

Australia's Plan for a Clean Energy Future

REGULATION IMPACT STATEMENT

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1: Background

This Regulatory Impact Statement has been prepared to assess the impacts of the carbon pricing mechanism, a key element of the Government's plan for a clean energy future.

Scientists advise that the world is warming and high levels of carbon pollution risk environmental and economic damage.

In Australia and across the globe, 2001 to 2010 was the warmest decade on record. Each decade in Australia since the 1940s has been warmer than the last.

The 2007 Fourth Assessment Report of the Intergovernmental Panel on Climate Change concluded that it is more than 90 per cent likely that human-induced greenhouse gases are responsible for most of the observed warming over the last 50 years. National scientific bodies in many countries, including the United Kingdom, the United States and Australia, have reached similar conclusions.

The rate of future warming will depend on the concentration of greenhouse gas emissions in the atmosphere. Greenhouse gas concentrations are at approximately 390 parts per million (ppm) and have been increasing at an average of around 2 ppm each year for the past decade.

If the world were to continue as it has in the past, in a 'business as usual' fashion, scientists project that the concentration of carbon pollution in the atmosphere would rise to up to around 940 parts per million by the end of the century: a level which could see temperatures rising up to a dangerous 6.4 degrees Celsius above 1990 temperatures. Sea levels are estimated to rise by between 0.5 and 1 metre by 2100 from 2000 levels and the acidity of the world's oceans will increase significantly, threatening species that cannot tolerate the more acidic environment. Cyclones, storms, floods and other extreme weather events are likely to change in severity or frequency. Rainfall patterns around the world will change, making some places drier and other places wetter.

Among the world's developed countries, Australia faces acute risks. Projections by the CSIRO and the Bureau of Meteorology show that, if the world does not take action to tackle climate change, average temperatures across Australia will increase by between 2.2 degrees and 5 degrees Celsius by 2070 (compared with 1990). Studies indicate that warming of 2 degrees Celsius will overwhelm the capacity of many of our natural ecosystems to adapt.

Climate change will also impose economic costs on Australia. Economic modelling for the Garnaut Climate Change Review in 2008 estimated that the negative impacts of unmitigated climate change may reduce Australia's gross national product by around 2 per cent by 2050 and by around 7 per cent by 2100. Most of this would be due to reduced performance or failure of infrastructure. This estimate is conservative, because this modelling only included costs that were readily quantifiable.

Governments around the world have agreed to limit carbon pollution so that average global temperature rise can be held below 2 degrees Celsius above pre-industrial levels. If the global 2 degree goal is achieved, Australia will still face some impacts. However, our communities and environment will be better able to cope.

Australia has the highest level of carbon pollution per person of any developed country in the world, and is one of the twenty largest polluting countries in the world. Our annual carbon pollution is roughly the same as that of countries like Spain, France, Italy, South Korea and the United Kingdom. All of those countries have populations two to three times larger than Australia.

Australia's pollution per person is high because we have an energy sector that is very emissions-intensive. For every kilowatt hour of electricity generated in Australia, considerably more carbon pollution is released than in most other countries.

Australia's carbon pollution is also increasing rapidly. Even taking into account existing climate change policies such as the Renewable Energy Target and the Carbon Farming Initiative, our carbon pollution is projected to rise to 679 million tonnes in 2020 in the absence of further action. This is a projected increase of 22 per cent over the two decades from 2000 to 2020.

Our levels of carbon pollution are not only rising but, without a plan to cut carbon pollution, they are projected to rise faster in the future than in the past. Growth in carbon pollution over the next decade is expected to be dominated by emissions associated with the extraction and processing of energy resources driven by strong export demand. Fugitive emissions from coal mines and oil and gas projects, as well as direct fuel combustion emissions from liquefied natural gas projects, account for almost half of the growth in Australia's total emissions from 2010 to 2020.

1.1 Targets to reduce pollution

The scientific advice is that stabilising concentrations of carbon pollution in the atmosphere at 450 parts per million provides a reasonable chance of avoiding the most dangerous impacts of climate change by limiting global temperature rises to less than 2 degrees Celsius.

At the United Nations 2009 Copenhagen Climate Change Conference, and at the 2010 conference in Cancun, more than 100 countries have agreed to limit carbon pollution so that the average global temperature rise can be held below 2 degrees Celsius above pre-industrial levels, which is broadly consistent with global concentrations of 450 parts per million. The United States and China, the world's biggest polluters, have committed themselves to this ambition. With this global goal in place, countries from around the world have set targets to reduce their carbon pollution.

The Government has committed to responsible targets to reduce carbon pollution and to play our part in the global effort to avoid dangerous climate change. The Government has committed to reduce carbon pollution by 5 per cent from 2000 levels by 2020 irrespective of what other countries do, and by up to 15 or 25 per cent depending on the scale of global action.

As part of its plan to secure a clean energy future, the Government has adopted a new long-term target: to reduce carbon pollution by 80 per cent compared with 2000 levels by 2050.

This is consistent with the findings of the Intergovernmental Panel on Climate Change's Fourth Assessment Report that, to stabilise concentrations of carbon pollution at 450 parts per million, 2050 targets for developed countries should be between 80 to 95 per cent below 1990 emissions. Treasury modelling shows this target can be achieved with modest cost to our economy.

The Australian Government's long-term target is also consistent with targets announced by other developed countries, including the United Kingdom and Germany.

It is in Australia's national interest to contribute to reducing global pollution because our climate's future is inextricably linked to global climate action. The new long-term target will drive Australia's transformation to a clean energy future. It will give businesses and investors the certainty they need to start retooling our economy to maintain growth while lowering carbon pollution.

