

# **REGULATORY ARRANGEMENTS FOR TRADING IN GREENHOUSE GAS EMISSIONS**

## **Introduction**

1. International concern about global warming has led to efforts over the last 10 years to mitigate the increase in temperatures and the impact that this increase might have on the welfare of the planet. These efforts have emanated from a series of international meetings held under the United Nations Framework Convention on Climate Change. At the meeting in Kyoto in December 1997, delegates developed a protocol that provided a cap on greenhouse gas emissions for each developed country and included trade in emissions reductions as one of the means by which limiting emissions might be facilitated. If the Kyoto Protocol is ratified and a market in emissions develops, a new commodity, greenhouse gases, will have been created.

2. The concept of emissions trading has gained prominence as the success of the US sulfur dioxide scheme in reducing acid rain has become apparent. While theoretical arguments have suggested that market mechanisms should provide more flexible, cost-effective means of reducing emissions than command and control approaches, the sulfur dioxide scheme has confirmed this. In the context of greenhouse gas emissions reduction in Australia, the Government has announced a series of measures, among them emissions trading. Trading is expected to extend and complement the contribution to emissions reduction achieved through the other measures.

3. This interim report outlines the issues raised in an inquiry by the House of Representatives Standing Committee on Environment, Recreation and the Arts into the possible introduction of trading in this new commodity. The Committee reports its preliminary conclusions about the arrangements that would need to be put in place to support and facilitate the development of an emissions trading market in Australia.

4. The inquiry was referred to the Committee by Senator the Hon Robert Hill, Minister for the Environment, at the end of October 1997. The Committee was asked to inquire into the regulatory arrangements that would need to be put in place to support a market in greenhouse gas emissions including:

- mechanisms for measuring, verifying and monitoring emissions and the compliance with contracted arrangements;
- mechanisms to integrate emissions trading with the development of carbon sinks (such as timber plantations, gas aquifer reinjection, soil rehabilitation etc), including the science, measurement and security of such arrangements;
- the allocation of the right to emit greenhouse gases;
- regulatory mechanisms to support a national market and potentially an international market in emissions trading;
- possible emissions traders, administration and transaction costs;
- roles and responsibilities of governments and other stakeholders; and

- the impact of emissions trading on the environment and industry and the economic and social welfare of the Australian community.
5. In response to advertisements about the inquiry, the Committee received 74 written submissions from government, industry, environment groups, and professional people (Appendix A). Between February and July 1998, it followed up these submissions with public hearings and informal meetings in several parts of Australia (Appendix B).
  6. Having completed the evidence-gathering part of the inquiry, the Committee resolved to produce an interim report on its preliminary conclusions so that they are available to the Government at an early stage. This decision was taken in the context of a possible interruption to the inquiry process that would occur if the House of Representatives were dissolved for an election. The Committee was mindful of the fact that, were it not to report before the dissolution of this Parliament, the timeliness of the report would be diminished. Significant negotiations are continuing in relation to the Kyoto Protocol, including a major meeting in Buenos Aires in November 1998.
  7. The report deals with six significant aspects of emissions trading: the principles on which trading should be based, the coverage of the scheme, permits and credits, the market, regulation, and the introduction of the scheme. The final sections summarise the Committee's conclusions and contain its recommendations.
  8. This report has been written assuming that readers are familiar with the arguments in favour of using emissions trading as part of Australia's emissions abatement effort, and the general elements and mode of operation of emissions trading.<sup>1</sup> To further assist the reader, some of the international background to the domestic introduction of emissions trading is provided in Appendix C, which lists the references in the Kyoto Protocol to emissions trading.

### **Principles for designing an emissions trading scheme**

9. State Governments, Commonwealth Government departments, businesses and industry groups, an academic, and an emissions trader were among those that laid out the fundamental principles on which the Australian emissions trading scheme should be based. Most submissions argued that any scheme that is introduced should be comprehensive, equitable, and efficient. It should also be both cost-effective and environmentally effective. The scheme must provide the maximum certainty possible to those involved in it, while still being flexible enough to evolve over time with changing circumstances. The ideal emissions trading scheme would cause minimal

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1 The features and advantages of emissions trading, for example, the flexibility and cost-effectiveness of market mechanisms compared with command and control approaches and the widespread preference for trading over the imposition of a carbon tax, are discussed in a substantial, largely theoretical literature, as well as in several submissions to the inquiry. An introduction to these issues from an Australian perspective is provided by publications by ABARE (M Hinchy, B S Fisher & B Graham, *Emissions Trading in Australia: Developing a Framework*, ABARE, Canberra, 1998) and the Industry Commission (A Cornwell, J Travis & D Gunasekera, *Framework for Greenhouse Emission Trading in Australia*, Industry Commission, AGPS, 1997).

dislocation to industry and would not diminish industry's competitiveness, within Australia or internationally.

**10.** An equitable emissions trading scheme would encompass all six greenhouse gases, all sources of these gases, and all sinks. The way in which permits to emit are allocated also has a very significant bearing on the equitable distribution of the emissions reduction burden. The impact on Australia's competitiveness would be minimised by causing as little industrial dislocation as possible, and keeping as low as possible the costs of acquiring permits, carrying out transactions, and ensuring compliance. At the same time, however, resources will be required to ensure permit and credit integrity, provide market certainty about their validity, and guarantee that emissions reductions targets are met. Businesses also favour as much certainty as possible about the future evolution of the scheme so that they can more easily plan their forward development and future obligations.

**11.** While these principles were expounded to the Committee in relation to an emissions trading scheme, they apply to the way in which the total package of Australia's emissions reduction programs are designed.<sup>2</sup> How the principles are put into operation in relation to emissions trading is just part of continuing and expanding the national emissions reduction effort.

## **Consultation**

**12.** When designing an emissions trading scheme with these criteria, it is clear that satisfying one criterion may simultaneously impede another. The task of reaching a solution that meets as many of the criteria as far as possible is not an easy one. A number of submissions to the inquiry, particularly from government and industry, called for extensive, ongoing consultation with stakeholders on many aspects of the scheme's design. With accountability to stakeholders, the emissions trading scheme would achieve greater credibility and integrity. It should be noted that consultation should not be limited to emissions trading, but should also be used for other approaches to emissions reduction and for finding the appropriate balance among the contributions to be made by each emissions reduction program.

**13.** Consultation should start before the scheme is introduced and be linked to analysis and understanding of the impacts of trading. It should involve the Commonwealth, State and Territory Governments; industry; environmental, consumer and professional groups; and potential emissions traders. Most industry groups stressed the need for careful, timely consultation before emissions trading begins, although some of them wanted to move fast to introduce emissions trading. The Australian Greenhouse Office agreed that 'a lot' of consultation would be needed before an emissions trading scheme can be designed and implemented.<sup>3</sup>

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2 The other elements of the national package of greenhouse gas abatement measures are described in paragraph 36.

3 Australian Greenhouse Office, transcript, 29 June 1998, p 485.

## Coverage

**14.** As indicated above, it is preferable, on the grounds of equity, that an emissions trading scheme include all gases, sources, and sinks. In this way, the contribution of as much as possible of the carbon cycle to greenhouse gas emissions and sequestration is recognised. This, however, is impractical at present. Accurate measurement and estimation techniques are not available for all gases, sources, and sinks. Even when accurate techniques exist, if there are many small emitters, the cost of applying these techniques individually may be too costly, unless some form of aggregation is employed to facilitate participation and to capture the benefits of emissions trading. Examples here are the emissions from motor vehicles and emissions from livestock.

**15.** Equity concerns have also been raised in relation to the impact that emissions trading might have on the competitiveness of emissions-intensive industries with competitors in countries that are not subject to emissions reductions. These concerns were seen as grounds for considering special treatment for such industries.

