestock have on Australia's greenhouse gas emissions through methane production.

'There is a 72-fold increase in a carbon atom's global warming potency over a 20-year time-frame when it is converted to the molecular form methane (CH₄), rather than carbon dioxide (CO₂),' says Professor Brook.

'I think agriculture has to be included in an ETS because otherwise we are not accurately reflecting Australia's contribution to greenhouse warming. If we don't include it, an extra burden of reducing Australia's total greenhouse gas emissions is felt by other areas.'

While the proposed ETS excludes agriculture initially, 'subject to progress on measurement and administration,' Professor Brook says it is technically feasible to average greenhouse contributions on a per-head-of-livestock basis after taking into account breeds and farm location.

However, with so many primary producers each individually responsible for a small volume of emissions, the compliance and administration issues of including them in an ETS present a logistic problem to the government.

Australia has made good progress, though, with its 'world-leading' National Carbon Accounting System (NCAS)² which accounts for land-based emissions (sources) and removals (sinks) of greenhouse gases. This will assist the design of further initiatives around agriculture's emissions. Around 27 per cent of Australia's human-induced greenhouse gas emissions come from activities such as livestock and crop production, land clearing and forestry.

What about these free permits?

The Garnaut Draft Report called for international agreements to be pursued as a priority for trade exposed industries.

But, in its proposed Carbon Pollution Reduction Scheme, the Australian Government will provide free permits to trade exposed large polluters, such as the aluminium industry.

Other features of the government's proposed scheme are a reduction in fuel taxes for the first three years of the scheme to offset the impact on petrol price, and unspecified compensation (possibly free permits) for coal-fired power stations.

Critics argue that coal-fired power stations should not be compensated for the decisions they have made to be carbon intensive.

Professor Quiggan says that by trying to pick out the people who are going to lose the most, the government is rewarding bad past decisions.

'The issue has been on the table for more than 20 years, so if you decide to invest in building or refurbishing a brown-coal power plant you are really taking a bet that there won't be a scheme or that some solution will come along.

'There's no reason for the government to make that bet pay off,' he says.

Andrew Macintosh is also concerned about the concessions, particularly to large emitters, but on balance considers a transition period is necessary, and that the proposed framework is 'about right for a complicated process.'

'The move to base "embodied" emissions counts on the end products of a sector, rather than the entire sector itself, is sensible,' he says.

Other emissions trading schemes

The world's largest carbon trading market, the EU Emissions Trading Scheme, has as its starting point the Kyoto target for reducing combined emissions of greenhouse gases by eight per cent from 1990 levels by 2008–2012. This is translated into different emission reduction or limitation targets for each Member State.

The EU ETS covers more than 10 000 installations in energy and industrial sectors in its 30 member countries, representing close to half the EU's emissions of CO₂ and 40 per cent of total greenhouse gas emissions.

The second trading period for the EU ETS, which began on 1 January 2008, runs for five years until the end of 2012. Europe is pushing for a global deal to take effect when the current Kyoto Protocol targets expire in 2012, and has pledged to cut its own emissions by 20 per cent by 2020 compared with 1990 levels, and by 30 per

² www.greenhouse.gov.au/ncas/about.html

The biggest long-term contribution of the scheme may be the systems it has established to certify offsets, for example, working out how much can be claimed for a voluntary offset project. This can now contribute to the evolution of our national scheme.

cent if other industrialised countries follow suit.

One of the keys to the success of any ETS is allocating the right number of initial credits, and allocating them in the right way. Reviews of the EU ETS show that initial overallocation of permits has resulted in too many permits on the market and a lack of incentives to reduce emissions. So, for example, the carbon price has fallen as low as €8 (AU\$13) per tonne, making it cheaper for firms to buy spare permits than pay the €40-per-excess-tonne CO₂ fine, or to take steps to reduce their emissions. As well, companies have been able to use a high share of Kyoto

mechanisms such as 'joint implementation projects' with other developed countries, and clean development mechanism (CDM) projects, which involve funding activities to reduce emissions from developing countries. Consequently, domestic reductions, in the first phase of the scheme at least, have been low.

In Australia, the NSW Greenhouse Gas Reduction Scheme (GGAS) has been running since January 2003, making it one of the first mandatory greenhouse gas emissions trading schemes in the world. It was originally designed to run until 2012 and will cease to operate when a national ETS commences.

GGAS establishes annual statewide greenhouse gas reduction targets and requires individual electricity suppliers to meet targets for reducing or offsetting their emissions. About 20 companies have a liability under the scheme. The ACT Government introduced a similar scheme in 2005.

The NSW Government set a statewide benchmark of reducing greenhouse gas emissions from 8.65 tonnes of carbon dioxide equivalent (CO₂-e) to 7.27 t CO₂-e per capita by 2007, which is five per cent below the Kyoto Protocol baseline year of 1989–90. It has announced that revised targets for energy efficiency under a new scheme will be introduced from 1 January 2009.

But a 2007 report³ by the Centre for Energy and Environmental Markets (CEEM) at the University of NSW states that rather than reducing greenhouse gas emissions, GGAS could in fact delay meaningful action. The report argues that the scheme may create a perception that emissions are already being reduced, when in fact they are not.

About 70 per cent of the scheme's abatement certificates from 2003 to 2005 were created by activities that were either outside New South Wales or involved methane combustion or biosequestration and so had little or no effect on the emissions intensity of electricity sold in NSW, according to the CEEM report.

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More information:

Emissions trading reading resources, www.ceem.unsw.edu.au/content/EmissionsTrading.cfm?ss=1

Garnaut Climate Change Review, www.garnautreview.org.au

European Emissions Trading Scheme, www.ec.europa.eu/environment/climat/emission.htm

NSW Greenhouse Gas Reduction Scheme, www.greenhousegas.nsw.gov.au

³ CEEM (2007) The NSW Greenhouse Gas Reduction Scheme: An analysis of the NGAC Registry for the 2003, 2004 and 2005 Compliance Periods CEEM discussion paper DP_070822. www.ceem.unsw.edu.au/content/userDocs/CEEM_DP_070827_000.pdf

Plantations and offsets – thinking needed

One of the perceived benefits of emissions trading schemes is that they promote reforestation through the mechanism of carbon credits. Many farmers and their organisations have welcomed the prospect of being paid to plant trees on previously cleared land, but at least one farm forestry expert is sounding a note of caution.

National coordinator of the Australian Master TreeGrower Program, Rowan Reid, is concerned that the rules of the Kyoto Protocol, and the way that forests are being treated in emissions trading schemes, are leading to irreversible land-use change: from agriculture to forest.

Mr Reid says that as much as 15 per cent of every farm could be planted to multi-purpose forests without compromising agricultural production on that site, but the conversion



Achieving a balance between pasture and trees at CSIRO's Rendel Laboratory paddocks in central Queensland. CSIRO

of whole farms to forest can have significant economic and social impacts.

'Most landholders are very excited, they have been told that carbon credits will

help fund all their revegetation projects. But, trading carbon is not like trading other agricultural products, landholders who sell their carbon rights are actually selling a change of land use, which involves a commitment to maintain a plantation on that land for several generations,' he warns.

Clearly, a balanced regime may be needed, depending on farm circumstances. CSIRO Livestock Industries research now underway in Central Queensland's cattle country is investigating whether the integration of trees, pasture and livestock into a single agricultural system – 'silvopastoralism' – will produce greater net returns for producers and the environment, and what balance of these components should be planned for. See www.csiro.au/news/SilvoPastoralism.html.