Box 1: Modelling mitigation

To inform the choice of a starting price, the Australian Treasury modelled the costs of climate change mitigation. The Treasury modelling does not include the economic impacts of climate change. Nor does it reflect all elements of the Government's final carbon pricing mechanism.

Global action scenario

The impacts of Australian action are compared against a medium global action scenario:

- The world takes action to stabilise concentrations of greenhouse gases at 550 parts per million Carbon Dioxide equivalent (CO₂-e) by 2100. This target is consistent with the low end 2020 emissions reduction pledges made in Copenhagen in 2009 and Cancun in 2010. Action for developing countries is staggered through time, with developed countries and China leading the mitigation effort initially; most countries act by 2020; and everyone acts by 2031. Initially, global action is uncoordinated with differentiated carbon prices and limited permit trade. Over time, countries move to more open trade, either bilaterally or through a common market, with a global carbon price emerging in 2015/16.

Key Results

Results from the global action scenario are described in terms of gross world product (GWP). With medium global action, GWP is expected to be around 50 per cent higher than current levels by 2020. Annual average growth in GWP from 2010 to 2050 is 3.4 per cent, rather than 3.5 per cent without mitigation action. With medium global action, the level of GWP will take 16 months longer to reach where it would otherwise have been in 2050.

Delaying global action increases the costs of meeting stabilisation targets. Delaying global action by 3 years adds around 20 per cent to the first year global mitigation cost. Delaying entry by a further 3 years adds a further 30 per cent to the first year mitigation cost.

Domestic action

The Treasury modelled an Australian policy scenario assuming that emissions pricing commences on 1 July 2012 and that agriculture and forestry, in terms of mandatory liability for emissions, remain excluded from the domestic mechanism.

An effective carbon price is applied to transport and non-transport emissions from businesses using liquid fuels from 2012-13 (except light vehicles, agriculture, forestry and fishing) and to heavy on-road vehicles from 2014-15, through the fuel tax credit system; and aviation fuel from 2012-13 through the domestic aviation excise system. (Note: the Multi-Party Climate Change Committee has not agreed to the inclusion of heavy on-road vehicles from 2014-15.)

Off-road transport use and non-transport use of gaseous fuels face an effective carbon price through reductions in fuel tax credits or automatic excise remission.

On-road transport use of gaseous fuels does not face a fuel tax credit reduction due to imposing the Road User Charge.

Emissions-intensive, trade-exposed industries receive assistance at 94.5 per cent or 66 per cent, depending on emissions intensity, which declines at 1.3 per cent per year.

Australia's emission reduction target is 5 per cent below 2000 levels by 2020 and 80 per cent below 2000 levels by 2050. Australia's emissions trajectory is set as a straight line from the end of the Kyoto period to 2020 and again as a straight line from 2020 to 2050.

- The initial starting price is A\$20/t CO₂-e in 2012-13, rising at 5 per cent a year, plus inflation, until flexible pricing commences in 2015-16, when the world price is predicted to be around A\$29/t CO₂-e. The impact on households has been modelled assuming an initial carbon price of A\$23/t CO₂-e.
- The difference between the modelled starting price of \$20 and the proposed starting price of \$23 does not materially impact on the analysis.

Key Results

With carbon pricing, annual GNI and GDP (gross domestic product) growth is around 0.1 per cent slower per year over the period 2010 to 2050. This results in per person GNI being 0.5 per cent lower in 2020 and 4.7 per cent lower in 2050 than without carbon pricing. The economic costs of reducing Australia's emissions will be small, although costs to sectors and regions will vary.

Average incomes grow strongly under carbon pricing, and are expected to increase by about 16 per cent, or around \$9,000, by 2020 compared to current levels in today's dollars.

Emission prices (2010 real dollars) are predicted to be A\$29/tCO₂-e in 2020 and A\$131/tCO₂-e in 2050.

In terms of abatement, if the world takes action to stabilise greenhouse gas concentrations at 550 ppm, and Australia does not, Australia's emissions are projected to reach 679 Mt CO₂-e in 2020 and 1008 Mt CO₂-e by 2050 (22 per cent above 2000 levels and 90 per cent above 2000 levels respectively).

- With carbon pricing, domestic emissions are predicted to be 58 Mt CO₂-e lower in 2020 and 463 Mt CO₂-e lower in 2050.

Australia meets its emissions targets through a mix of domestic abatement and abatement sourced from overseas.

Household impacts

Household impacts were modelled assuming a starting price of A\$23/t CO₂-e in 2012-13, with the fixed price moving to a flexible price in 2015-16 of A\$29/t CO₂-e.

This is expected to lead to a one-off rise in the consumer price level of 0.7 per cent in 2012-13, with a smaller rise of 0.2 per cent expected by 2015-16. Beyond 2015-16,

implications for ongoing inflation are minimal, although the prices of some goods rise.

Electricity prices are estimated to increase by 10 per cent and gas prices by 9 per cent in 2012-13 due to the introduction of carbon pricing, assuming full pass-through of carbon costs.

Benefits

The major finding of the Garnaut Review was that the long term economic costs of inaction are greater than the costs of action. That judgement was based on a detailed assessment of the costs to Australia of participating in global emissions reductions compared to the benefits of that global action, including a range of benefits that were not able to be modelled.

Acting on climate change is not something that gets easier the longer it is left. The opposite is true – the longer Australia leaves acting, the greater will be the impacts on Australia's environment and the more it will cost the Australian economy. By not acting, we will also miss out on the investment, innovation and jobs that the global transformation to clean energy will bring.

Recognising that it is in Australia's long-term interests to take action, the Australian Government has committed to reducing Australia's emissions of greenhouse gases to 80 per cent below 2000 levels by 2050 and has unconditionally committed to achieving a reduction in domestic emissions to 5 per cent below 2000 levels by 2020. The question therefore becomes: what is the most cost-effective means of achieving these goals?

