Chapter 3

Policy options to reduce greenhouse gas emissions

3.1 This chapter considers evidence given by witnesses regarding other ways of reducing carbon emissions including:

- a cap and trade scheme;
- a carbon tax;
- a consumption-based carbon tax;
- a conventional baseline-and-credit scheme and the related intensity model;
- the McKibbin hybrid;
- regulatory and incentive-based options; and
- the purchase of international permits.

A cap and trade scheme

3.2 A cap and trade scheme has—as its name suggests—two elements. The first is a limit on the quantity of pollution that can be emitted: the cap. The second is the facility to trade the limited number of carbon permits, after they are issued through an auctioning process. Companies are required to provide to the authorities permits equivalent to the amount they emit. Companies increasing their emissions will need to buy more permits, either at the initial auctions or in the market. Companies cutting their emissions need to buy fewer permits and may have surplus permits they can sell in the market. A cap and trade scheme thereby offers market participants the opportunity for 'least cost abatement'.[1]

3.3 A cap and trade scheme is the preferred policy approach of the Australian Government and forms the basis of the Carbon Pollution Reduction Scheme (see chapter 4).

3.4 The European Union (EU) introduced a cap and trade scheme in January 2005 which included 15 of the Union's 27 nations and covered nearly half the EU's emissions.[2]

---

1 Pew Centre on Global Climate Change, 'Issue Overview: Cap and Trade versus carbon tax', http://www.pewclimate.org/docUploads/FINAL-USCAP-Issue-Brief-Cap-and-Trade-vs-Carbon-Tax.pdf (accessed 1 June 2009).

2 European Commission, 'Emission Trading Scheme', http://ec.europa.eu/environment/climat/emission/index_en.htm (accessed 1 June 2009).

3.5 New Zealand legislated the first cap and trade scheme outside Europe in November 2008.[3] The scheme is currently under review and its final form may depend on the scheme introduced in Australia.

3.6 The Obama administration in the United States has recently introduced a draft bill into Congress. The Bill proposes a cap and trade scheme with full auctioning of permits. The Bill proposes to cut US carbon emissions by 20 per cent from 2005 levels during the next decade.[4]

3.7 A number of witnesses who gave evidence before the committee supported an emissions trading scheme (ETS).[5]

3.8 In terms of the variants of ETS, evidence was given of a preference for a cap and trade scheme.[6] Professor Ross Garnaut is a proponent of a cap and trade scheme. In evidence to the Committee he said:

> A good ETS would…secure the emissions reduction objective directly… and it would fit more easily into a pattern of international trade in emissions entitlements which would be necessary to secure the participation of many developing countries in a global mitigation regime…I am comfortable that the ETS is sound as the centrepiece—not the only piece—of a national mitigation effort that fits into a global piece.[7]

3.9 Professor John Quiggin, of the University of Queensland gave evidence that:

> The market price of emissions permits in the EU has fallen sharply as a result of the financial crisis and recession. Some commentators have seen this as an undesirable outcome of emissions trading. In reality, it is a point in favour of emissions trading and against carbon taxes. The main concern with emissions trading is price uncertainty that arises when we are uncertain about the cost of reducing emissions. Under cost uncertainty, setting the emissions target too low could impose unexpectedly high costs on the economy. The situation is quite different when we consider macroeconomic uncertainty with respect to the rate of growth of the economy. An emissions target is countercyclical since it imposes a relatively high cost when the economy is strong, and a much smaller cost when the economy is weak. This is a beneficial stabilising effect.[8]

3.10 The Australian Industry Group gave evidence that:

---

3 SustainableBusiness.com, 'New Zealand creates cap and trade scheme', http://www.sustainablebusiness.com/index.cfm/go/news.display/id/16729 (accessed 1 June 2009).

4 The American Clean Energy and Security Act of 2009, *Discussion Draft Summary*, p. 3.

5 See Mr Paul O'Malley, BlueScope Steel, *Proof Committee Hansard*, 22 April 2009, p. 13.

6 There are a few notable exceptions (see the discussion of alternative models below).

7 Professor Ross Garnaut, *Proof Committee Hansard*, 16 April 2009, p. 45.

8 Professor John Quiggin, *Submission 289*, p. 11.

> …Ai Group supports Australia putting in place a cap and trade emissions trading scheme capable of delivering the Australian contribution to a global effort to reduce the accumulation of greenhouse gases and reduce the risks of dramatic climate change. An emissions trading scheme provides powerful incentives for business to search for least-cost emissions reductions; it reduces the scope for bureaucratic and political meddling in investment decisions; and, in contrast to a carbon tax, is able to align directly with a national reduction target through the quantity of permits issued.[9]

3.11 Santos Limited, an oil and gas exploration company, gave evidence that:

> Santos believes a well designed, market-based mechanism, such as a cap-and-trade ETS, as opposed to a carbon taxation system, is the lowest-cost path to the achievement of GHG emission reductions. In addition, an ETS can be linked globally to other trading schemes, such as the European Union scheme and the one now proposed by the new United States of America administration.[10]

A 'textbook' cap and trade scheme

3.12 Evidence was given to the Committee that a cap and trade scheme operates most effectively when all polluters face an undistorted price signal aimed at delivering the science-based objective.

3.13 For example, Dr Richard Denniss of the Australia Institute in his evidence to the Senate Economics Committee on 25 March 2009, highlighted significant discrepancies between what he calls a 'textbook model' and the Government's proposed CPRS (see chapter 4).

3.14 His preferred 'textbook model' includes the following features:

- targets based on science;
- coverage of all sectors in the scheme;
- no free permits for polluters; and
- no cap on the permit price.[11]

Qualified support

3.15 A significant number of submissions and evidence given to the Committee gave qualified support for a cap and trade scheme. These are discussed in further detail in chapter 4.