### *Measurement and estimation issues*

**16.** Accurate measurement and estimation of greenhouse gas emissions are fundamental to the integrity of any emissions trading scheme. The two important issues here are the units in which emissions and carbon credits are expressed and the methodologies for measuring and estimating them. It is widely recommended that greenhouse gas emissions and carbon credits be standardised on the basis of their global warming potential as carbon dioxide equivalents. It was suggested to the Committee that details have still to be finalised for international agreement on the global warming conventions for some greenhouse gases. These conventions may change over time as the contribution of the gases to global warming is better understood.

**17.** Another issue needing further work is the convention for expressing the carbon content of wood and converting it to carbon dioxide equivalents so that carbon credits can be rendered in the same terms as emissions of greenhouse gases. It is currently assumed that carbon dioxide molecules have an average life of 100 years before being absorbed from the atmosphere into the ocean. Thus, to neutralise the effect of emitting a molecule of carbon dioxide it is necessary to sequester a molecule for 100 years. One of the suggested units for measuring sequestered carbon, a tonne year, incorporates both the amount of carbon and the time for which it is sequestered.

**18.** A further factor for consideration is the decrease in the global warming potential of carbon dioxide as the concentration of this gas increases. As a consequence of this phenomenon, the temporary sequestration of carbon in vegetation produces a small, permanent reduction in global warming.

**19.** Before emissions trading can be introduced in Australia, standard measurement and estimation methodologies must be agreed for all the emissions and sinks that are to be included in the scheme, and documented in a user-friendly form. The methodologies must be scientifically well-based, and yield values to an acceptable level of accuracy. They must also be agreed at least nationally and preferably

internationally through the Intergovernmental Panel on Climate Change. Where methodologies are not available or not adequate, they will have to be developed.<sup>4</sup>

**20.** Information provided to the Committee suggests that there is great variation in the accuracy with which measurements and estimates can be made for different gases, sectors, and sinks. Measuring and estimating emissions from electricity generators is not a problem; nor is it for industries like cement and steel. There are greater difficulties in dealing with emissions from diffuse sources, as in land use change, agriculture and some fugitive emissions.<sup>5</sup> For example, the estimates of carbon dioxide released from land use change have an accuracy of  $\pm 30$  per cent. The available techniques for sectors with diffuse emissions yield inexact results, which may be suitable for reporting at the national aggregate level, but are inappropriate for individual emitters, especially small ones. A large amount of work remains to be done to build on and refine existing arrangements in these sectors, as well as for some industrial gases. Improving techniques is possible in many cases but it will take time to reach acceptable levels of accuracy.

**21.** To avoid having to rely on costly or inadequate measurement and estimation techniques, some have argued that emissions trading be restricted to the most easily measured gases from large emitters, for example, carbon dioxide from power generators. Such a scheme would have the attraction of being cheap, effective, and simple and therefore easy to design; it would benefit from existing information about emissions and relevant experience in the industry. Other emissions sources and gases could be included as measurement and estimation techniques improve. If, however, the less easily measured emissions were to be included at the outset, they might be discounted in line with the level of certainty with which they can be estimated.

**22.** Alternatively, emissions reductions from these sectors and gases might be captured by other approaches, for instance, the use of vaccines or changes in diet to reduce methane emissions by livestock. For reasons of equity, these other approaches should be introduced at the same time as the emissions trading scheme if possible.

*Dealing with small, diffuse, numerous emitters*

**23.** The transport and land use sectors emit significant quantities of greenhouse gases, but requiring individual vehicle owners or landholders to hold permits for those emissions would be administratively very costly. It was suggested to the Committee that this difficulty should not deter attempts to include these sectors in an emissions trading scheme. Administrative and transaction costs would be much less if permits were held by higher level bodies, because there would be fewer players dealing with larger volumes of permits.

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4 A start has been made with the development of standard methodologies by the Intergovernmental Panel on Climate Change and in Australia with the workbooks issued for the National Greenhouse Gas Inventory and the Australian Greenhouse Challenge Office. Programs such as Bush for Greenhouse, Activities Implemented Jointly, and the National Carbon Accounting System are also contributing to methodological developments.

5 Measurement issues relating to sinks are covered in a later section.

**24.** In the case of the transport industry, the higher level bodies might be the refiners and fuel wholesalers and importers and, for gas users, the retailers of gas. Another option, which may be appropriate for the transport industry, is for State and Territory Governments to hold permits, the cost of which would be redeemed from motorists through the vehicle licensing system. Alternatively, the manufacturers of vehicles and other appliances could hold permits for the items they make, based on the average energy consumption of these items over their life. For emissions from land, Local or State or Territory Governments, or catchment management authorities could hold permits.

**25.** Given the significant contribution of the transport industry to Australia's greenhouse emissions, it is important to encourage a change in consumer behaviour. This might be achieved more effectively through other policy measures rather than emissions trading.

#### *Dealing with emissions-intensive industries*

**26.** Industries, that consume large amounts of energy derived from fossil fuels or generate large quantities of greenhouse gases, argued that their cost structure will be particularly affected by the introduction of emissions trading. Facing higher costs themselves, these industries might have to pass on these costs to their customers. Companies that compete domestically and internationally against companies operating out of non-Annex B countries might find themselves at a competitive disadvantage. However, this is the case for all Australian companies competing internationally against companies that are subject to less regulation, for example, in relation to such matters as minimum wages, safety, and environmental protection. Furthermore, experience with 'no regrets' measures of emissions reduction, such as the Australian Greenhouse Challenge, has shown that some reductions can be achieved at no cost or produce a positive economic outcome for industry.

**27.** Some of these companies suggested to the Committee that their competitiveness would be less affected if they were exempt from the requirement to hold permits, at least until 2008 or the start of international trading. Exempting certain industries from contributing to the national emissions reduction effort shifts all the responsibility on to non-exempt industries and is not an equitable arrangement. A more equitable approach might be to place a climate compliance charge on imports from non-Annex B countries. This would not only bring about a more level footing for trade between Annex B and non-Annex B countries, but would draw non-Annex B countries into the international effort to reduce emissions. However, it is not clear whether climate compliant import charges would contravene Australia's obligations to the World Trade Organisation; the matter requires further investigation.

#### *Sinks*

**28.** Including carbon sinks in an emissions trading scheme widens the emissions reduction options of emitters and provides a relatively inexpensive way of reducing emissions. All submissions supported the inclusion of sinks in the Australian emissions trading scheme, but several issues must be addressed first.

### Definition of sinks

**29.** A variety of sinks exist, but many of them are unsuitable for general use at present. Injecting emissions into aquifers, for example, is technically feasible and thought to have minimal environmental effects. However, the availability of suitable aquifers in Australia has still to be assessed, and reinjection processes are costly and unlikely to be used widely until their relative cost disadvantage lessens. Enhancing the sink capacity of the oceans is a subject for more research and understanding before it can be considered seriously. Plant growth currently represents the most widely available, best understood, and cheapest form of sink. The soil also represents a significant carbon sink but its capacity to sequester carbon under different uses and conditions has been less researched and is less easily measured.

**30.** Plant growth is recognised as a potential sink in the Kyoto Protocol. As it stands at present, however, the protocol refers only to deforestation, afforestation, and reforestation since 1990, which suggests that the international emissions trading scheme might be limited to these categories of growth. The Australian scheme could develop more inclusive rules, such as acknowledging native forest and the growth since 1990 of trees established earlier. The drawback to such an arrangement is that the credits derived from non-Kyoto vegetation types are likely to be tradeable only on the Australian market. They would not be valid internationally in the first commitment period, 2008-2012, although changes to the protocol for later commitment periods might allow their subsequent inclusion.

### Measurement and estimation

**31.** An important consideration in including vegetation sinks in an emissions trading scheme is their measurement and estimation. From the point of view of the effort needed to assess them, it is only cost-effective to include longer-lived vegetation. Another issue is how accurately their carbon content can be measured or estimated.