While the Treasury modelling described above did not assess the benefits of achieving the Government's emissions reduction goals, it shows that after allowing for climate change mitigation action, the world economy will continue to prosper and the Australian economy will continue to prosper while achieving significant cuts in emissions.

1.2 Approaches to achieving targets

There are two basic approaches to achieving the Government's emissions reduction targets. One is by placing a price on emissions. The other is by a targeted abatement policy. Targeted abatement may take the form of a subsidy or regulation. Both approaches work by changing the relative prices of goods and services. However each changes a different range of relative prices and each impose different costs on different groups within the economy.

Placing a price on emissions through a carbon pricing mechanism imposes costs on firms that reflect the costs that their actions impose on others. It does not seek to direct what goods and services firms and individuals produce and consume, but allows them to take the price of emissions into account when making decisions on what they produce and consume. By altering relative prices on the basis of the emissions embodied in particular goods and services, it encourages firms and individuals to produce and to consume goods and services with lower emissions-intensity and discourages them from producing and consuming goods and services with higher emissions intensity.

The price of carbon is determined under an emissions trading scheme by the cost of abatement (the actions of firms and individuals, who each adjust their purchasing and production decisions in response to their expectations of the price). The price of carbon is determined under a carbon tax by the Government. However, in neither case is the Government required to make decisions about how abatement should be achieved, and in both cases the Government interferes less in firms' and individuals' private decisions than under regulatory or subsidy-based targeted abatement policies.

While targeted abatement policies also change relative prices, the costs of achieving abatement are generally less transparent (for example, where abatement is achieved by regulation), and can be regressive (for example, where abatement is funded from a particular group of firms and/or individuals).

Targeted abatement policies also impose additional costs relative to a carbon price approach. In addition to determining the level of abatement to be achieved, the Government has to determine the lowest cost sources of abatement and the most efficient ways of encouraging abatement. It has to predict how technology may change, how firms and individuals will react to each targeted abatement policy, and how targeted policies interact with each other, if abatement is to be achieved at least cost. Targeted policies usually require ongoing 'fine-tuning' to address changes in technology, unintended consequences and unpredicted behavioural responses.

Targeted abatement policies are unlikely to bring about the behavioural responses of firms and individuals of a carbon price, and are therefore unlikely to achieve a given level of abatement at the lowest cost.

The Productivity Commission recently undertook some highly stylised modelling for Australia of the cost effectiveness of actual policy measures for the electricity generation sector. The modelling suggested that the 12.5 Mt of abatement achieved by existing policies in 2010 could have been delivered instead by a carbon price (for the electricity sector only) in the order of A\$9/CO₂ or at a fraction of the existing cost. Alternatively, a carbon price mechanism applying to the electricity generation sector and imposing the same costs as the policies in place in 2010 could have reduced emissions by more than double the abatement achieved.¹

The Productivity Commission also assessed the impacts of more than 1,000 climate change mitigation policies across eight countries and drew the general conclusion that, while the overall impacts of the climate change policies it analysed appeared to be relatively small for most countries, the consistent finding from its study was that much lower-cost abatement could be achieved through broad, explicit carbon pricing approaches.²

¹ Productivity Commission 2011, Carbon Emission Policies in Key Economies, Research Report, p. xxxix.

² Ibid., p 156.

2: A carbon pricing mechanism

On 27 September 2010, the Government announced the establishment of the Multi-Party Climate Change Committee (the Committee) to explore options for the implementation of a domestic carbon price.

2.1 Principles for a carbon pricing mechanism

The Committee agreed in December 2010 to a set of principles to guide the development of any carbon price mechanism. The Committee acknowledged that some principles would be more relevant than others when examining each of the specific design issues, and that design decisions may require a trade off.

The principles are:

- **Environmental effectiveness:** The mechanism should be capable of delivering reductions in carbon pollution that are informed by the climate science, to ensure that Australia contributes to the global mitigation task and to help transform our economy by driving investment and innovation in clean energy and low emissions technologies and processes.
- **Economic efficiency:** A mechanism to price carbon should harness the most cost-effective pollution reduction options and facilitate informed and efficient investment decisions. It should also minimise costs of our pollution reduction to the economy as a whole and be consistent with Australia's broader economic reform agenda.
- **Budget neutrality:** The overall package of a carbon price mechanism and associated assistance measures should be budget-neutral. This does not preclude other measures to address climate change being funded from the Budget, consistent with the Government's fiscal strategy.
- **Competitiveness of Australian industries:** The overall package of carbon price design and associated assistance measures should take appropriate account of impacts on the competitiveness of all Australian industries, having regard to carbon prices in other countries, while maintaining incentives to reduce pollution.
- **Energy security:** Introduction of the carbon price should be accompanied by measures that are necessary for maintaining energy security.
- **Investment certainty:** A mechanism to price carbon should provide businesses with the confidence needed to undertake long-term investments in low emissions technology and infrastructure, which will reduce costs for households and businesses in the long-term. It should keep our industries at the forefront of the research, development and deployment of new clean technologies, attracting global investment flows and creating new jobs.
- **Fairness:** The introduction of a carbon price will affect Australian households and communities. Assistance should be provided to those households and communities

most needing help to adjust to a carbon price, while striving to maintain incentives to change behaviour and reduce pollution.

- **Flexibility:** Internationally, climate change policy is continuing to evolve. A mechanism to price carbon should be sufficiently flexible to respond to changing international circumstances, including improvements in international accounting rules, developments in climate change science, and tangible international action to deliver an effective global solution.
- **Administrative simplicity:** A mechanism to price carbon should be designed with a view to minimising both compliance costs and implementation risks.
- **Clear accountabilities:** A mechanism with transparent scheme rules and clear accountabilities will help promote business and community confidence in carbon pricing.
- **Supports Australia's international objectives and obligations:** An effective global solution requires action from all major emitters to limit the global temperature rise to less than 2 degrees. A carbon price mechanism should support the goal of promoting international action to deliver an effective global solution, and be consistent with Australia's foreign policy and trade objectives.