---

9 Australian Industry Group, *Submission 605*, p 1.

10 Santos, *Submission 459*, p. 3.

11 See Dr Richard Denniss, 'Comparison of emissions trading in theory and the CPRS in practice', The Australia Institute, 2009, Forthcoming. Dr Richard Denniss, *Senate Economics Committee Hansard*, 25 March 2009, pp 76 and 78.

3.16 Evidence was given by industry witnesses of industry's overwhelming concern that a carbon market in Australia without a comparable market in other nations may put Australian industry at a competitive disadvantage.

3.17 For example BlueScope Steel gave evidence that a cap and trade scheme would only be acceptable if:

> …the system does not alter the international competitiveness of the Australian iron and steel industry. The system should be redesigned to be affordable and sustainable, only impose cost on Australia's EITEs [emissions-intensive trade-exposed industries] in tandem with and not ahead of our larger competitors, recognise the technological constraints on emissions abatement in steelmaking, provide incentives for investment in abatement, take account of the current global and economic crisis, minimise the risk to competitive trade exposed Australian manufacturing industry investment and jobs, and include appropriate transitional mechanisms.[12]

A carbon tax

Views supporting a carbon tax

3.18 The Committee heard evidence that a carbon tax would be an appropriate way to reduce carbon emissions.

3.19 The Government's Green Paper on the Carbon Pollution Reduction Scheme describes a carbon tax in the following terms:

> At its simplest, a carbon tax would work by taxing emissions at a constant rate. For example, a company would pay a set amount in tax for each tonne of carbon dioxide it emits. A carbon tax would not establish a cap on national emissions per se. However, a carbon tax is designed to discourage the consumption of emissions-intensive goods and services. Companies will reach a point at which it becomes more cost effective to undertake abatement and/or adaptation than incur the tax.[13]

3.20 The merit of a carbon tax as opposed to a conventional cap and trade scheme has been the subject of debate in policy circles.

3.21 The 2007 report of the Prime Ministerial Task Group on Emissions Trading (the Shergold report), commissioned by the previous federal government, considered the merits of a carbon tax but favoured a cap and trade approach.[14]

---

12 Mr Paul O'Malley, Chief Executive Officer, BlueScope Steel, *Proof Committee Hansard*, 22 April 2009, p. 13.

13 See Carbon Pollution Reduction Scheme, *Green Paper*, July 2008, p. 78.

14 Prime Ministerial Task Group on Emissions Trading, *Report*, May 2007.

3.22 The committee notes that in February 2009, prior to the release of the Draft Exposure CPRS Bill the Government proposed a House of Representatives committee inquiry which included an examination of the merits of a carbon tax.[15]

3.23 A carbon tax is favoured by its proponents both for its simplicity and for providing investor certainty. It is simple insofar as it could be universally applied, without sectoral exemptions or compensation. It provides investor certainty because the level of the tax is fixed and known in advance.[16]

3.24 A cap and trade scheme, on the other hand, is potentially much more complex with the difficult issues of the level of the cap and compensation arrangements to negotiate. There is also less predictability and more volatility in carbon prices under a cap and trade scheme which may affect investor confidence.[17]

3.25 The 2007 Shergold report made the following comments in respect of a carbon tax:

> …in a world of uncertainty, a tax is preferable where the benefits of reducing pollution are likely to change less with the level of pollution than the costs of the pollution reductions. This is likely to be the case in the short run. The benefits of reducing emissions in any single year are unlikely to have very significant impacts (as climate change is dependant on the total stock of carbon equivalent emissions rather than the annual flow of emissions). However, the costs of abatement are likely to increase significantly as firms with fixed capital stock and technology find it harder to reduce emissions.[18]

3.26 In a joint submission to this inquiry, Mr Tim Kelly, and Professor Barry Brook gave evidence that as the cap under the proposed CPRS threatens to 'lock in failure', 'we should instead focus on a carbon tax'.[19] They give evidence of what they say are the advantages to a carbon tax relative to an ETS:

- it can commence at a low rate, and can be increased each year if national emissions are not reduced rapidly enough;
- it acts more smoothly throughout economic cycles compared with a cap and trade scheme;
- it promotes (rather than hinders) voluntary action and can be used effectively with complementary measures; and

---

15 The House of Representative Economics Committee resolved to conduct the inquiry on 12 February 2009. On 20 February 2009, it resolved to discontinue the inquiry. The terms of reference directed the committee to inquire into the choice of emissions trading as the central policy to reduce Australia's carbon pollution.

16 See *Garnaut Review*, 2008, p. 196.

17 See Garnaut Review, 2008, pp. 196–197.

18 Prime Ministerial Task Group on Emissions Trading, *Report*, May 2007, p. 168.

19 Mr Tim Kelly and Professor Barry Brook, *Submission 552*, pp 2–3.

- it is more easily adjustable than a cap and trade scheme.[20]

3.27 In their submission to the Committee, ExxonMobil cited a 2008 research publication produced by the United States Congressional Budget Office which concluded that a long-term emission reduction target could be met more efficiently by a tax than by a cap and trade programme.[21] Exxon Mobil's submission noted:

> …a tax provides a more predictable and thus lower risk investment climate than a cap-and-trade system. The "environmental certainty" of a cap and trade system may be illusory. If a carbon tax at an acceptable level will not generate the desired emissions reduction, then a cap-and trade system set to produce the desired reduction could generate a much higher allowance price, ultimately resulting in the likelihood of political intervention.[22]

Views not favouring a carbon tax

3.28 Professor Ross Garnaut's preferred position is an ETS. He gave evidence that:

> A good ETS would be better than a carbon tax for two reasons. It would secure the emissions reduction objective directly, rather than through a process of trial and error requiring sequential adjustment to the carbon tax rate and it would fit more easily into a pattern of international trade in emissions entitlements which would be necessary to secure the participation of many developing countries in a global mitigation regime.[23] Only a good carbon tax will be better than a compromised ETS. Here we should not be persuaded that the grass is greener on the other side of the fence simply because it is on the other side. If the Australian government and parliament were debating the introduction of a carbon tax they would be subject to similar pressures from vested interests to those which have contributed to flaws in the ETS. It is not easy to say whether the government and parliament would be better able to defend the national interest if the pressure were over tax rates and exemptions rather than emissions targets and free permits.[24]

3.29 Professor John Quiggin in his submissions to the Committee argued that while the differences between a carbon tax and an ETS are more limited 'than most of the discussion suggests', tradeable permits have some significant advantages.