**32.** Several witnesses to the inquiry expressed concern about the level of certainty in estimating carbon sequestration at the enterprise level, but expert advice is that these problems are exaggerated. The methodology for measuring tree growth has been established, but the collection of the data needed to construct comprehensive default tables for all timber species is not yet complete. Information is available about the growth under certain conditions of a number of plantation tree species, and their sequestration values are known with an accuracy of  $\pm 10$  per cent. Sinks based on plantations of these species could be relatively readily incorporated in offsetting and trading arrangements, although the Committee heard that an accuracy rate of  $\pm 5$  per cent would be more acceptable to the market. It is suggested that relatively conservative default values be used, with an option for tree growers to override the default values if they can prove a higher level of sequestration than the tables predict. This might be worthwhile for these growers if the monetary value of carbon credits were high.

**33.** Research on estimating biomass from satellite imagery is expected to yield techniques in the next few years that will provide an alternative to currently available methods. These new techniques will be of particular use for vegetation for which no

methods are available at present, for example, the regeneration of native vegetation on what was previously broadacre pasture.

**34.** It is clear from this discussion that precise, consistent, nationally and internationally accepted definitions are needed before sinks can be integrated confidently into emissions trading schemes; further work is needed to reach this point. For many types of vegetation, measurement and estimation methods also need further work to achieve sufficient levels of accuracy for trading.

### **Permits to emit**

#### *Setting the cap*

**35.** Under the Kyoto Protocol, Australia's cap on greenhouse gas emissions is an eight per cent increase on 1990 emissions levels, excluding those from land clearing.<sup>6</sup> While Australia's cap has been set by the protocol, the Commonwealth Government must determine how to meet this commitment. An emissions trading scheme will need to integrate with all other Australian abatement measures to ensure the most cost-efficient means of total emissions reduction.

**36.** Australia's other abatement measures include the existing and proposed measures announced in November 1997 by the Prime Minister in the greenhouse package *Safeguarding the Future: Australia's Response to Climate Change*. The package, worth \$180 million over five years, includes projects to facilitate voluntary emissions reduction by industry; mandatory targets for the uptake of renewable energy sources; the introduction of energy efficiencies in the building, manufacturing and transport industries; plantation and revegetation projects; greenhouse research; and the establishment of the Australian Greenhouse Office.

**37.** The emissions cap for Australia's trading scheme will determine the total number of permits available. It was suggested to the Committee that participants' ability to achieve emissions reduction and the need to maintain Australian industry's competitiveness should be considered in setting the level of emissions reduction to be achieved by trading.

#### *A property right or a licence to emit?*

**38.** Industry groups and individual companies stressed the importance of a clear definition of the nature of permits. The Commonwealth Government also commented that its experience in other trading schemes, such as those for fisheries, water quotas, and salinity, had demonstrated the need for clearly defined permits.

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6 According to *Climate Change: Australia's Second National Report under the United Nations Framework Convention on Climate Change*, Environment Australia, November 1997, land use change was estimated to contribute 20 per cent of national greenhouse gas emissions in 1990 (p 80). These estimates are currently under review. Notwithstanding the exclusion of land use change from the emissions total on which Australia's emissions reduction obligation is based, the Kyoto Protocol recognises the abatement of land clearing as a credit against emissions.



**39.** A permit could be issued either as a 'licence to emit' or as a 'property right'. If permits are defined as property rights, emitters will have legal ownership of them. Under Section 51 (xxxix) of the Constitution, the Commonwealth Government may only acquire property on 'just terms'. Therefore, any attempt by the Government to reclaim those permits could be subject to compensation.

**40.** Most industry groups argued that their permits must be regarded as conferring property rights. These industries saw such property rights as being fundamental to an equitable trading scheme. If permits were property rights, they argued, the Government's ability to confiscate permits would be minimised, and greater certainty would be created, particularly to companies that undertake long-term emissions reduction.

**41.** The Government would, however, be vulnerable to compensation claims if the national entitlement to emit diminished after 2012 and required the removal or diminution in value of permits that conferred property rights. This might happen with improved understanding of the impact of climate change and international negotiations to adopt more restricted emissions targets. No guarantee can therefore be provided that the terms under which permits are issued initially will be tenable beyond the first commitment period, 2008-2012. Thus, any permit issued in perpetuity, as discussed in a later section of the report, would need to stipulate that the entitlement to emit would continue but the volume of emissions would have to be adjusted in line with Australia's commitments.

**42.** As licences to emit, permits would remain the property of the Government. The United States sulfur dioxide trading scheme, which is widely referred to as a model for greenhouse gas emissions trading, treats permits as an 'authorisation to emit'. Under United States law, this gives the government the authority to recall permits held by companies. Permit holders may appeal decisions to withhold permits through the established legal appeals process.

**43.** The Commonwealth Government has not signalled its position on the legal definition of permits, but the Australian Greenhouse Office said it was 'not unaware of the need to define very carefully and closely what right, whether it be a property right or a licence right, is available under an emissions trading scheme'.<sup>7</sup> If permits are to be defined as licences to emit, the Government must clearly define the criteria for removing participants' permits.

#### *Size of permits*

**44.** The size of each permit will in part be determined by the scope of coverage of the trading scheme. For a scheme that covered large emitters only, for example, electricity generators, each permit could cover a significant quantity of emissions, thereby reducing transaction and administration costs. However, as extensive coverage is an underpinning principle for an equitable trading scheme, permits should be small enough to allow incremental approaches to emission reduction and to encourage trading amongst all participants. It has been suggested that permits can be traded electronically at minimal costs, and established markets such as the Sydney

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<sup>7</sup> Australian Greenhouse Office, transcript, 29 June 1998, p 509.

Futures Exchange have the capacity to facilitate trades of both small and large 'bundles' of permits.

### *Permit holders*

#### Where in the production chain should permits be held?

**45.** The question of where in the production chain permits should be allocated is an important but unclear issue. Ideally, permits should be held at the point where they give the clearest economic signals to emitters that it is cheaper to reduce emissions than to buy sufficient permits to cover them.

**46.** While it could be argued that the most equitable scheme would require all end-use emitters to hold permits, this is not a practical proposal in a scheme involving numerous small emitters. For example, requiring motor vehicle owners to hold permits would be administratively complex and the costs would be high. It is also uncertain whether end-use permits would result in sufficient behavioural change on the part of motorists to reduce emissions; historically, changes in petrol excise have had little impact on consumption. Other policy measures will be required to change motorists' behaviour and reduce vehicle emissions.

**47.** As discussed in an earlier section, higher level bodies, not end users, could be required to hold permits. However if permits were allocated too far upstream in the production chain, there would be a limited number of market participants, stifling competition and cost-effectiveness. Furthermore, permits allocated in this manner in the energy sector could result in too heavy a focus on the fugitive emissions arising from coal, oil and gas production rather than emissions from downstream production, processing and transmission.

#### Ownership issues

**48.** If permits are allocated on the basis of past emissions (see the section on grandfathering below), the scheme must be designed take account of firms which have closed or been sold to another owner at some time after the baseline year. If permits are defined as property rights, they could remain the property of the original firm; if a licence to emit, the licence would reside at each source of emissions rather than with company owners.

**49.** Ownership issues also arise for large projects involving a number of different industries or companies. In oil and gas production fields, for example, a number of companies participate in the project of developing and producing oil and gas, but one company is the overall operator of the field. Similarly, joint implementation projects and activities undertaken through the Clean Development Mechanism will involve complex legal ownership issues.

### *Life of permits*

**50.** Permits can either be time-limited, with the Government re-issuing fewer permits in each time interval, or be held in perpetuity, with their entitlement to emit decreasing over time in accordance with emissions reduction targets.

**51.** Time-limited permits would increase the Government's certainty in meeting its reduction target. They would provide it with opportunities to adjust the level of permissible emissions in successive time periods, without recourse to the more controversial or expensive processes of withdrawing permits. Such adjustments may be necessary in the light of national progress in reducing emissions and any changes to Australia's international reduction target. However, this adds uncertainty to the environment in which industry must plan its emissions reductions; industry will be unsure how many permits the government will re-issue in each time period.

