Department of Primary Industries and Energy
Submission to the
House of Representatives Inquiry into regulatory arrangements for trading in greenhouse gas emissions
March 1998

Purpose

This submission is a preliminary examination of some of the key issues that would be involved in establishing and managing a domestic emissions trading scheme (ETS) to help reduce the costs of meeting Australia's potential commitments under the Kyoto Protocol.

DPIE recognises that emissions trading raises many complex issues, but in preparing this submission, we have focused on three areas where DPIE has especially relevant experience and expertise:

- would an ETS be a valuable adjunct to Australia's currently planned measures?;
- equity issues associated with the initial allocation of permits; and
- what technical, economic and social issues (including distributional issues) are raised by including various sectors in the coverage?

These issues can be considered essentially independently of the operation of the international emissions trading scheme to which countries have agreed in principle in the Kyoto Protocol. An international scheme, when eventually negotiated, will have potential ramifications for a domestic scheme (possibly including a redesign) if the two are to be linked for trading purposes.

Implications of a legally binding national emissions target

Should the Kyoto Protocol enter into force for Australia, it would place a legally binding cap on Australia's (net) annual greenhouse gas emissions of 108 per cent relative to 1990 emissions for the budget period 2008–12. This is a challenging target, and represents a significant reduction of around 28 per cent from projected emissions growth in the absence of further measures. The Prime Minister's greenhouse statement of November 1997 estimated that energy-related emissions alone would increase by 40 per cent over the period 1990 to 2010.

Therefore, meeting the Kyoto target will impose significant costs on the Australian economy. (For example, a target will force a change in the way technological decisions are made: with a target, not only the economic costs but

also the greenhouse implications have to be considered.) This extra cost to the economy can be expressed as a cost per tonne of emissions saved.

At issue is how best to meet the Kyoto target so as to equitably distribute and minimise these costs to the Australian economy, consistent with the intent of the Prime Minister's statement to achieve realistic, cost effective reductions in emissions in a way that creates wealth, jobs and promotes internationally competitive industries. Three broad options are available:

(a) Stay with current greenhouse abatement policies and measures which, on current expectations, should get Australia close to the Kyoto target;
(b) Incorporate an ETS into the existing mix of abatement policies and measures; and
(c) Replace existing (i.e. overlapping) abatement policies and measures by an ETS.

The case for an ETS rests on the economic theory that it offers a tool to minimise the costs to the nation as a whole by distributing the costs through a market mechanism. In an ETS, participants are allowed to increase emissions through the purchase of permits, which they will do if this entails a lower cost than their taking action to reduce emissions. (they buy from other participants for whom the cost of reducing emissions, either through efficiency improvements or lowered activity, is less than the price of the permits, or from sellers of emission 'credits' derived from credited sink activity.) Through trading of permits, a market price for permits emerges that reflects the marginal economic cost of emission abatements. Emission abatement activities will thus be distributed so that the overall cost of greenhouse gas reductions is minimised across the economy.

Emission trading permits have no value unless a national cap is imposed on emissions. At present the only cap in prospect is that for 2008–2012 in the Kyoto Protocol.

Is an ETS necessary?

The Kyoto Protocol does not require any country to participate in the proposed international ETS nor to have a domestic ETS.

The National Greenhouse Strategy (which includes the Prime Minister's measures coupled with other current measures) may be sufficient to meet Australia's target under the Protocol. If this is the case, the burden of meeting the Kyoto target has already been distributed according to which sectors bear the impact of the NGS measures (option (a) above). Redistributing this burden through a domestic ETS (option (b) or (c) above) could serve to reduce overall

costs, providing any administrative costs do not outweigh the benefits, and that undesirable social and equity consequences do not arise.

Issues in the design of an ETS

Notwithstanding the theoretical advantages of an ETS, its effectiveness in minimising costs will be determined by the arrangements decided on for its practical application. If an ETS is to be introduced in Australia, the following design issues will need serious consideration.

Administrative costs

The design of an ETS needs to balance the administrative costs (which increase with the number of participants), technical difficulties associated with measurement and verification, and the effectiveness of emission coverage. Administrative costs include the costs associated with setting up the scheme, the initial allocation, keeping records of trades, monitoring and verification of emissions, and ensuring compliance (i.e. a company's emissions do not exceed its permits). If administrative arrangements are complex, transaction costs may be sufficiently large to erode any potential economic gains from trading in emission permits.

Allocation

The initial allocation of permits is a complex issue, and requires careful consideration of the economic, social, legal, and environmental impacts and implications. Creating an efficient and equitable initial allocation of permits entails a high degree of administrative complexity. It must take into consideration stakeholders that currently emit greenhouse gases, but allow for new stakeholders to enter the market without excessive “penalties”.

The initial allocation of permits must be seen to be fair so as to maximise participation, advance the effectiveness of the scheme, and minimise the potential for appeals and litigation. In addition, the scope for and competitiveness of emissions trading will be influenced by the way in which the rights are specified.

A number of basic allocation alternatives have been suggested: (1) grandfathering, i.e. allocating permits free of charge on the basis of past emissions; (2) auctioning; (3) a mix of auction and grandfathering – either simultaneously or time dependent; (4) “grandmothering”, i.e. similar to grandfathering but with allocation on the basis of some past pattern of activity other than emissions (e.g. for electricity producers, kWh produced); (5) sale at fixed price. Each of these raises its own equity issues.