---

20 Mr Tim Kelly and Professor Barry Brook, *Submission 552*, pp. 9–10.

21 Congressional Budget Office, 'Policy options for reducing CO_2 emissions', February 2008, http://www.cbo.gov/ftpdocs/89xx/doc8934/02-12-Carbon.pdf (accessed 5 May 2009).

22 Exxon Mobil, *Submission 519*, p. 5.

23 Professor Ross Garnaut, *Proof Committee Hansard*, 16 April 2009, p. 45.

24 Professor Ross Garnaut, *Proof Committee Hansard*, 16 April 2009, p. 45.

3.30 First, he claimed that the issue of free permits increases the political feasibility of an ETS relative to a carbon tax.[25] Second, given the risk that we fail altogether if individual countries fall short of their targets, 'it seems reasonable to prefer price uncertainty to quantity uncertainty'. Third, Professor Quiggin also emphasised the importance of international linkage towards a full-scale global market, which would be difficult to achieve through a coordinated system of global carbon taxes.[26] He told the committee:

> …in the context of international negotiations I think it is very difficult to see how we can achieve internationally coordinated carbon taxes in a world of many, many currencies, for example, whereas all of the negotiations so far have been on quantitative targets, and that makes sense for a global emissions trading scheme, which ultimately we need.[27]

3.31 Dr John Pezzey of the Fenner School of Environment and Society gave evidence that:

> …I contend that an effective ETS is politically more acceptable than an effective tax, not because it is theoretically better. I contend that an effective tax is politically unacceptable because no-one in policy circles has yet adopted my…idea of emission tax thresholds…Giving away such tax thresholds would be very similar to giving away emissions permits. The only big remaining difference is that with a tax the carbon price is set by government, not the permit market. But because this threshold idea does not exist yet, I think a tax scheme or anything similar…is worse than an improved CPRS in terms of cost, much worse in terms of delay and international linkage.[28]

A consumption-based carbon tax

3.32 Another variant on a carbon tax—a direct cost on every unit of emissions produced—is a carbon tax on consumption. This model proposes that the tax impost be borne by consumers (similar to a value added tax or a goods and services tax) rather than producers. It targets the country that consumes the goods and services resulting from the process generating the greenhouse gas emissions, rather than the country that produces these emissions. The rationale is that a country, such as Australia, can only control its consumption of emissions: attempts to control Australian production may lead to carbon leakage, loss of jobs and loss of competitiveness (see chapter 4).[29]

---

25 Professor Quiggin sees this as a 'relatively minor point', however. Cash compensation could be paid out of revenue from a carbon tax.

26 Professor John Quiggin, *Submission 289*, p. 10.

27 Professor John Quiggin, *Proof Committee Hansard*, 28 April 2008, p. 16.

28 Dr John Pezzey, *Proof Committee Hansard*, 16 April 2009, p. 59. See also *Submission 616*, p. 6.

29 See Mr Geoff Carmody, 'Effective Climate Policy Change—the seven C's: Some design principles for evaluating greenhouse gas abatement policies', *Policy Note 1*, July 2008, p. ii.

3.33 Mr Geoff Carmody, a private consultant and a co-founder of Access Economics, supports a consumption-based carbon tax in Australia. In his paper 'Effective Climate Policy Change—the seven C's: Some design principles for evaluating greenhouse gas abatement policies', he sets out the following in relation to a consumption based carbon tax.

3.34 Fundamentally, a production-based mitigation scheme confronts the 'prisoners' dilemma' problem: a country that implements a mitigation scheme unilaterally is adversely affected, notwithstanding the optimum mutual benefits from multilateral action.[30]

3.35 Mr Carmody gave evidence to the Committee that 'if governments move to a consumption based approach, the prisoner's dilemma problem disappears'.[31]

3.36 In his paper he said "It overcomes concerns about carbon leakage and job losses and the 'current confused' debate about concessions for trade exposed industries".[32]

3.37 Mr Carmody in his evidence to the Committee stated that 'it is arguable that if Australia adopts the government's emissions trading scheme as currently structured it will increase incentives for our trading partners in Asia and America not to act on climate change'.[33] His argument is not with unilateral action per se, but the type of abatement scheme that Australia may unilaterally adopt:

> I do not mind accepting the moral argument that we were first to industrialise and that therefore we put a lot of stuff in the atmosphere first, but if we are going to do that then let us do it on a consumption base. That minimises the trade and job losses and carbon leakage risks and allows us to lead by example—'This is the way we can all go without a trade risk.' Then you get a global deal faster.[34]

3.38 Mr Carmody explained in his evidence to the committee that the original vision for international action on climate change in 1992 was a production-based global carbon tax, adding:

---

30 Mr Geoff Carmody, 'Effective Climate Policy Change—the seven C's: Some design principles for evaluating greenhouse gas abatement policies', *Policy Note 1*, July 2008, p. ii.

31 Mr Geoff Carmody, *Proof Committee Hansard*, 15 April 2009, p. 28.

32 Mr Geoff Carmody, 'Effective Climate Policy Change—the seven C's: Some design principles for evaluating greenhouse gas abatement policies', *Policy Note 1*, July 2008, p. ii.

33 Mr Geoff Carmody, *Proof Committee Hansard*, 15 April 2009, pp. 22–23. This view was challenged by other witnesses who saw a strong lead by Australia on climate change as offering a powerful incentive for other nations to follow. See Mr Erwin Jackson, *Proof Committee Hansard*, 1 May 2009, p. 75.