**52.** The Kyoto Protocol effectively signals a possible time limit for permits; its initial commitment period lasts for five years, 2008-2012. It has been suggested that, in addition to five-year permits, permits for 10 and 15 years should also be issued. While a range of permit lengths would result in higher transaction and administration costs, it would provide industry with more market certainty and more flexibility in its approach to emissions reduction.

**53.** If permits were issued in perpetuity, the entitlement to emit that they confer should decrease over time in terms of the quantity of emissions allowed; decreases would be made according to reduction targets set out by the Government. Such a scheme would provide less certainty and flexibility to Government in managing national emissions reductions. However it would give greater certainty to industry than time-limited permits, particularly for investments with long lead-in times. If permits were to be issued in perpetuity, it would be important for the Government to clearly outline well in advance the permits' declining values over time.

**54.** The duration of permits will influence other components of the trading scheme, such as permit allocation and the extent to which the banking and borrowing of permits might be considered. These matters are considered below.

#### *Permit allocation*

**55.** The process employed for the initial allocation of permits is critical to the success of emissions trading. Perceptions of the equity of the process will influence participants' confidence in the emissions trading scheme. Given that permits are a commodity with a market value, their initial allocation also has significant economic implications.

**56.** There are two major means for the initial allocation of emissions permits; they are 'grandfathering' and auctioning, as outlined below.

#### Grandfathering

**57.** Under grandfathering, emissions permits are issued proportionally on the basis of criteria such as the current level of emissions, past emissions, projected emissions, or output of product. The initial allocation of the permits could be free or substantially discounted, with the market determining their value through subsequent trading.

**58.** Nearly all submissions from industry supported grandfathering for permit allocation, and several put forward specific models. Industry claimed that anything other than a free allocation would be seen as a tax on what was previously a free right to emit. However, the Queensland Government, the Australian Cogeneration

Association, and several 'green' electricity generators, including a hydro-electricity generation company did not support grandfathering.<sup>8</sup> The Western Australian Government provided only qualified support for grandfathering because it might not recognise the unique circumstances of industry in that State.<sup>9</sup>

**59.** A key issue in grandfathering is the basis on which permit allocation is determined. If permit allocation were based on current levels of emissions only, this would penalise those emitters which had already achieved emissions reduction, and might even encourage emitters to increase emissions before permits were allocated in order to receive more permits. A large number of Australian industries have already begun reducing their emissions through voluntary measures and programs, such as the Government's Greenhouse Challenge. These participants should not be penalised for having undertaken voluntary emissions reduction, nor for continuing to do so.

**60.** To avoid this, additional permits might be allocated to participants in the Greenhouse Challenge program and any others that could demonstrate that they had made substantial emissions reductions in the recent past. Alternatively, permits could be allocated proportionally on the basis of projected business-as-usual emissions since the baseline year. Because the permit allocation would be capped, all emitters would receive fewer permits than their projected amount of emissions. For the emitters that had already reduced emissions, the shortfall between actual and permitted emissions would be minimised or eliminated; such emitters might even find that they had excess permits which could be banked for future use or traded on the market.

**61.** Several submissions advocated grandfathering on the basis of future emissions levels, but this fails to take account of the possibility of new emissions reduction technologies developing, economic changes occurring, and current measurement difficulties being overcome. A grandfathering scheme that takes into account past and current emissions levels appears to be the most equitable solution, if grandfathering is the preferred approach for permit allocation.

**62.** If permits are to be allocated on the basis of past emissions, a baseline year from which emissions are calculated must be selected. Article 3 of the Kyoto Protocol sets 1990 as the baseline year against which net changes in greenhouse gas emissions are measured for each signatory nation. For some gases (hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride), the baseline can be either 1990 or 1995.<sup>10</sup> While there is no obligation for Australia to adopt 1990 as the baseline year for permit allocation, it would help facilitate integration with any international trading scheme if 1990 were used where data were available. Australia's national emissions measurement started in 1990 but did not include all the greenhouse gases covered by the Kyoto Protocol.

**63.** With grandfathering based on past emissions, it will be necessary to decide how to allocate permits to emitters that began or expanded operations after the baseline year. Projects, with a long lead-in time and investments planned before the advent of

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8 Australian Cogeneration Association, submission (number 40), p 16; Queensland Government, submission (number 59), pp 11-13; Snowy Mountains Hydro-Electric Authority, submission (number 14), pp 5-6.

9 Western Australian Government, transcript, 10 July 1998, p 583.

10 Kyoto Protocol, Article 3, Section 8.

emissions trading, also need consideration. Another question to be settled is what should happen to the permits due to firms that ceased operations prior to the start of emissions trading. As industry argued, other issues are also relevant, such as allowing individual industries to grow, accommodating new entrants in the market, and meeting the Government's target of a four per cent growth in the economy.

**64.** Another question raised with the Committee was whether 'green' electricity generators, such as hydro-electric plant, should be allocated permits. Issuing them with permits would recognise their environmentally-friendly status and stimulate investment in renewable energy sources. Permits for green electricity generators might be allocated on the basis of average emissions per kilowatt hour across the energy industry.

**65.** Clearly, the design of a scheme for permit allocation, accounting for the problems outlined above, could be complex. Depending on the scheme's design, the administrative costs of grandfathering could be substantial. The United States sulfur dioxide trading scheme initially allocated permits through grandfathering based on past fuel consumption and rate of emissions. Although the scheme initially included only 263 electricity generators, allocations were subject to 29 different rules. Nonetheless, most commentators have remarked on the low cost of that scheme. However, trading in greenhouse gas emissions is expected to be more complex, because of the range of gases, sources, and sinks involved.

#### Auction

**66.** Auctioning permits would provide the most economically effective method of allocation. Under this proposal, the Government would auction a set number of permits and market forces would determine the initial price. Those industries with the highest costs of emissions reduction would buy permits to cover all their emissions, while others would be able to install new, less emissions-intense technologies more cheaply than buying permits. Administrative costs for the Government would be low.

**67.** Full auctioning of permits was opposed by industry; it was seen as a tax on business, an unacceptable risk to established investment, and an inappropriate method of Government revenue raising. Concern was also expressed about the possibilities that auctioning would provide for abuse of emissions trading by players with market power. Full auctioning could leave the scheme excessively exposed to speculators. Evidence from Commonwealth agencies indicated that they were aware that industry objected to a trading scheme with fully auctioned permits.

**68.** Auctioning a proportion of the permits is important, however, to reveal the value that the markets attribute to permits. Without this information, emitters would be hampered in their ability to judge whether it would be cheaper for them to purchase excess permits or undertake emissions reductions. The US sulfur dioxide trading scheme features annual auctions of a small number of permits, to enable price discovery and provide an opportunity for new organisations to enter the market. A similar arrangement could be useful in an Australian trading scheme, for the same reasons and to stimulate trading.

### Retaining a reserve of permits

**69.** As industry pointed out, grandfathering initial permits could put barriers in the way of new entrants to the market. Barriers to new entrants would be minimised if the Government put aside a small reserve of permits for allocation, free or by auction, to new and growing industries. This approach has been taken in the US sulfur dioxide trading scheme. The Government might need to determine if the allocation of permits were to be limited in any way, for example, to new and growing emitters only.

**70.** A reserve pool of permits could also act as a buffer against unforeseen failures to reduce emissions that might threaten Australia's ability to meet its emissions reduction target. In addition, it was suggested that a Government reserve of permits would boost market confidence, as participants would be reassured that extra permits were available if needed. For example, experience with the US sulfur dioxide trading scheme has shown that players will enter the market and purchase permits with no intention of using them. Environment groups have bought permits in that scheme and retired them from the market to achieve faster emissions reduction. If similar moves in Australia's greenhouse gas emissions trading scheme appeared likely to harm industry, the Government might release permits from the reserve.

**71.** One disadvantage of reserving a pool of permits is, however, that there would be fewer permits available for allocation initially, resulting in a greater shortfall of permits for existing industries than would otherwise be the case.