2.2 Outline of carbon pricing architecture released for public consultation

On 24 February 2011, the Government outlined the broad architecture for a carbon price mechanism that had been considered by the Committee.

- The broad architecture was released for purposes of public consultation, but did not represent the agreed position of the Committee.

Broad architecture of the carbon price mechanism

A carbon price mechanism could commence with a fixed price (through the issuance of fixed price units within an emissions trading scheme) before converting to a cap-and-trade emissions trading scheme, with the following broad architecture.

Start date

The mechanism could commence as early as 1 July 2012, subject to the ability to negotiate agreement with a majority in both houses of Parliament and pass legislation this year.

Length of fixed price period

The fixed price phase could be between three and five years, with the price increasing annually at a pre-determined rate. The initial fixed price could begin to drive economic transformation and investment in low emission technologies, and ensure greenhouse gas emission reductions.

Transition arrangements

At the end of the fixed price period, the clear intent would be that the mechanism convert to a flexible price cap-and-trade emissions trading scheme. In relation to the transition to a flexible price, it would be important to design the arrangements so as to promote business certainty and a smooth transition from the fixed to flexible price.

An option could exist to defer the commencement of the flexible price arrangements. A decision on whether to exercise the option to continue with a fixed price could be taken at least 12 months before the end of the fixed price phase. Unless there is a deferral, a particular 2020 target could be set no later than this date.

If the flexible price arrangements were to be deferred, a decision could also be required on whether any changes to the level of the fixed price and/or the escalation rate were to be made. Any such changes could take into account the level of international carbon prices (including whether international prices were lower than the fixed price) and the impact of the price on the economy and reductions of carbon pollution.

In making a decision about whether to exercise the option to defer the transition to a cap-and-trade emissions trading scheme, the following issues could be considered:

- the state of the international carbon market including the availability, integrity and price of international units;
- developments in carbon pricing in key competitor economies, including carbon price forms and levels;
- Australia's internationally agreed targets and progress towards meeting them, including whether they have been incorporated into a binding legal agreement;
- the fiscal implications of any on-budget purchases of internationally accepted emissions units that may be required for Australia to comply with any internationally agreed emissions target;
- potential impacts on the Australian economy including impacts on households, workers, regions and communities, and the competitiveness of Australian industry; and
- the implications for investment certainty in clean technologies, energy efficiency and carbon markets.

Coverage

A carbon price mechanism could cover all six greenhouse gases counted under the Kyoto Protocol and have broad coverage of other emissions sources encompassing:

- the stationary energy sector
- transport sector
- industrial processes sector
- fugitive emissions (other than from decommissioned coal mines)

- emissions from non-legacy waste.

Emissions from sources covered under the proposed Carbon Farming Initiative, such as agricultural emissions sources, would be excluded from coverage under the carbon pricing mechanism.

Another important matter to be determined is how to maintain and enhance the carbon carrying capacity of the landscape, which would have important sustainability and biodiversity conservation co-benefits. Land use and water issues are also important. Options to provide economic value to activities which store or reduce carbon in the land sector could potentially include the use of Kyoto-compliant credits in the carbon pricing mechanism or alternative funding arrangements for the land sector.

International linking

During the fixed price phase, liable parties may not be entitled to use international emissions units for compliance.

In the flexible price phase, international emissions units (offsets) meeting appropriate criteria concerning their quality could be able to be used for compliance. In advance of a move to emissions trading, a decision could be made on any restrictions on the quantity and any other criteria for the use of international emission units.

2.3 This Regulation Impact Statement

As noted above, the Government has committed to a long term goal of reducing Australia's emissions and to achieving this by introducing a carbon pricing mechanism.

While this decision has been taken, and despite the release of architecture for public consultation, the form of a carbon pricing mechanism and the rules and regulations surrounding its operation have not been finally settled. This RIS provides information to assist in taking these decisions.

3: Objectives

There are many choices involved in the design of a carbon pricing mechanism. In making these choices, the Government is guided by the principles agreed to by the Multi-Party Climate Change Committee and by the following broad objectives:

- to give effect to Australia's obligations under:
 - The Climate Change Convention; and
 - The Kyoto Protocol;
- to support the development of an effective global response to climate change; and
- to take action towards meeting Australia's long-term emissions reduction target of reducing net greenhouse gas emissions to 80 per cent below 2000 levels by 2050 in a flexible and cost-effective way.

Australia cannot solve the global climate change problem alone. Like other nations, Australia must rely on international cooperation to achieve the necessary global reductions in greenhouse gas emissions. Therefore, it is vital that Australia's mitigation efforts are designed to support an effective global response.

A well-designed and successfully implemented carbon pricing mechanism can contribute to shaping an effective global response by:

- helping Australia meet its international climate change obligations;
- demonstrating to other countries that emissions reduction targets can be achieved cost effectively through an emissions trading scheme with broad coverage;
- supporting Australia's international negotiating position; and
- helping to support the development of international emissions trading.

The objectives also recognise that it is desirable for the mechanism to be designed and implemented in the most cost-effective way. That is, in considering options for designing the mechanism, the objective is to ensure that choices made reflect the balance of costs and benefits that most benefits the community. In many cases, this equates to minimising compliance and administration costs. However in some cases, options with more substantial compliance costs may be adopted as these options have greater overall benefits for industry, Government or the community in general.

4: Consultation

Consultation is an integral part of the development of legislation, regulations and administrative decisions underpinning the design of the carbon pricing mechanism.