34 Mr Geoff Carmody, *Proof Committee Hansard*, 15 April 2009, p. 29.

> That made sense. Immediately you had thrown out all concerns about competitiveness, carbon leakage and job losses due to one country acting before another.[35]

3.39 In 1997, however, the Kyoto Protocol codified the notion that countries would act at different times which, in Mr Carmody's view, rendered the production-based model unworkable. He told the committee that non-harmonised action has entwined environmental policy initiatives with trade considerations and has led to emissions trading schemes (current and proposed) with substantial carve-outs and compensation packages.[36]

3.40 How would a consumption-based carbon tax operate? Mr Carmody argues that adding an extra line to existing Australian Tax Invoices would make the carbon price signal highly visible throughout the economy. Each GST-based Tax Invoice would have the carbon cost per transaction included. The cost of emissions would be passed along the supply chain to the consumer through a GST-style process. In this way, Mr Carmody claims it would be 'a relatively simple matter to ensure that (most) Australian exports are not subject to the Australian market cost of emissions'.[37] Australian exports would not be exempt from carbon costs, but costs would be imposed by the importers of Australian exports. Mr Carmody also proposes that Australian imports could be brought into the carbon tax. By using the GST and Tax Invoice accounting system, together with data on Australia's carbon price, Australian producers' emissions intensity and Australian carbon price-exclusive products, the embedded market cost of imported emissions could be passed along the supply chain to the final Australian consumer. Mr Carmody thereby argues that the 'free rider' problem on the import side could be reduced.[38] Criticism of a consumption-based carbon tax

3.41 The committee received evidence that a consumption-based carbon tax would be difficult to implement in practice. Mr Salim Mazouz from the consultancy EcoPerspectives, gave evidence was that it is difficult to determine the quantity of carbon emissions embedded in an imported good. This is in contrast to a GST, where border tax adjustments are determined by the margin on the price of the good. He stated:

> Suppose I import an ingot of aluminium from somewhere. Say it comes from China. How much do I slap on it? You could say, 'Just take the average,' but the Chinese firm may say, 'No, we have a hydroelectricity generation plant that is feeding my production, so you should slap zero on

---

35 Mr Geoff Carmody, *Proof Committee Hansard*, 15 April 2009, p. 23.

36 Mr Geoff Carmody, *Proof Committee Hansard*, 15 April 2009, p. 23.

37 Mr Geoff Carmody, 'Effective Climate Change Policy: The Seven C's: Implementing design principles for effective climate change policy', *Policy Note No. 2*, September 2008, p. i.

38 Mr Geoff Carmody, 'Effective Climate Change Policy: The Seven C's: Implementing design principles for effective climate change policy', *Policy Note No. 2*, September 2008, p. ii.

> it.' Someone else might say, 'No, actually that comes from coal fired generation,' or something like that. So the amount of carbon impost that should be imposed at the border to equalise this is rather problematic. It is much, much harder than with something like a GST.[39]

3.42 Mr Carmody gave evidence that it is not necessary to know the quantity of carbon embedded in imports. Imports would be assessed based on the equivalent Australian-made product. He stated:

> …all you need to know is the carbon price in Australia, the emissions intensity of the product in question in Australia, and convert that to an ad valorem equivalent adjustment and make sure that same percentage adjustment applies to imports from wherever they come. That actually is WTO-compliant in exactly the same way as the GST is.[40]

3.43 Mr Salim Mazouz gave evidence that the consumption-based carbon tax would still attract similar political pressures as a standard carbon tax:

> one would end up with very similar carve-outs [to an ETS] that come from the pressure applied by particular groups. Those pressures in part may be self-serving but in part also serve to ease the transition to an economy that is able to reduce emissions more efficiently over time.[41]

The 'baseline-and-credit' and 'emissions intensity' models

3.44 Another possible mechanism to reduce greenhouse gas emissions is a baseline-and-credit model. In its simplest form, this operates by setting a benchmark for each firm of its emissions in a base year. Thereafter any firm which wants to increase its emissions needs to buy credits from firms which are reducing emissions. This caps emissions at their level in the base year and establishes an incentive for companies to find lower emission processes. An example of a baseline and credit scheme is the New South Wales Government's Greenhouse Gas Abatement Scheme.[42]

3.45 A more sophisticated variant is the 'intensity' model. The intensity is a measure of carbon emitted for a given amount of production or revenue. A benchmark intensity is set for each 'industry', either based on average performance in a base year, or on (global) 'best practice'. Then a firm whose emissions intensity is below this level

---

39 Mr Salim Mazouz, *Proof Committee Hansard*, 15 April 2009, p. 24.

40 Mr Geoff Carmody, *Proof Committee Hansard*, 15 April 2009, p. 30.

41 Mr Salim Mazouz, *Proof Committee Hansard*, 15 April 2009, p. 24.

42 For a critical analysis of this scheme, see Robert Passey, Iain MacGill and Hugh Outhred, 'The governance challenge for implementing effective market-based climate policies: A case study of the New South Wales Greenhouse Gas Reduction Scheme', *Energy Policy*, Vol. 36, 2008, pp. 3009–3018.

earns credits while firms above have to buy them. The benchmark intensities can be reduced over time to reduce total emissions by the economy.[43]

The baseline-and-credit / intensity-based model

3.46 In a submission to the Garnaut Climate Change Review, Frontier Economics, a proponent of the emissions intensity model, gave evidence supporting the baseline and credit/intensity based model approach.