### Conclusion

**72.** While economic theory supports full auctioning of all emissions permits, submissions to the Committee claimed that this would be unacceptable to industry, could expose the trading scheme to manipulation, and would be disruptive to the national economy. The most widely preferred method for permit allocation would be a mixture of grandfathering and auctioning. The majority of permits would be grandfathered on the basis of past and present emissions levels, and a portion set aside for auctioning, in order facilitate price discovery and allow for new entrants to the market and the expansion of business activity.

### *Banking and borrowing permits*

**73.** If banking and borrowing of permits were allowed, it would provide emitters with greater flexibility in meeting their emissions reduction targets. Industry submissions to the Committee supported banking of permits. They proposed that, if an emitter had excess permits at the end of the permit period, it should be able to bank them for future use. Several submissions to the inquiry also suggested that emitters should be able to borrow permits against their expected future allocations. This would enable the emitters to meet immediate excess permit requirements while making long-term plans for emissions reduction.

**74.** Banking of permits beyond the time periods to which they apply and borrowing them from future periods could undermine the Government's control of the emissions reduction process. Furthermore, banking and borrowing beyond the Kyoto commitment period for which emissions reduction targets have been set would be dangerous, particularly when it is expected that future targets will be more stringent

than the current ones. It is essential that banking and borrowing of permits be restricted to avoid these problems. Banking and borrowing should be allowed only within the period for which the permits are valid.

### **Managing carbon credits from sinks**

**75.** As well as issuing permits for emissions, an emissions trading scheme would give credits for carbon sequestration in sinks. These credits would be traded or used by individual emitters to offset their emissions. As indicated in the earlier section on sinks, the most common form of sink at present is tree plantings, as it provides the most cost-efficient method of sequestration. When other forms of sinks emerge as viable options to tree planting, they should also be included in the trading scheme.

**76.** There are two options for assigning carbon credits for sequestration in timber. An option suggested in several submissions is that credits should be issued only for growth that has already occurred. The alternative is to issue credits when trees are planted on the basis of their growth characteristics, their registration as sinks, and contractual arrangements or amendments to land titles to ensure their continued existence. Differing views were expressed to the Committee about the interval at which measurements and audits should be carried out; they varied between one and five years. The essential features of any system for assigning carbon credits is that it provides verifiable credits that have been secured by contracts and generated by a transparent process.

**77.** Sinks are subject to risks from several sources that would require adjustment to the value of these sinks' carbon credits. Culling, harvesting, fire, controlled burns, theft, disease, and death all diminish or remove the value of credits. Unforeseen changes to required estimation techniques are another source of risk to credit values. Companies utilising carbon credits might be required to take out insurance against some of these risks.

**78.** A number of international carbon accounting conventions has been established and others may need to be developed, if not internationally, at a national level. At present, the carbon lost to the atmosphere during fires is not counted as an emission because it is assumed that it will be reabsorbed as the trees regrow. The same convention might apply to the loss of trees from other causes in situations where the land will be retained under forest in perpetuity.

**79.** The Committee's attention was drawn to the inappropriateness of the convention for dealing with the credits attached to trees that are felled. Under the prevailing international rules, credits are cancelled in the year in which trees are felled. This is an administratively simple arrangement, but fails to take into account the very different life cycles of carbon in paper products and sawn timber used in construction. Several submissions to the inquiry called for this anomaly to be rectified to provide for proper, ongoing recognition of carbon captured in timber products. This is technically feasible and might be introduced in the second commitment period, 2013-2017.

**80.** Several submissions to the inquiry have suggested that, as with less easily measured emissions, the measurement inadequacies associated with sinks might be compensated by discounting the value of carbon credits or restricting their trade to a separate market. It is also argued that discounting credit values would be an appropriate way of compensating for the other risks attached to a credit based on vegetation. Values ranging from 10 to 33 per cent were proposed as appropriate discounts for carbon credits. Alternatively, the level of discount could be left to the market to determine.

**81.** The ownership of carbon credits is another issue on which clarification would be useful. It was suggested to the Committee that trading would be facilitated if it were possible for the land and the trees, plus the carbon they contain, growing on this land to be owned separately. This is possible in some jurisdictions but not everywhere in Australia. A national approach to resolving the issues related to the separate ownership of land, trees, and carbon credits would be appropriate. A number of submissions have addressed the complexities of these issues.<sup>11</sup>

## **The market**

### *The emergence of the market*

**82.** Trading in carbon credits is already occurring, despite the fact that there is no agreed definition of credits or the processes by which they should be generated and verified. Just as an informal trade has developed in credits, it is assumed that trading in permits will emerge once the issuing of permits starts.

**83.** Several witnesses to the inquiry suggested that the initial transactions will involve bilateral trades or over-the-counter transactions that might occur through brokers. As the volume of trades grows, secondary trades might be expected to occur in markets confined to emissions trading or in existing markets.

**84.** According to the Australian Securities Commission it is possible that no highly centralised permit markets would develop, at least initially.<sup>12</sup> The Australian Stock Exchange indicated that its automated trading system could be used to match trades in emissions permits, but doubted that there would be a sufficient volume of trade for the use of the system to be cost-effective. The Stock Exchange suggested that it might be more appropriate to establish 'an internet-based bulletin-board style market' where offers to buy and sell permits could be posted. Such a system could be enhanced to provide market and price information, match trades, and record transfers as well.<sup>13</sup>

**85.** The Sydney Futures Exchange suggested that, if the appropriate conditions exist, a derivatives market may be provided later. Futures, forwards and options contracts are likely types of derivative products for managing the risks to participants in the primary and secondary markets. They would hedge against such risks as changes to emissions targets, shortages or surpluses of permits, and the cost of new

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11 For example, McKean & Park Lawyers and Consultants, submissions (numbers 67, 70 , 71).

12 Australian Securities Commission, submission (number 66), p 2.

13 Australian Stock Exchange, submission (number 73), p 6.



abatement technologies.<sup>14</sup> It was put to the Committee that markets in greenhouse gas emissions may well develop in a similar manner to the electricity market.

*Prerequisites for an efficiently functioning market*

**86.** There is a number of well-recognised prerequisites for the development of an efficient, liquid market, which the Government might wish to stimulate for emissions trading.

A large number of participants

**87.** Large numbers of buyers, sellers and traders can be assured by allocating permits to many emitters and throwing the market open to all comers. While there was widespread agreement among submissions that the coverage of the domestic emissions trading scheme should be comprehensive, there was less consensus on how open the market should be. The majority view was that it should be open to all, subject to the usual prudential requirements. However, others suggested that it should be limited to permit holders and their agents. They expressed concern about the impact on the market of speculators or manipulators, such as environment groups or competitors with low emissions.

**88.** The general view was that, with many participants, the competitiveness and contestability of the market increase and distortions in the market are minimised. The possibility of market dominance by one or a few players, for example, is diminished with a larger number of participants. To broaden the market as far as possible and encourage small holders of permits and credits to participate, some form of aggregation of holdings should be encouraged. For example, small farm businesses might be helped to combine as trading cooperatives, or their sinks managed by brokers.

**89.** The size of the market would be even greater if Australian market participants had access to the international trading scheme.

A valid product

**90.** The validity of permits and credits is ensured by the system put in place to measure, monitor, and verify them, and the regulatory framework for enforcing compliance. These topics are covered elsewhere in the report.

A standard product

**91.** As described in the section on measurement and estimation issues, standardisation of the product depends on its being described in agreed terms such as carbon dioxide equivalents or tonne years. It is also desirable for permits to be expressed in standard terms in relation to their duration and emissions entitlement. Furthermore, standardisation of the documentation and contracts relating to permits and credits assists with price transparency and liquidity. In addition, international standardisation of the product would further facilitate the market's operation.

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14 Sydney Futures Exchange, submission (number 56), p 5.