The Government convened roundtables of business groups, environmental/non-government organisations, community sector groups in relation to household assistance, and primary industry representatives in relation to the land sector. Industry sub-groups were also convened in relation to industry transitional assistance and the energy sector. These groups met at different times between late 2010 and mid-2011.

The Department of Climate Change and Energy Efficiency began receiving public submissions on carbon pricing following the establishment of the MPCCC. The release of the broad architecture for a carbon pricing mechanism on 24 February 2011 triggered a number of further public submissions.

On 21 April 2011 the Government requested that any further formal submissions be provided no later than 10 May 2011. By that date, the Department had received over 1300 submissions on carbon pricing issues. Over 1100 came from private citizens, 85 came from businesses and small and medium-sized enterprises, 54 came from non-Government organisations, community groups and state and local government bodies, and 56 came from industry associations.

Stakeholder submissions were invited on the basis that they would be kept confidential.

The Department of Climate Change and Energy Efficiency also convened:

- a series of liaison groups involving peak stakeholders and state and territory government representatives; and
- technical working groups on liquid fuels, natural gas and point of liability questions.

These were complemented by an extensive program of bilateral meetings held to discuss specific issues.

Industry association submissions

Among industry association submissions there was mixed support for carbon pricing in general:

- A number of submissions expressed concern about the international competitiveness of trade exposed industries in the absence of a comprehensive global agreement and effective assistance arrangements;
- A range of submissions expressed considerable support for strong and well targeted complementary measures, particularly for energy efficiency, renewable energy and technology innovation.

Comments on the MPCCC framework architecture focussed on coverage and timing of the mechanism:

- some submissions proposed exemptions from carbon pricing for specific sectors or 100% assistance without any decay for their own industries or emissions-intensive, trade-exposed industries generally, due to concerns about the cost impacts of a carbon price through the supply chain;
- a number of submissions preferred starting with an ETS instead of a fixed price;
- others favoured a delay in commencement to provide necessary adjustment time.

Other key topics of the industry association submissions included:

- greater acknowledgement by Government of improvements in emissions reduction to date;
- the importance of the Government providing adequate compensation to low income and vulnerable members of the community;
- some support for offsetting a carbon tax on fuel with a corresponding drop in fuel excise, on the grounds that higher fuel prices will not reduce use due to the relative inelasticity of demand for fuel, but also some opposition to offsetting transport fuel's inclusion with a reduction in fuel excise.

NGO/community group/government submissions

The majority of NGO/community group/government submissions came from environmental organisations, with smaller numbers from government bodies, health and welfare groups, unions and others.

An overwhelming majority of these submissions were in favour of a price on carbon, but there were mixed opinions on some aspects of the MPCCC's framework, particularly in relation to the length of the fixed price period and seeking clarity on other issues not specifically addressed in the 24 February framework, including the degree of industry compensation and the starting price.

The main topics of the NGO/community group/government submissions included:

- strong support for complementary measures to target market failures in innovation and energy performance standards;
- strong support for carefully targeted low-income household compensation, which should be designed to encourage uptake of energy efficiency measures;
- concern that industry assistance in the CPRS model was too generous and should be limited and phased out, and that coal fired power generators should not receive assistance;
- broad support for a 1 July 2012 start date, but significant support for a shorter fixed price period than the proposed 3-5 years;
 - Although some did not support a transition to trading at all.

- support for a strong starting price and considerable support for a floor price once the cap and trade phase begins to maintain investor confidence in the mechanism;
- support for an independent body to recommend emissions targets and trajectories;
- some support for international linking of the mechanism after the transition to cap and trade, subject to robustness of credits and possible limits on the use of international units;
 - Although others did not support international linking if it compromised domestic emissions reductions.

Submissions by individual businesses

The majority of business submissions were from major corporations, with a small proportion from small and medium-size enterprises. Among these submissions there was mixed support for pricing carbon and the MPCCC's framework for pricing carbon.

Some were broadly supportive of pricing carbon but suggested improvements to the MPCCC framework, including:

- faster transitioning to a flexible price by either shortening the length of the fixed price period or commencing with an ETS from the outset;
- amending aspects of the mechanism's coverage, for example excluding transport fuels and replacing with vehicle emissions standards;
- inclusion of a floor price in the flexible price period.

Alternatively, some had serious concerns about carbon pricing in general, including:

- the potential cost impost of the mechanism and a the need to ensure adequate protection for Emissions-Intensive Trade-Exposed businesses;
- the environmental integrity of the mechanism and its ability to avoid carbon leakage;
- concerns about complete reliance upon the CPRS framework, with views that it did not take account of recent changes to the Australian economic landscape, particularly the high Australian dollar;
- concerns that the starting price would be too high.

Other issues raised included:

- concern about a lack of detail in the MPCCC's framework, particularly around the level of the fixed price;
- support for access to lowest cost abatement through purchasing international credits, even in the fixed price period;

- This was countered by cautionary calls to limit access to international credits in the shorter term until there is a strong global market, and allowing international credits only if they meet established criteria.
- some concern that the CPRS over-allocated assistance to households and under-allocated to other groups;
- concern about the inclusion of fugitive emissions in the mechanism in the absence of similar treatment of this sector in other schemes internationally;
- support for the Carbon Farming Initiative and linking its credits to the market.

Submissions from private citizens

Over 1100 submissions received from private citizens. Around half of these were letters from three separate campaigns, each of which was supportive of strong action on carbon pricing.

5: Form of a carbon pricing mechanism

Several broad models have been considered in the debate on a carbon pricing mechanism. This section describes each of these models and discusses some of their advantages and disadvantages, with reference to the Multi-Party Climate Change Committee carbon pricing principles. It concludes with a summary of the preferred model.