3.47 It argues that while the incentive structures of the cap and trade scheme and the intensity-based scheme are similar, there is less 'churn' of revenue in the intensity scheme.[44] In evidence to the Committee, Mr Matt Harris, Frontier Economics consultant, stated:

> …what we are proposing is a mixture of carrots and sticks. You are penalising people at the margin and you are rewarding those that are relatively cleaner. The difference in the mechanism is that under the all sticks approach there generates a substantial pool of revenue that the government must then distribute, whereas most of the revenue generated in the scheme that we are proposing is recycled within the scheme. There is much less churn within the design of the scheme.[45]

3.48 In the Frontier Economics' submission it is stated:

> Given that under the intensity model, the firms paying for exceeding baselines are balanced by firms receiving funds for being under baselines, there should be no overall net effect on consumer prices, so no need for complex 'compensation' schemes. An intensity scheme would also offer a smoother transition for trade-exposed industries than a cap and trade scheme.[46]

3.49 Mr Harris also gave evidence to the Committee that:

> One aspect of the scheme is that if you allocate on the basis of a baseline for a unit of production, if you increase production there is a potential to create more permits. That is a criticism of this scheme, but the converse of that which must be recognised is that while the total cap of the scheme

---

43 See Mr Danny Price, Select Committee on Fuel and Energy, *Committee Hansard*, 2 April 2009, p. 12.

44 Both the intensity-based and the baseline-and-credit scheme avoid churn. Revenue is recycled into a flat producer subsidy as opposed to the cap and trade scheme where there is a large transfer of funds into government coffers and then back out to consumers. See Frontier Economics, 'options for the design of emissions trading schemes in Australia', *Submission to the Garnaut Climate Change Review*, April 2008, p. 12.

45 Mr Matt Harris, *Proof Committee Hansard*, 16 April 2009, p. 16.

46 Frontier Economics does concede the possibility that lower price effects may impact on demand side abatement, which may therefore require other measures such as demand-side management rules. See Frontier Economics, 'Options for the design of emissions trading schemes in Australia', *Submission to the Garnaut Climate Change Review*, April 2008, p. ii.

> might increase in times of global or economic boom it also contracts in times of recession, such as the current environment. That is an important aspect that distinguishes this from other hybrid-type schemes that aim to cap the cost of emissions trading. For example, whereas you might have a scheme that has emissions trading with a price cap, to cap the cost of permits rising beyond a certain level, in times of economic boom, if that cap becomes binding, then you allow emissions to rise above the target set in that emissions trading scheme. On the converse, if you have a recession the carbon price just drops to zero and you do not achieve any further abatement. The difference in this scheme is that in those times of recession you actually achieve greater cuts than would be the alternative.[47]

3.50 Mr Amar Breckenridge, a consultant with Frontier Economics, gave evidence to the Committee that:

> In setting a baseline what you essentially do is work backwards from the overall target you want to achieve—for example, over a period of five to 10 years. You will set your baseline to try to achieve that target. Suppose the economy, over that time, will go up or dip below that trend, under this scheme for those periods of time lags above that trend you will have an expansion in emissions, and for the time below that trend you will have a contraction because the cap will expand when it is above trend and will contract when it is below trend. Under a cap and trade scheme what you would get is the price going up and down and changing around a lot. If you take the performance of the economy over time, if you set your baseline in view of achieving a certain amount of emissions, you would achieve that target but without the huge volatility in prices in between because of fluctuations over and above the cycle.[48]

Evidence opposed to the baseline-and-credit / intensity-based models

3.51 In evidence to the Committee Mr Salim Mazouz from EcoPerspectives stated:

> …while sector based intensity targets can have some advantages in transition, they also remove output based abatement incentives. If you have a target that is based on a particular industry—for instance, the steel industry…—the target means that the production of steel itself is not going to face a cost. So what happens is that people potentially will not substitute away from steel towards something like, say, wood when they are building. That substitution from outputs of emissions intensive goods and services does not happen under intensity based schemes.[49]

3.52 Dr Richard Denniss, Director of The Australia Institute, gave evidence that the incentives under an intensity scheme to shift production to lower emitting industries were weak.

---

47 Mr Matt Harris, *Proof Committee Hansard*, 16 April 2009, p. 19.

48 Mr Amar Breckenridge, *Proof Committee Hansard*, 16 April 2009, p. 22.

49 Mr Salim Mazouz, *Proof Committee Hansard*, 20 May 2009, p. 59.

> What intensity targets are good at doing is changing the way industries behave but what they are bad at doing is giving signals to consumers to change their behaviour…If your objective is to make steel more energy efficient then intensity works; if your objective is to shift people away from steel and into something else by definition it does not work. Where that fits in with this broader debate is: are we trying to encourage economic transformation or are we trying to maintain the status quo with slightly lower emissions?[50]

3.53 Professor Garnaut in his Garnaut Climate Change review noted that a range of options exist under the baseline-and-credit scheme for setting the benchmark. These include: emissions in a base year; average emissions per unit of production based on installed technology in a base year; average emissions per unit of production based on best practice technology; or any combination of these approaches. He argued that 'the choice of algorithm introduced a high and unavoidable degree of arbitrariness into the design of the baseline and credit scheme', which would 'raise transactions costs and encourage rent-seeking behaviour'.[51]

3.54 In their submission to this inquiry, the Climate Institute noted that they had asked McLennan Magasanik Associates[52] to conduct a critique of the baseline-and-credit model. Part of this critique is reproduced in the Climate Institute's submission.

3.55 McLennan Magasanik Associates stated that while both a cap and trade and a baseline-and-credit scheme are 'likely to be equally efficient', 'the problems come when applying the schemes in practice'.[53] It offered the following four criticisms of a baseline-and-credit scheme:

- it is likely to carry higher administrative costs than a cap and trade scheme and is likely to be more complex to administer. This is because a baseline has to be set for each emitting activity based on historical emission and production rates. In the absence of this data, a theoretical baseline must be established based on formulas, which is complicated by the fact that emission intensities vary widely among plants in the same industry (and even the same company; see paragraph 3.[44]). The cost of setting a baseline for each of the 1000 liable entities in the proposed ETS would be very high;
- it creates greater uncertainty in achieving targets for emissions reductions because the model is based on emissions intensity, rather than emissions. If economic growth increases more than expected, there is no certainty that the

50 Dr Richard Denniss, *Proof Committee Hansard*, 20 May 2009, p. 59.

51 *Garnaut Climate Change Review*, 2008, p. 310.