### Information

**92.** The ready availability of appropriate information enhances the market's certainty about the product being traded. Transparency about the manner in which the whole emissions trading process operates is vital, and will be enhanced by easy access to relevant information and education about the scheme. It is particularly important that the system for issuing permits and planned changes in the emissions value of permits should be advertised well in advance of the start of trading. Information about current trades, such as the number and prices of permits, should be available, as it is for other commodities and sharemarket transactions. Market confidence will also be stimulated if the possible impact of international emissions trading on national trades is known, and the taxation regime that will apply to emissions trades has been established.

### Minimal operating costs

**93.** Keeping administrative and transaction costs low was seen as very important in facilitating emissions trading, as well as minimising the impact of trading on participants' costs. Valid, standard products and processes and a well-informed market help to minimise transaction costs. As discussed below, the structure of the market also has significant cost implications.

### Appropriate regulation

**94.** The existence of appropriate regulatory arrangements, which are dealt with in more detail below, contribute to participants' confidence in the integrity and credibility of the market.

### *Market structure*

**95.** There was almost universal agreement that emissions trading should not be State-based; it should be carried out on a national basis. Not only would a national scheme be less costly, it would simplify the process of integrating domestic trading with international trading and projects carried out under joint implementation arrangements and the Clean Development Mechanism.

**96.** In addition, most submissions to the inquiry suggested making use of existing markets, arguing that using already established markets and their associated regulatory mechanisms would inspire more confidence and provide a cheaper option than duplicating these for a separate market. However, the concept of a special market for emissions permits and carbon credits was put to the Committee. Sub-markets within this market were also proposed to separate trades of permits and credits that can be measured with different degrees of certainty.

### **Regulation of emissions trading**

**97.** Some aspects of the Government's role in designing the emissions trading scheme and allocating emissions permits have been discussed already in preceding sections of the report. In this section, the Government's other responsibilities in

regulating the scheme will be outlined, and the mechanisms to meet these responsibilities described.

*Regulatory framework and a central authority*

**98.** The emissions trading scheme will need to be underpinned by a legislative framework, clearly defining the roles of all participants and the rules of the scheme. A national legislative framework, rather than a state-based approach, is preferable.

**99.** Industry acknowledged the need for Government regulation in order to ensure that Australia meets its Kyoto Protocol commitment. It stressed, however, that this regulation must be minimal. None of the submissions supported a ‘heavy-handed’ regulatory approach by the Government.

**100.** Recognising that the Government will have a regulatory role, industry indicated that it preferred to deal with only one Government emissions agency. Many submissions suggested the establishment of a new Government organisation for emissions trading, a ‘central authority’. Submissions from Commonwealth agencies also advocated a single authority, but did not indicate whether an existing or new agency should have this responsibility.

**101.** The central authority’s responsibilities and powers would be set out in the trading scheme’s legislative framework. It would have overall responsibility for market operation and ensuring participants’ confidence in the market. Among the tasks suggested for this authority were:

- permit allocation;
- monitoring and verifying emissions and credits;
- maintaining accounts for permit and credit holders and reconciling any offsetting credits against debits;
- tracking the transfer of permits and credits;
- managing banking and borrowing of permits;
- enforcing compliance of emissions with permit holdings; and
- administering the scheme.

The Australian Stock Exchange suggested that the central authority might also take on the role of clearing house for the emissions market.<sup>15</sup>

**102.** Many of these functions might be devolved to other organisations under Government oversight, but it was assumed in most input to the inquiry that the Government would maintain control over permit allocation and enforcement of compliance.

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15 Australian Stock Exchange, submission (number 73), p 9.

**103.** Current Australian law and regulatory frameworks would be suitable for many aspects of regulation of an emissions trading scheme, for example, consumer protection, administrative appeals and oversight of the market. The Australian Competition and Consumer Commission and the Administrative Appeals Tribunal, for example, were among the bodies suggested for an involvement with the regulation of emissions trading. A number of submissions suggested that the Australian Securities Commission would be an appropriate regulator for emissions trading. However, permits are probably not covered by existing or proposed changes to the Corporations Law.<sup>16</sup> In its submission, the Securities Commission agreed that, if a market in emissions permit derivatives develops, this market would be regulated by its successor in the current corporate law reform process.<sup>17</sup>

**104.** The legislative framework for emissions trading must include an appeals process. Following initial appeals processing by the emissions trading central authority, the existing Commonwealth administrative law framework (the Administrative Appeals Tribunal, Federal Court, Full Federal Court and High Court) would be suitable for this process.

#### *Monitoring, reporting and audit*

**105.** To ensure Australia's greenhouse gas emissions reduction targets are being met, trading participants' emissions will need to be monitored and reported to the central authority at regular intervals. In a parallel manner, carbon credits will need to be registered. An emitter's emissions levels will be checked against its permit holdings and any offsetting carbon credits that it might hold, to ensure that it is not breaching its emissions allowance.

**106.** Most industry groups advocated minimal government involvement in the measurement, monitoring, and reporting process. They suggested that, if the Government decided to undertake measurement and monitoring activities itself, the costs of establishing, running and administering the system would be likely to be higher than if these tasks were undertaken by emitters themselves or other accredited private sector operators. Existing government organisations, like State EPAs and Local Government organisations that already have experience in pollution monitoring and reporting, could also monitor and verify greenhouse gas emissions levels.

**107.** Several submissions drew attention to the continuous emissions monitoring arrangements in place in the US sulfur dioxide trading scheme. Continuous emissions monitors (CEMs), installed at each discharge point, are required to monitor emissions levels at 15-minute intervals. These data are used to provide reports on average hourly emissions, which are forwarded to the US Environmental Protection Agency (EPA).<sup>18</sup>

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16 Australian Securities Commission, submission (number 66), pp 1-2; Australian Stock Exchange, submission (number 73), p 9. Corporate law in Australia is currently undergoing reform under the Corporate Law Economic Reform Program. In the *Corporate Law Economic Reform Bill 1998* which is currently before the Parliament, the functions of the Australian Securities Commission and Insurance and Superannuation Commission are re-assigned to the Australian Securities and Investments Commission and the Australian Prudential Regulation Authority.

17 Australian Securities Commission, submission (number 66), pp 1-2.

18 United States Environmental Protection Agency, URL<<http://www.epa.gov/acidrain>>, accessed 28 July 1998.

In order to ensure the validity of the data, the EPA requires trading participants to undertake quality assurance and control procedures on their CEM equipment. This involves daily and weekly tests, annual preventative maintenance, independent audits, record-keeping of all maintenance, and reporting on this to the EPA.

**108.** It was suggested to the Committee that CEMs should be installed under a similar arrangement by Australian domestic emitters, particularly large stationary emitters such as power generators. While they provide comprehensive measurement, at \$50,000 to \$200,000 per discharge point, CEMs would be costly items for the many emitters that have not needed to install them in the past. Requiring widespread use of CEMs does not appear to be appropriate, given that one of the underlying principles of a domestic emissions trading scheme is that it should provide the most cost-effective method of emissions reduction.

**109.** The earlier section on measurement and estimation methods indicated that adequate estimates of emissions can be provided by indirect methods, for example, from information about the carbon dioxide equivalence of the emissions that would be expected to be produced from a known quantity of a given input treated in a particular way. The Government would need to promulgate standardised estimation methodologies for the emissions trading scheme, as it has for the National Greenhouse Gas Inventory and the Australian Greenhouse Challenge.

**110.** As discussed above, individual emitters could be made responsible for emissions measurement and reporting. In such a scheme, independent and random audits would be an important element. Under a random audit scheme, the Government would determine the parameters for audit, and could accredit private audit agencies or State and Local Government bodies to undertake audits. This approach is favoured in many submissions to the Committee and is also advocated by the Australian Greenhouse Office.<sup>19</sup>

**111.** The Government central authority will need to collect emissions returns, and reconcile these emissions against emitters' permit holdings and offsets. It was suggested to the Committee that this should take place on an annual basis in a similar manner to tax returns, possibly in conjunction with them. A set period for accounting emissions returns against permit holdings must be established. In the US sulfur dioxide scheme, accounting occurs at the end of every calendar year, with a one-month 'grace period'. During this month, emitters whose emissions have exceeded their permit holdings can seek the additional permits they need. It is likely that permit prices would rise during the grace period, effectively punishing tardy emitters without the need for government action.