5.1 Cap and Trade - Emissions Trading

Nature of mechanism

Under a cap-and-trade emissions trading scheme, the Government would set an annual **cap** on total emissions of carbon pollution covered by the scheme.

The Government would issue a number of emissions permits equal to the cap. These permits could be sold at auction, or administratively allocated.

Each emissions permit would equal one tonne of carbon dioxide equivalent. At the end of each year, liable entities must surrender a number of permits equal to their actual carbon pollution in that year. Liable entities, and other parties, are free to trade permits among themselves.

How the mechanism establishes a carbon price

Carbon prices under a cap-and-trade scheme depend on the degree of international linking. A cap-and-trade scheme can be established with:

- no access to international units;
- no limits on the number of international units that could be used for compliance; or
- quantitative limits on the number of international units that can be used for compliance.

In a scheme with no access to international units, a carbon price is established by the price of domestic units, which must be surrendered at the end of each year. That price is determined by the balance between the supply of units (set by the Government) and the demand for units (created by the liable parties, who need to buy the units to cover their carbon pollution). The carbon price can vary over time. The lower the cap, the more scarce these units would be – and the higher would be the carbon price.

- The supply of carbon units would be lower than the demand for them – to bring supply and demand for carbon units into balance, emissions reductions would be needed.
- Technically, the carbon price would be set by the cost of the emissions reduction technology (or measure) needed to achieve the 'last tonne' of emissions reduction needed to bring the supply and demand for carbon units into balance.)

In a scheme that allows for unlimited trade in international units, the domestic carbon price would be equal to the international carbon price, regardless of the level of the Australian cap.

The international carbon price would be determined by the international balance between supply and demand for units (the greater the carbon pollution reductions being sought globally, the higher would be the international carbon price).

- The supply of domestic carbon units would be lower than the demand for them – to bring supply and demand for carbon units into balance, either emissions reductions would be needed, or imports of international carbon units (representing emissions reductions overseas).
- The carbon price would be set by the cost of the action needed to bring the ‘last tonne’ of excess emissions above the scheme cap into scheme compliance – that action would most likely be the purchase of an international carbon unit.

In a scheme with limited access to international units, the overall carbon price would depend on the differential between the international and domestic carbon price, and on whether the quantitative limit on access to international units meant that the demand for units was being satisfied by an international carbon unit (at the international price) or a domestic carbon unit (priced at the domestic cost of reducing the ‘last tonne’ of greenhouse gas emissions needed to meet the cap).

Impact on carbon pollution

The scheme cap provides a direct constraint on carbon pollution, and so provides a high level of confidence about net emissions outcomes for Australia.

If imports of international units are not allowed, the level of covered sector emissions is constrained at the level of the cap (subject to the use of any allowable domestic offset credits from non-covered sectors).

If imports of international units are allowed, a cap-and-trade scheme still provides a high level of confidence that Australia’s international obligations will be met. Carbon pollution in excess of the domestic cap would be offset by the purchase of an international unit by a liable party that could legally be counted towards Australia’s target. However, the exact level of Australia’s domestic carbon pollution cannot be known in advance.

The price of units creates an incentive to reduce carbon pollution. Parties will reduce carbon pollution if it is cheaper to do so than purchase units. A carbon price makes lower emissions choices more profitable than they would be without a carbon price. As the carbon price flows through to the prices of goods and services, it also gives consumers signals to choose less emissions-intensive options.

Other key characteristics

Emissions trading would involve the Government identifying which sources of carbon pollution would be included and who would be liable to surrender units for that carbon pollution.

Coverage of different sectors in the economy could be broad or narrow.

Liable parties would need to count their emissions and report them to a regulator.

The carbon price created by the emissions trading scheme would raise transitional assistance issues for households and businesses (including emissions-intensive, trade-exposed industries).

The sale of emissions permits provides a source of revenue, which could be used to assist households and businesses, or for any other purpose (e.g. supporting the development of low emissions technology, or offsetting other taxes).

Advantages and disadvantages

The main advantages of a cap-and-trade emissions trading scheme are:

- **Certainty about quantity:** emissions trading directly limits carbon pollution by prescribing a scheme cap that is designed to ensure compliance with the relevant international commitment. There is certainty about the level of carbon pollution for the period of time over which scheme caps are set. This is relevant for supporting Australia's international objectives and obligations, environmental effectiveness and budget neutrality.
- **Revenue:** if emissions permits are auctioned, this creates a source of Government revenue, which could be used to provide assistance to households and businesses, or for any other purpose (e.g. supporting the development of low emissions technologies, or reducing other taxes). This is relevant for budget neutrality, fairness, addressing impacts and opportunities on the competitiveness of Australian industries and potentially for recognition of impacts and opportunities for energy security and environmental effectiveness.
- **Minimising fiscal risk:** since emissions trading gives a high level of confidence that emissions will match Australia's international commitments, there is minimal risk left to taxpayers that they will need to purchase international units. This could be relevant for budget neutrality.

The main disadvantages of a cap-and-trade emissions trading scheme are:

- **Carbon price uncertainty:** since the carbon price can vary over time, businesses face carbon price risk. This is no different to risk over wage rates, material inputs, interest or exchange rates. There are ways to manage this carbon price risk, however, via products such as forward contracts or carbon price futures contracts. This is relevant to investment certainty.
- **Implementation lead times:** if emissions permits are to be auctioned, lead times are required to develop appropriate auction platforms. This is relevant to administrative simplicity and flexibility

5.2 Carbon Tax

Nature of mechanism

Under this option, the production of each tonne of carbon pollution would be subject to a tax.

How the mechanism establishes a carbon price

The carbon price would be the tax rate set by the Government.