52 McLennan Magasanik Associates are Australian consultants with expertise in energy, environmental and regulatory issues.

53 The Climate Institute, *Submission 406*, p. 21.

target will be met which compounds the risk of meeting internationally set targets;

- it can be more open to rorting as plant owners can manipulate the calculation of the baseline to levels that are higher than the real emissions intensity. They thereby avoid any impost and claim credits; and
- it provides no incentive for consumers to reduce their demand for emissions-intensive goods. To the extent that less emissions intensive activities are subsidised, more of that activity may be undertaken which may increase the overall emissions from that activity.[54]

3.56 Evidence was received from witnesses concerned about the administrative complexity of the baseline-and-credit and intensity based schemes.

3.57 Nyrstar Zinc gave evidence to the Committee that two of its smelters—in Hobart and in Port Pirie in South Australia—had different emissions intensities because its Hobart plant is a zinc electrolytic refining business whereas the Port Pirie plant is a blast furnace based technology.[55] In his evidence to the Committee, Mr John Laugher from Norske Skog said:

> Between Albury and Boyer we are using radiata pine. That level of intensity kilowatt hours per tonne to make the pulp necessary to make newsprint is pretty well benchmarked around the world on radiata pine. With different wood species it might be slightly different. The energy input between Albury and Boyer on our thermomechanical pulp would be the same.[56]

3.58 Mr Erwin Jackson in his evidence to the Committee stated that a baseline-and-credit model is not suited to an international agreement:

> …potentially creates a system which is more uncertain in terms of meeting your international obligation. We are going to have an international obligation unless the government decides not to ratify the next agreement, and if you have a system which is based on baseline-and-credit you have less certainty that you are actually going to achieve that international obligation, which means one of two things—that you are non-compliant and then the taxpayer has to buy international permits or that you are non-compliant and you walk away from the international agreement, which is effectively what Canada has done. Those things weaken the global architecture and weaken the global consensus, which is not in Australia's interest. The other point is that it is incredibly administratively complex and very arbitrary in terms of how you set the baselines.[57]

---

54 The Climate Institute, *Submission 406*, pp. 21–22.

55 Mr Ivan Cauley, *Proof Committee Hansard*, 23 April 2009, p. 80.

56 Mr John Laugher, *Proof Committee Hansard*, 23 April 2009, pp. 51–52.

57 Mr Erwin Jackson, *Proof Committee Hansard*, 1 May 2009, p. 81.

3.59 He further stated:

> My view on the Canadian proposal is that it is dead, effectively. My interaction with the Canadian government officials and my Canadian colleagues is that the Canadians are now basically waiting to see what the US does before they do anything. If the US moves to cap and trade they will do everything they can to be part of that cap-and-trade system. So in effect it is now about to be relegated to the dustbin of history.[58]

The McKibbin hybrid model

3.60 Professor Warwick McKibbin, from the Australian National University, proposes an alternative emissions trading scheme design. It is often known as a 'hybrid model' as it combines some features from cap-and-trade and carbon tax discussed above.

3.61 Professor McKibbin has been a long-standing advocate of a scheme that—in his opinion—overcomes the price volatility and unpredictability of a cap and trade scheme. He describes his model as follows:

> There are three components of the policy. First, the industry has to have a permit to emit in a particular year. This is a standard cap and trade idea. Secondly, that you create the long-term property rights that go with the long-term commitment. If you have a 100-year target, you create permits which last for 100 years, but whose use is restrained to the year in which the annual permit is dated. You would have a long-term goal, which has a long-term permit like a long-term government bond, and every year that bond would give you a coupon which is your right to emit for that year. This long-term goal would be disappearing as with the rights to emit.
>
> You create a market in that, and if that is all you did then you would have something like the CPRS, except a much longer time frame. Rather than five or 10 years it would be 50 to 100 years. The innovation that we bring in, and which is also discussed in the *White Paper*, is the idea that in the short term we do not know what it will cost to hit that target. We need a way of capping the compliance costs. We set up what was called a Central Bank of Carbon whose role is to sell annual permits in a limited quantity at a guaranteed price, just for that year. In other words, the Central Bank of Carbon controls the price of carbon year-by-year, but the market sets the long-term price of carbon. The reason for doing this is that we know that is how we do monetary policy in most countries. In monetary framework we have a fiscal concept which ties down the long-term bond market and the long-term price of money. That is a market determined mechanism which we use to guide investment. We have an institution that is independent of politicians and bureaucracies, which is the Reserve Bank, and the goal of the Reserve Bank is to hold the interest rate constant for 30 days at a time.

58 Mr Erwin Jackson, *Proof Committee Hansard*, 1 May 2009, p. 81.

> You can use exactly the same analogy except that instead of 30-day constant interest rates you have five-year constant permit prices.
>
> So we have this way of getting from where we are to where we want to go with a very clear deep cuts target. We do not rule out the idea of going for deep cuts if it is possible, but we do have a guarantee that we never exceed the cost in the short term, and we have a mechanism for, gradually over time, raising the price of carbon to achieve the goal we set ourselves.[59]

Criticism of the McKibbin model

3.62 Evidence was given criticising the complexity of the McKibbin model. Mr Timothy Hanlin in his evidence to the Committee stated:

> Quite frankly, I think his scheme is a little bit complex.[60]

3.63 In evidence to the Senate Select Committee on Fuel and Energy Committee Mr Rynne gave evidence that:

> It is a slightly complex model. I have heard Warwick speak to that model a couple of times now and I must admit I have not fully grabbed it.[61]

3.64 In a research paper entitled 'Critique of the McKibbin-Wilcoxen hybrid emissions trading scheme', Clive Hamilton and Frank Muller state:

> One of the recognised hallmarks of good policy is simplicity. The hybrid system is complex and many audiences have been left confused after being presented with the system.[62]

3.65 In evidence to the Committee Professor Garnaut criticised the McKibbin model's autarchic approach. Professor Garnaut said:

> I do not think there is much chance at all of getting some of the big developing countries into a global regime unless there is trade in emissions entitlements.[63]

3.66 Mr Timothy Hanlin also gave evidence criticising the McKibbin model as out of tune with other approaches being taken internationally:

> One of the problems I have with McKibbin's plan or his alternative is that that moves us so far away from the Kyoto-type process that it would be

---

59 Professor Warwick McKibbin, *Proof Committee Hansard*, 16 April 2009, p. 31.

60 Mr Timothy Hanlin, *Proof Committee Hansard*, 20 April 2009, p. 28.

61 Mr Rynne, Senate Select Committee on Fuel and Energy, *Committee Hansard*, 20 February 2009, p. 30.

62 Clive Hamilton and Frank Muller, 'Critique of the McKibbin-Wilcoxen hybrid emissions trading scheme', *Australia Institute Research Paper*, no 42, March 2007, p. 7.

63 Professor Ross Garnaut, *Proof Committee Hansard*, 16 April 2009, p. 54. He cites as evidence a conversation with senior Indonesian ministers.

> almost impossible for us to link in, unless everybody else came our way. That would be my major concern. [64]

Regulation and incentives—ad-hoc approaches

3.67 An alternative form of government intervention to address climate change would be in the form of a mixture of 'command and control' style regulation or by providing incentives. A number of such measures have been proposed for dealing with climate change, either to sit alongside a market based approach as a 'complementary measure', or as measures which can provide an alternative to a market based approach (complementary measures are discussed further in Chapter 5).

3.68 Several examples of such ad hoc responses are already in existence in environmental regulation at Commonwealth and state/territory level. Examples which have been raised with the committee include mandating tighter energy efficiency standards and labelling in appliances, vehicles and new buildings. Other examples might include a moratorium on future construction of coal fired power stations; mandating the purchase of renewable energy through measures such as the Renewable Energy Target.

3.69 Incentives include funding for research and development or pilot projects, feed-in tariffs, subsidies (aimed at householders or industry) or rebate schemes to cover the cost of installing new technology (such as solar panel rebate schemes).

3.70 Although the committee heard a large number of witnesses speak in favour of market based approaches, this view was not shared by all witnesses. For example, Mr John Hepburn from Greenpeace gave evidence that direct regulatory action was required as a result of the urgency of the problem:

> There is not a single wind turbine anywhere in Europe that was built as a result of their emissions trading scheme—not one. They were built as a result of the renewable energy targets and feed-in tariffs and other direct regulatory policies.
>
> Our view is that climate change is so serious that we need a robust and urgent response to it rather than a tangential one. That brings us to the issue of emissions trading and why we think it should not be the central policy mechanism but one of a suite of different mechanisms. When we realised that asbestos was a problem, we did not put a price on asbestos, we did not set up a trading system in asbestos, we banned it and phased it out. We replaced it. We think that we need to adopt the same kind of direct regulatory response in terms of climate change.[65]

64 Mr Timothy Hanlin, *Proof Committee Hansard*, 20 April 2009, p. 28.

65 Mr John Hepburn, *Proof Committee Hansard*, 21 April 2009, pp. 58–59.

3.71 Professor Garnaut in the Garnaut Review expressed concern about the limitations of command and control style regulation in relation to climate change. He stated:

> Regulatory, or prescriptive, approaches to reducing emissions can be haphazard. They are inevitably informed by assessments of current and future mitigation opportunities by officials, based on expectations about the rate of technological development and the changing state of consumer preferences. Such policy mechanisms have difficulty in responding to the sometimes rapid but usually unpredictable evolution of technology and consumer preferences.[66]

3.72 The National Farmers' Federation in a submission to the Committee oppose command and control regulation as a means of dealing with climate change:

> The NFF does not currently support a regulatory approach for dealing with climate change. Such practices have been utilised by State Governments in Australia in the past, through the restrictive regulations of land clearing that have enabled Australia to meet its Kyoto targets. This regulatory practice has come at a significant cost to Australian farmers, led to numerous perverse outcomes and has created significant limitations to future farm productivity.[67]

3.73 In its submission to the Prime Minister's Taskgroup on Emissions Trading (March 2007), the Productivity Commission argued that putting a price on emissions (either via a carbon tax or emissions trading) could provide least cost abatement:

> Both emissions trading and taxes can lead to least cost abatement. Least-cost abatement is promoted by the creation of incentives to take up all abatement opportunities that have a lower cost than the emissions price. This is the major advantage of such directly targeted market-based mechanisms over other policy instruments.[68]

3.74 The Productivity Commission in its submission to the Committee noted the costs and inefficiencies associated with the existing 'patchwork' of approaches adopted across different sectors and jurisdictions in Australia:

> These schemes have resulted in a patchwork of costs and prohibitions relating to GHG [greenhouse gas] emissions in various sectors, but no consistent economy wide signal of the social costs of emitting GHGs. The outcome is that average abatement costs are higher than they need to be and many low-cost abatement options are not pursued.[69]

---

66 *Garnaut Review*, 2008, p. 308.

67 National Farmers' Federation, *Submission 507*, p. 8.

68 Productivity Commission, *Submission 24*, p. 39.

69 Productivity Commission, *Submission 24*, p. 36.

3.75 Concern about conflicting regulatory approaches put in place at federal, state and territory level was expressed by several industry groups.