### *Penalties*

**112.** Legislated penalties will be an important part of the regulatory framework for emissions permits. Ideally, they should be set at a level to deter any breach of emissions permits. Penalties could take a number of forms. Some options are:

- a fixed fine;

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19 Australian Greenhouse Office, submission (number 54), p 10.

- deduction of permits at the next round of allocation;
- a requirement to buy enough permits at market prices to cover excess emissions; or
- a requirement to buy enough permits at market prices to cover excess emissions, plus an extra quantity to ensure against future non-compliance.

**113.** The penalty regime in the US sulfur dioxide scheme includes fines. They are currently set at US\$2,580 per excess tonne of emissions, which compares with the permit cost of US\$150 per tonne. The fines are also indexed to the Consumer Price Index. The penalty also involves reduced access to permits in the future, with permits being deducted from a transgressing emitter's next allocation by an amount equivalent to the excess emissions.

**114.** Industry accepted the need for penalties in the emissions trading system, but saw them as an aspect of the system where consultation with industry representatives was particularly needed. It also called for them to be set out clearly in legislation and trading guidelines. If penalties involve Government fines, industry advocated this money being spent on activities such as further research on the greenhouse effect, the development of new technologies for emissions reduction, and investment in renewable energy sources.

**115.** Inclusion of carbon credits, to be used as offsets for emissions, may also require penalties for misuse. Penalties might be applied if records of carbon credits or audits are falsified or carbon credit owners fail to notify the Government of changes to their credit status, for example, following harvesting. Presumably the penalty would include a requirement to purchase enough permits to counter the loss of the carbon credit.

**116.** Several submissions pointed out that good system design, involving wide consultation and transparent administrative and punitive processes, should minimise the need for the Government to impose the penalties allowed for under the legislation.

#### *Costs*

**117.** Designing, implementing and administering the trading scheme are expected to impose substantial costs on the Government. Industry and government stressed that the administrative costs of emissions trading must be kept low to help minimise the impact of emissions reduction. Revenue raised from fines and the sale of permits by auction could be used to subsidise administrative costs, but may prove insufficient to meet the entire cost. Under these circumstances, the Government must decide if it will recover these costs from market participants and, if so, how costs will be recovered.

#### **The timing of the introduction of an emissions trading scheme**

**118.** Industry groups, individual companies and governments making submissions to the inquiry were divided on the issue of when to introduce emissions trading. Only a few submissions advocated the immediate introduction of emissions trading, or took the converse view that it should not happen at all. The overwhelming view was that

implementation issues should be resolved through consultation and a widely supported emissions trading scheme then be introduced at the earliest opportunity.

**119.** The timing for the introduction of Australia's domestic scheme will be influenced by international developments in emissions trading. Following the Kyoto Protocol negotiations in December 1997, many observers expected the next round of negotiations, in Buenos Aires in November 1998, to make progress in determining the rules for international trading.

**120.** The Ambassador for the Environment, Ms Meg McDonald, advised the Committee that the position on international trading became less clear at meetings of Convention subsidiary bodies in Bonn in June 1998.<sup>20</sup> Discussion and negotiation at these meetings focussed on a large number of technical issues regarding the implementation of the Kyoto Protocol, and resolved that these issues be further discussed at Buenos Aires. This could signal that the formulation of a detailed framework for international trading might take longer than originally expected.

**121.** The main issues concerning the early or later introduction of emissions trading are outlined below.

#### *Early introduction of emissions trading*

**122.** Several emitters suggested to the Committee that a domestic trading scheme could be introduced as early as July 1999, initially covering the electricity sector and extending to all industrial emitters by 2001. They suggested that the National Electricity Market, established to facilitate trading of electricity, could also accommodate emissions trading for this sector.

**123.** Companies advocating early emissions trading appeared to be those with the greatest capacity to adapt quickly to and benefit from trading. They included, for example, those with established measurement and monitoring systems, technologies to reduce emissions quickly, and investments in alternative and renewable energy sources. Early introduction of emissions trading was also advocated by several carbon trading services, which facilitate carbon sequestration agreements between emitters and plantation owners and provide services such as monitoring and verification. Carbon certification and trading at national and international levels is already being conducted through such companies.

**124.** Proponents of the early introduction of emissions trading observed that the Government's measures to reduce greenhouse gas emissions include mandated targets for renewable energy consumption, and energy and fuel efficiency standards for the building, manufacturing and transport sectors. These measures are already being introduced. 'Command and control' measures received overwhelmingly less support during the inquiry than emissions trading. Emissions trading is regarded as the most cost-effective approach to emissions reduction because it allows emitters to determine

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20 Department of Foreign Affairs and Trade, transcript, 22 June 1998, page 467. The Bonn meeting, from 2-12 June 1998, involved three advisory bodies to the Convention: the Subsidiary Body for Scientific and Technological Advice, the Subsidiary Body for Implementation and the Ad Hoc Group on Article 13. See the Convention's internet site: URL: <<http://www.unfccc.de/>>, 17 August 1998.

the means of emissions reduction best suited to their own circumstances. Those supporting the early introduction of trading were anxious to have it established in addition to mandated measures.

**125.** Another argument in favour of the early introduction of emissions trading relates to the fact that it is not until 2008-2012 that Annex B countries are required to meet the emissions reduction targets set out in the Kyoto Protocol. By introducing trading at an early stage, the Government would give emitters early signals and incentives for investments in emissions reduction. With the longest possible lead-time for planning, emissions reductions can be made more gradually and at less cost than if left until later. This would be particularly important for industries with long-term investments.

**126.** Early introduction would be a strong signal to the international community that Australia is making a serious effort to reduce its greenhouse gas emissions. It would also provide an opportunity for Australia to lead international negotiations on emissions trading and shape the international trading scheme to recognise Australia's unique circumstances. In addition, Australia could use this opportunity to demonstrate and sell its reduction technologies and highlight its capacity to reduce emissions through carbon sequestration activities.

**127.** The Department of Finance and Administration was the only Commonwealth agency to express an opinion on when domestic trading should begin. It suggested that an optimum date would be before 2008-2012, to allow time to establish the credibility of the scheme and phase-in different industries.<sup>21</sup>

*'Wait and see' approach*

**128.** Some industry groups and individual companies supported emissions trading in principle, but advocated a wait and see approach before introducing a domestic scheme. According to these groups, there is too much uncertainty surrounding the need for emissions reduction and emissions trading for trading to be a viable emissions reduction strategy in the short-term.

**129.** A number of submissions argued that it is not yet certain when the Kyoto Protocol will be ratified, and become a legally binding document in international law. The Protocol requires ratification from no less than 55 Parties to the Convention, accounting for at least 55 per cent of total greenhouse emissions. The positions taken by the United States and the European Union will determine whether the Protocol enters into force. Those advocating later introduction of trading argued that, given these uncertainties, Australia should wait until the Kyoto Protocol is ratified before domestic trading begins.

**130.** Those against the early introduction of trading also pointed to the significant uncertainties in emissions measurement and the current limited scientific knowledge of the greenhouse effect and its causes. It was suggested that, with time, improved technologies and understanding may change the currently perceived imperative for emissions reduction.

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21 Department of Finance and Administration, submission (number 53), p 8.



**131.** Another argument against the hasty introduction of emissions trading was the Government's prediction that current greenhouse emissions reduction policies will ensure that Australia meets its Kyoto Protocol target. It was argued that, only if these measures do not achieve the reductions required, should emissions trading be considered. In addition, by waiting for the emergence of the international emissions trading scheme, it will be easier to develop Australia's scheme in step with the international scheme and ensure their integration.

**132.** The early introduction of trading could disadvantage some Australian industries, particularly those with international competitors operating in countries not subject to emissions reduction. Domestic trading is expected to add costs to Australian industries, resulting in less competitive prices for their products and changes in consumer behaviour. Some submissions claimed that a downturn in domestic economic activity could be expected. International investment in Australian industry might also be diverted by domestic trading to non-regulated industries in other countries.