Impact on carbon pollution

A carbon tax directly imposes a cost on producing carbon pollution; this creates an incentive to reduce carbon pollution. Emitters would consider how much they would need to pay in tax to continue to produce greenhouse gases, and compare this with how much it would cost to reduce their carbon pollution. Carbon pollution would be reduced when doing so left firms better off than paying the tax.

The level of the carbon tax would influence the quantity of carbon pollution produced. The higher the carbon tax the greater the incentive to reduce carbon pollution.

The actual level of carbon pollution that would occur at any given tax rate cannot be determined accurately in advance: it can only be roughly estimated.

Other key characteristics

A carbon tax would involve the Government identifying which sources of carbon pollution would be included and who would be liable to pay tax on that carbon pollution (eg. a coal mine selling coal, or a power station burning coal, or a retailer selling electricity).

Like a cap-and-trade scheme, sectoral coverage could be broad or narrow.

Liable parties would need to monitor their carbon pollution levels and report them to the regulator.

The carbon price created by the tax would raise transitional assistance issues for households and businesses (including emissions-intensive, trade-exposed industries).

A carbon tax is incompatible with allowing international linking. (If the international price fell below the level of the tax, liable parties would purchase international units instead of paying the tax, and the Government would receive no revenue to fund assistance measures.) However, if overall carbon pollution is higher than Australia's national target, carbon tax revenue can be used by the Government to purchase international units to enable Australia to meet its national target.

Advantages and disadvantages

The chief advantages of a carbon tax are:

- (Short term) business certainty: for a given period, a tax rate is known – liable parties face no uncertainty about what the price of carbon will be. The Government can lock in a carbon price as far into the future as it chooses. (However, over time, the tax rate may be subject to change, particularly if emissions outcomes were not what were expected.) This is relevant to investment certainty.
- Revenue: a carbon tax creates a source of Government revenue, which could be used to provide transitional assistance to households and businesses, or for any other purpose (e.g. supporting the development of low emissions technologies, or reducing

other taxes). This is relevant for budget neutrality, fairness, addressing impacts and opportunities on the competitiveness of Australian industries and potentially for recognition of impacts and opportunities for energy security and environmental effectiveness.

- Speed of implementation: no auctions platforms or unit registries are required, which means that a carbon tax could be implemented with relatively short lead times. This is relevant to administrative simplicity.

The chief disadvantages of a carbon tax are that:

- Carbon pollution outcomes are uncertain: a carbon tax does not guarantee that any particular emissions outcome will be reached. This is relevant to supporting Australia's international objectives and obligations, environmental effectiveness and budget neutrality.
- Long-term price risk for business: a carbon tax might require periodic adjustments to ensure Australia's carbon pollution was on track to meeting our target. These are relevant for investment certainty.
- Fiscal risk: if a carbon tax rate is set too low to encourage the reductions in carbon pollution required to meet Australia's international targets, the Government would need to purchase international units to make up for the shortfall. If the tax rate were lower than the price of international units, then there would be a net cost to taxpayers for each tonne of carbon pollution in excess of the target. If a carbon tax rate were set too high, it would divert resources into reducing carbon pollution beyond the level required to meet Australia's international targets, raising excess revenue and imposing an unnecessary cost on the economy. This is relevant to budget neutrality.

5.3 Emissions Trading with Fixed Price Start Model

Nature of mechanism

The emissions trading with fixed price start model is a variant of a cap-and-trade emissions trading scheme. Professor Garnaut recommended such a transitional approach in his 2008 Climate Change Review, to deal with a situation in which Australia's target had not been internationally agreed.

A transitional scheme would start with a fixed price for emissions permits applying for a specified period. Following a review, which could be triggered by a range of factors such as an international agreement on climate change, the restriction on emissions permit prices would be relaxed, and the scheme would transition to a standard cap-and-trade model. Alternatively, the scheme could automatically transition to a cap-and-trade model after a fixed period of time.

How the mechanism establishes a carbon price

A carbon price would be established by the price of the permits that must be surrendered at the end of each year. Following a transitional period, restrictions on the price of permits would be removed.

The carbon price would then be determined by the balance between the supply of permits (set by the Government) and the demand for permits (created by the liable parties, which need to buy the permits to cover their carbon pollution).

The carbon price can vary over time depending on the scarcity of permits. Under the Garnaut model, domestic offsets (from uncovered sectors) and international units would be allowed. These would increase unit supply and lower carbon prices in Australia (subject to unit export arrangements). In a scheme that allowed for unlimited trade in international units, the domestic carbon price would be equal to the international carbon price, regardless of the level of the Australian cap. The international carbon price would be determined by the international balance between supply and demand for units. (The greater the carbon pollution reductions being sought globally, the higher would be the international carbon price.)

Impact on carbon pollution

During the fixed price period, the impact on carbon pollution would depend on the response to the carbon price. The higher the carbon price, the lower levels of domestic carbon pollution are likely to be. If carbon pollution levels exceeded Australia's national targets, then the Government could purchase international units to enable Australia to meet its national target.

During the subsequent flexible price phase, the scheme cap would provide a direct constraint on carbon pollution, and so provide a high degree of confidence about emissions outcomes.

If imports of international units are allowed, a cap-and-trade scheme still provides certainty that Australia's international obligations will be met. Carbon pollution in excess of the domestic cap would be offset by the purchase by a liable party of an international unit that could legally be counted towards Australia's target. However, the exact level of Australia's domestic carbon pollution could not be known in advance.

The price of permits creates an incentive to reduce carbon pollution. Parties will reduce carbon pollution if it is cheaper to do so than purchase permits. A carbon price makes lower emissions choices more profitable than they would be without a carbon price. As the carbon price flows through to the prices of goods and services, it also gives consumers signals to choose less emissions-intensive options.