Grandfathering permits gives a marketable asset to current operators at the expense of new entrants. In its simple form, it does not adequately reward those who have already taken action to mitigate their emissions (they receive a smaller asset than those who have "free-ridden"). On the other hand, auctioning or sale of permits, while fair to new entrants, is likely to be resisted by energy-intensive industries as it imposes up-front costs on them. Auctioning or sale could advantage those who have a higher level of liquidity at the time of the auction and disadvantage those whose capital is more in fixed assets. Mixing methods, such as using grandfathering in one sector and auctioning in another, raises another set of equity (and legal) issues ("why did company A get its permits free when company B had to pay for its permits"). Similar cross-sectoral concerns apply to "grandmothering".

Interface with existing measures

Any ETS must take into account how it will interface with existing policies and measures to reduce emissions. For example, the Greenhouse Challenge program has encouraged many businesses to voluntarily reduce their emissions. It would be important to ensure that such companies are not disadvantaged in the longer term through their permitted emission levels being set after they have taken all measures to reduce them.

Coverage

In present circumstances, an ETS would be set in the context of Australia's target under the Kyoto Protocol. Therefore, coverage of an ETS can include only those activities that can be counted towards the Kyoto Protocol target. These activities include reafforestation and afforestation carried out after 1990 (it therefore excludes carbon sequestration by trees planted before 1990). From these activities the projected amount of carbon uptake in the target period is accredited and a (negative) permit is issued.

One option would be an ETS with only partial coverage, e.g. including only the energy and manufacturing sectors, at least initially. This option reduces the theoretical advantages of an ETS, as it excludes many potentially low-cost abatement sectors / options, but would have lower administrative costs because it entails relatively fewer participants and relatively fewer technical difficulties in monitoring and verification. It also raises the difficult issue of how to set the cap for a particular sector or subsector, since it is expected that Australia's overall "+8 per cent" target (in effect an average for the whole economy) would be reached with some sectors increasing emissions by more than 8 per cent and some by less than 8 per cent.

Advance notice

Since there are many possible variations on an ETS, Government would need to specify clearly and well in advance the mechanics and parameters of an ETS in order to facilitate long-term business planning certainty and confidence.

Implications of an ETS for portfolio industries

Coal, petroleum, gas, electricity, forestry and agriculture are all major industries in the Australian economy. As indicated, for Australia to meet this legally binding greenhouse target, it would entail significant economic, social and distributional impacts affecting all of these industries. Some of these impacts will be accentuated by an ETS.

1. For much of the energy sector, including major energy users and suppliers, a strong cap on emissions will impose extra costs, which would have a similar effect on them to a carbon tax[1]. These extra costs will be explicit and up-front in an ETS, especially if industry has to pay for the initial allocation of permits. They would permeate the economy through their impact on electricity and fuel costs, and would affect trade competitiveness for both the agricultural and resource sectors.

   Depending on the scale of these costs, they might also lead to migration of energy intensive industries (such as aluminium) away from Australia. (In an ETS, this cost would be measured by the price of permits.) Exempting some industries from paying these costs simply passes them on to other sectors of the economy. Nevertheless, in an ETS some companies in energy-intensive sectors may benefit, namely those who are able to abate their emissions cheaply enough relative to other sectors or companies to enable them to sell permits at a profit.

2. A major source of methane emissions is fugitive emissions from coal mines, oil and gas. If methane emissions are included in an ETS and permits are grandfathered, miners who reduce their emissions below their cap (e.g. by capturing and using the "waste" methane) will gain a marketable asset. A prerequisite for an ETS would be improved data on methane emissions from individual emitters.

[1] A carbon tax is a tax on fossil fuels in proportion to their carbon content, and thus to the carbon dioxide emissions produced by burning the fuel. The carbon content of coal is about twice that of gas per unit of energy, so a carbon tax falls most heavily on coal, somewhat less heavily on petrol, lightly on gas, and not at all on renewable energy sources.

3. Forest industries can benefit from emission trading schemes because the carbon they sequester would become a marketable asset. There is considerable pressure from this sector to introduce an ETS which includes sinks.

4. The application of an ETS to the agricultural sector would be administratively complex (given the large number of participants, private property rights, and the technical difficulties of verifying some forms of emission). However, the inclusion of methane emissions from livestock in an ETS could be positive for farmers if the permits are allocated to them free of charge, or negative if they have to pay for them (in effect an extra cost per unit of livestock, which could render some farms economically unviable, and reduce the competitiveness of pastoralism).

   An ETS would complement current measures in encouraging more sustainable land management (e.g. through sink enhancement). While a comprehensive approach would suggest inclusion of emissions from land use change in an ETS, there are technical, equity and perhaps legal difficulties in treating these emissions in the same way as other emissions in an ETS.

Experience with other trading systems

This portfolio has had experience with existing tradable quota schemes in fisheries (Southern Bluefin Tuna Fishery and South East Fishery), water and salinity (Murray-Darling Basin). The experience with fisheries highlights the importance of the initial allocation being seen to be fair to minimise litigation action (readily undertaken). The diversity of water trading schemes highlights the importance of specifying exactly what is being traded, an important issue for an ETS which covers diverse sectors and gases.

Bureau expertise

One of the DPIE research bureaus, the Australian Bureau of Agricultural and Resource Economics (ABARE) is making a complementary submission, covering consideration of the implications of market power and transactions costs in an ETS, as well as issues arising from extending the scheme to include sink enhancement. The Bureau of Resource Sciences can offer the Committee their expertise in verification of emissions and sinks in land related sectors and in energy emissions and the potential for non biological sinks within that sector.

List of attachments

The attachments to this submission give more detail on particular issues:

Att.1 Terms of reference of the inquiry

Att.2 A domestic emission trading scheme: advantages and disadvantages
Att.3 Roles and responsibilities of governments
Att.4 Coverage Issues
Att.5 Initial allocation of permits
Att.6 Experience with other tradable permit schemes
Att.7 Bibliography