#### *Trialing emissions trading*

**133.** Some information that is useful for designing, implementing, and operating an emissions trading scheme can be gained from other similar schemes and the Government's experience with existing greenhouse measures.

**134.** Several submissions pointed out the value of trialing emissions trading on a small scale, perhaps on a voluntary basis. Such a trial would provide additional insights into the best features and processes to include in the final scheme, test the capacity of the system and its rules, and develop relevant skills. A pilot scheme of this kind is currently under way in Canada which involves industry, government and other groups on a voluntary basis.

**135.** A number of submissions suggested a paper trial, initially limited to the carbon dioxide generated by electricity suppliers and managed by the National Electricity Market Management Company. Most of these submissions, which included State Governments, industry organisations, and Commonwealth agencies, advocated an early start to the Australian trial.

### **Key Conclusions**

**136.** This report has outlined the key issues raised in submissions and evidence before the Committee. The Committee has reached a number of conclusions about the design and operation of the Australian emissions trading scheme; these are set out below.

#### *Coverage issues*

- a) The trading scheme should include as many gases, sources, and sinks as possible, within the constraints of available measurement and estimation technologies and the cost of using them.

- b) Measurement of emissions is fundamental to the integrity of the emissions trading scheme. It is important that:
- standard measurement and estimation methodologies are agreed for all emissions and sinks included in the scheme;
  - the methodologies are agreed nationally and, ideally, internationally through the Intergovernmental Panel on Climate Change; and
  - measurement methodologies are documented in a user-friendly form.
- c) The accuracy of emissions measurement and estimation methodologies needs to be vastly improved to allow maximum coverage of gases, sources, and sinks in the trading scheme. This work should continue to be undertaken as part of the Government's overall greenhouse emissions reduction strategy.
- d) Given that carbon sinks will play an important part in Australia's emissions trading scheme, the definition of sinks is important. Plant growth is currently the most widely understood and available form of carbon sink in Australia; clear parameters must be defined for the use of plant growth as carbon sinks.
- e) Work should be carried out with a view to enabling the utilisation of other sinks, such as aquifers, soil, and water bodies.

*Permit system*

- f) An emissions cap must be set for the emissions trading scheme in the light of Australia's commitment under the Kyoto Protocol.
- g) The definition of emissions permits raises a number of issues, on which further work and consultation are needed. It will be necessary to resolve:
- whether permits should confer a property right or a licence to emit;
  - the size of permits that will allow trading amongst all participants, including small emitters; and
  - the duration of permits (see h) below).
- h) Permits should be time-limited and/or their entitlement tapered over time, with the Government re-issuing fewer and/or smaller permits in each time interval in order to meet reduction targets. The permits could have varying time-limits to enable industry to effectively plan reductions, but they should not run beyond the end of the commitment period at this stage. If permits were tapered, they could be issued in perpetuity, with the tapering extending into future commitment periods but taking into account Australia's evolving international obligations.
- i) It is important that the details of the permit regime in future time periods is known well in advance, and preferably arrived at in consultation with all stakeholders.

- j) The question of where permits are to be allocated also needs to be resolved. Ideally permits would be allocated to all end-users, but in practice the point of allocation will be determined by where in the production chain it is most cost-effective to require permits to be held. Thus, while large emitters are obvious candidates for permits, it would not be cost-effective to require each motorist to hold permits. Analysis will be needed to establish the most appropriate point for permits to be held, and to develop other policy measures to achieve emissions reductions in sectors where end users cannot be directly targeted.
- k) The method adopted for initial permit allocation is critical to the equity of an emissions trading scheme and important in determining participants' acceptance of the trading scheme. The Committee concluded that:
- the majority of permits should be grandfathered on the basis of present emission levels in such a way that past emissions reductions are recognised;
  - a review mechanism should be provided to vary entitlements on a case by case basis where emitters can supply credible proof of emissions reduction efforts and/or forward investment commitments that pre-date Australia's Kyoto undertakings;
  - a small number of permits should be retained to address the possibility of market failure and to allow the entry of new market participants; and
  - a preliminary auction of a proportion of the retained permits should be undertaken, to facilitate price discovery and allow new entrants into the market.
- l) Banking and borrowing of permits should be allowed within the commitment period, 2008-2012, to provide emitters with greater flexibility in meeting their reduction targets.

#### *The market*

- m) Emissions trading should take place in a single, national market; it should not be state-based. It is preferable to use existing market mechanisms. While the Committee is not convinced of its merits, the argument for separate markets for particular sources, sinks, or gases should not be ruled out. The market should be open to all, subject to the usual legal requirements. It should also be designed to be compatible with and complement the international trading scheme. Information about trading should be readily available to enhance market certainty.

#### *Regulation*

- n) A national legislative framework should underpin the regulation of emissions trading.

- o) Government regulation should be minimal and involve only one agency. This central authority would contribute to the efficiency of the overall operation of the market and help to ensure participants' confidence in the market. It should have responsibility for:
- allocating permits;
  - overseeing the monitoring and verification of emissions and credits;
  - maintaining accounts for permit and credit holders and reconciling any offsetting credits against debits;
  - tracking the transfer of permits and credits;
  - managing the banking and borrowing of permits;
  - enforcing compliance of emissions with permit holdings; and
  - administering the scheme.
- p) Government involvement in regulatory processes can be minimised by requiring individual emitters to undertake emissions monitoring. The central authority could accredit competent, independent auditors or government agencies to undertake random audits of trading participants' emissions levels and sequestration activities.
- q) A timetable should be established for reconciling emissions returns against permit holdings and any offsetting credits, with a period of grace to allow market participants to finalise the balancing of their accounts by trades.
- r) Emissions trading should be subject to current Australian law and regulatory frameworks as far as possible. This would involve oversight of the market by the Australian Securities and Investments Commission. There would also be a role for the Australian Competition and Consumer Commission, and adjudication of appeals by the Administrative Appeals Tribunal.
- s) The regulatory framework should include legislated penalties. These penalties must be set at a level to deter excess emissions and breach of carbon credit reporting requirements.

#### *Introducing emissions trading*

- t) The Committee heard arguments supporting both the early introduction of emissions trading, and a more cautious approach. There are advantages and disadvantages to each option. A trial emissions trading period would be useful, to test the system and provide signals and experience to industry about trading. It is important that the domestic emissions trading scheme can be integrated easily with the international trading scheme when it develops.

*Consultation*

- u) It is the Committee's view that emissions trading can be most efficiently implemented through comprehensive consultation. Consultation should start well before the trial is introduced and include the Commonwealth, State and Territory Governments; industry; environment, consumer and professional groups; and any potential emissions traders. It should continue through the duration of the trial and be carried out in the same way for the compulsory scheme. With the inclusion of all stakeholders in the consultative process, the emissions trading scheme will have the greatest chance of achieving credibility and acceptance, and facilitating greenhouse gas emissions reduction at least cost.

**Recommendations**

**137.** In keeping with the interim status of this report, the Committee makes only two recommendations. They concern matters that the Committee regards as having particular significance for the efficient and effective operation of an emissions trading scheme in Australia.

*Recommendation (1)*

**The Committee recommends that emissions permits be licences to emit, which are issued on terms that are clear, understandable, and known. Permits should not confer property rights.**

*Recommendation (2)*

**The Committee recommends the early trialing of emissions trading in Australia under the following conditions:**

- **voluntary participation;**
- **based on emissions levels at the start-up date of the trial;**
- **without prejudice to the eventual design of the compulsory emissions trading scheme, except for a guarantee of recognition in the compulsory scheme for emissions reductions made during the trial;**
- **consideration to be given to preferentially allocating permits in the compulsory scheme to participants in the trial; and**
- **continuing consultation about the design of the compulsory scheme.**

Ian Causley  
Committee Chair  
17 August 1998