3.76 The Energy Users Association of Australia noted the 'costly and wasteful' overlap in different energy efficiency programmes.[70] The Chamber of Commerce and Industry Queensland also raised concerns about the potential for competing and inconsistent regulation at different levels of government.[71] The Plastics and Chemicals Industries Association shared the concern and called for greater national coordination of policies and regulations, and argued for a moratorium on new measures.[72]

3.77 The Australian Industry Greenhouse Network noted:

> The objective of developing a coherent and streamlined set of climate change measures across jurisdictions has long been requested by industry. In principle, this has been supported by Australian governments in successive iterations of a political commitment to a streamlining objective. However, in an overcrowded greenhouse and energy measures bandwagon – a 2008 audit by the Department of the Environment, Water, Heritage and the Arts has revealed over 140 Commonwealth and State (and Territory) measures – industry is yet to see any measure abolished and continues to witness the announcement of additional measures across jurisdictions with no regard for co-ordination, national consistency or efficiency, and contrary to stated cross-jurisdictional intentions.[73]

3.78 The National Farmers' Federation in its submission to the Committee advocates that a mix of incentive based approaches and investment in new techniques is the approach best suited to the agriculture sector:

> Alternative mechanisms that may be more appropriate for driving a positive response from Australian farmers include Greenhouse Best Management Practice (BMP) programs, environmental quality assurance programs, …certification schemes, R&D investment, transport infrastructure improvements, utility level renewable energy development and grant schemes.[74]

3.79 Mr John Connor of the Climate Institute gave evidence to the Committee noting the difficulty in achieving significant reductions by means of ad-hoc regulatory approaches in the absence of an ETS:

> It is important to see it as a package. Without an ETS we will need a bucket load of regulations to get to targets that are going to help us. We can patch

---

70 Energy Users Association of Australia, *Submission 466*, p. 14.

71 Chamber of Commerce and Industry Queensland, *Submission 728*, p. 6.

72 Plastic and Chemicals Industries Association, *Submission 729*, p. 12.

73 Australian Industry Greenhouse Network, *Submission 364*, pp. 17–18.

74 National Farmers' Federation, *Submission 507*, p. 5.

> them all together but there would be a substantial range of regulations that would be necessary to pull together the reductions that we need.[75]

Committee view

3.80 It is possible for emissions reductions targets to be met by command and control approaches. It is also possible that the right mixture of incentives could lead to dramatic reductions in emissions. Australian governments' approaches to date have consisted of a mixture of such approaches.

Purchasing global permits

3.81 Another approach canvassed by witnesses in their submissions to the Committee was to raise additional revenue from existing taxes and use this to pay emerging economies to reduce their emissions.

3.82 Mr Robert Lengyel, a private citizen, in his submission to the Committee stated:

> Do nothing in Australia—it is a waste of our resources and we will have a close to NIL effect on global CO_2 omissions. It would be much better to either pay +$1 billion dollars to local authorities in the Amazon and get them to offer bonus payments to loggers to STOP tree cutting or subsidize electric car manufacturers in China/India so their growing middle class will be able to make a green motor vehicle purchase at a very low cost.[76]

3.83 Some witnesses were opposed to this approach. Mr Paul Winn of Greenpeace Australia Pacific in his evidence to the Committee stated:

> These carbon credits would need to be sourced almost entirely from the developing world. Apart from the inequity of offsetting our emissions on developing countries, many of the potential offsets carry significant environmental, social and economic risks. The most likely offset credits that Australia would be seeking to purchase are those associated with reductions in deforestation, responsible for about 20 per cent of global greenhouse gas emissions.[77]

3.84 There is also the argument that Australia should be setting an example. If a rich high-emitting country does not think it can reduce its own emissions, this may not encourage poorer countries to introduce schemes to reduce their greenhouse gas emissions. Greenpeace also had some comments on this issue:

> In terms of the global climate negotiations the question is, should Australia do what is an equitable response, should we do less than that, or should we do some heavy lifting? Given the privilege that this country has, given our

---

75 Mr John Connor, Climate Institute, *Proof Committee Hansard*, 20 May 2009, p. 38.

76 Mr Robert Lengyel, *Submission 708*, p. 1.

77 Mr Paul Winn, Greenpeace Australia Pacific, *Proof Committee Hansard*, 21 April 2009, p. 58.

> history of ingenuity, given how rich we are, given how abundant our renewable energy resources are, [Greenpeace Australia Pacific] thinks there is a very strong case that Australia should be setting a strong example globally. If we do not do it, who do we expect to take leadership?[78]

3.85 Mr Owen Pascoe of the Australian Conservation Foundation in his evidence to the Committee stated:

> that will mean we will not drive the transition that we need to see within Australia to take advantage of those green-collar jobs opportunities.[79]

Summary

3.86 This chapter looked at the evidence given by witnesses in relation to the different policy options available to reduce greenhouse gas emissions: a conventional cap and trade scheme; a carbon tax; a consumption-based carbon tax; a baseline-and-credit scheme and an intensity scheme; and regulatory tools.

3.87 Each of these options put forward has strengths and weaknesses.

3.88 The preferred option will depend on whether the priority is to ensure effective mitigation and adaptation of polluting practices or potentially to reduce emissions at lowest cost to industry. These priorities are, in turn, shaped by perceptions of risk:

- What is the risk to the environment if the price signal fails to ensure effective mitigation?
- What will be the long-term adaptation and mitigation costs for the economy if a strong price signal is not set in the short-term?
- What is the risk that if a rich, developed nation such as Australia does not implement an effective greenhouse gas abatement policy, an international agreement will not be reached?
- What is the risk that Australian-based companies will move offshore to seek cheaper options in nations without a price on carbon?
- What will be the short-to-medium term effect on the competitiveness of trade-exposed, emissions-intensive industries if other nations fail to act?

Committee view

3.89 The Committee believes that the Government should give transparent recognition to the options for an emissions trading scheme through processes which produce public confidence in the final proposal.

---

78 Mr John Hepburn, *Proof Committee Hansard*, 20 April 2009, p. 70.

79 Mr Owen Pascoe, *Proof Committee Hansard*, 22 April 2009, p. 63.

3.90 The Committee is of the view that any Australian ETS should be primarily concerned about encouraging reductions in carbon emissions in Australia without imposing undue increases in costs to Australians.

3.91 Accordingly, the Committee is of the opinion that on the evidence presented to it the current CPRS does not achieve this primary objective and that alternatives options to abate greenhouse gas emissions must be considered.