Other key characteristics

Similar to other mechanisms, the emissions trading with fixed price start model would involve the Government identifying which emissions would be included and who would be liable to surrender permits for those emissions. In principle, the scheme could have broad or narrow sectoral coverage. Liable parties would need to count their emissions and report them to the regulator. The carbon price would flow through to prices of goods and services. This would raise issues of assistance for affected households and businesses, including emissions-intensive, trade-exposed industries.

The sale of emissions permits would provide a source of revenue, which could be used to assist households and businesses, or for any other purpose (e.g. supporting the development of low emissions technology, or offsetting other taxes).

Once flexible price emissions trading commenced, there would be instruments that could be used to manage price volatility, particularly in the early years of the scheme.

A fixed price period is incompatible with allowing international linking. (If the international price fell below the fixed price, the Government would receive no revenue to fund assistance measures.) However, if the overall level of carbon pollution were higher than Australia's national target, emission permit sales revenue could be used by the Government to purchase international units to enable Australia to meet its national target. The flexible price period would be compatible with international linking.

Advantages and disadvantages

The advantages and disadvantages of the emissions trading with fixed price start model differ depending on the timing of consideration (i.e. whether the mechanism is operating in its transitional fixed price period, or the period without price constraints).

The chief advantages of the emissions trading with fixed price start model are:

- Business certainty (during the transitional period): for a given period, the carbon price (and the rate at which it increases) is known – liable parties face no uncertainty about what the price of carbon will be. This is relevant to investment certainty.
- Certainty about quantity (after the transitional period): emissions trading directly limits carbon pollution by prescribing a scheme cap that is designed to ensure compliance with the relevant international commitment. This is relevant for environmental effectiveness.
- Revenue (during both periods): both the fixed and variable price periods can generate revenue (assuming some units are auctioned in the variable price phase) which could be used to provide assistance to households and businesses, or for any other purpose (e.g. supporting the development of low carbon pollution technologies, or reducing other taxes). This is relevant for budget neutrality, fairness, addressing impacts and opportunities on the competitiveness of Australian industries and potentially for energy security and environmental effectiveness.
- Speed of implementation (fixed price period): no auction platforms or unit registries are required in the fixed price period, which means that a fixed-price mechanism could be implemented with relatively short lead times (although these arrangements would be required after the fixed-price period). This is relevant to administrative simplicity.
- Minimising fiscal risk (after the transitional period): since emissions trading without price constraints gives a high level of confidence that carbon pollution level will match Australia's international commitments, there is minimal risk over the longer term to taxpayers that they will need to purchase international units to meet Australia's targets. This could be relevant for budget neutrality.

The chief disadvantages of the emissions trading with fixed price start model are that:

- Carbon pollution outcomes are uncertain (during the transitional period): a fixed-price period does not guarantee that any particular carbon pollution outcome will be reached. This is relevant to supporting Australia's international objectives and obligations, environmental effectiveness and budget neutrality.
- Long-term price risk for business (after the transitional period): since the carbon price can vary over time, businesses face carbon price risk. This is no different to risk over wage rates, material inputs, interest or exchange rates. There are ways to manage this carbon price risk, however, via products such as forward contracts or carbon price futures contracts. This is relevant to investment certainty.
- Fiscal risk (during the transitional period): if the fixed price were set too low to encourage the carbon pollution reductions required to meet Australia's targets, the Government could purchase international units to make up for the shortfall. If the fixed price was lower than the price of international units, then there would be a net cost to taxpayers for each tonne of carbon pollution in excess of the target. This is relevant to budget neutrality.
- Transition to a flexible carbon price: moving from a fixed to a flexible price could potentially involve a significant increase or decrease in carbon prices. (If sufficient lead-times are given, businesses will have access to ways to minimise this risk.) This is relevant to investment certainty.

5.4 Baseline and Credit Scheme

Nature of mechanism

Baseline-and-credit emissions trading systems are those in which firms are rewarded for reducing carbon pollution below a baseline. These reductions become 'credits' which can be traded. Liable parties under the scheme must purchase these credits, and then surrender them to the regulator at the end of each year to meet their share of an economy-wide or sector-wide target. Each 'credit' represents one tonne of carbon dioxide equivalent abated.

Baselines are generally intensity-based (that is, carbon pollution per unit of production).

How the mechanism establishes a carbon price

A carbon price would be established by the trade in credits. The price of credits would be variable, depending on the balance between supply of credits (from those implementing projects that bring carbon pollution below the baseline) and demand for credits (from those who have to meet the target).

Firms participating in a baseline-and-credit mechanism can generate income by creating credits (which are issued for reducing pollution below the baseline) and selling them.

Impact on carbon pollution

Rewarding firms that reduce carbon pollution below a baseline creates an incentive to reduce carbon pollution.

Total carbon pollution is generally not capped through a baseline and credit approach. While the number of credits that must be surrendered in each year can be set in advance, the Government does not know how much carbon pollution will still be created. Also, since baselines are usually related to intensity (tCO₂-e per unit of production), increases in total production can outweigh the carbon pollution reductions associated with producing each unit.

Finally, it can be difficult to tell whether carbon pollution reductions credited under the scheme are 'real' (that is, additional to what would have otherwise occurred).

Other key characteristics

Other key requirements of a baseline and credit scheme include:

- Liable parties (i.e. those who are required to buy the credits) need to be identified, and methods to determine how many credits they need to buy each year devised. This must be monitored and enforced.
- Scheme rules setting out what activities will be credited, and how, need to be established and updated over time. These scheme rules need to try to ensure that only 'real' (additional) abatement is credited.
- In principle, a baseline-and-credit approach could be applied to a broad or narrow set of sectors. In practice, it is difficult to set baselines for sectors that do not have homogeneous outputs (it is difficult to specify the baseline in terms of carbon pollution per unit of output if outputs are hard to define).

A baseline and credit scheme can be combined with access to international units.

Participants seeking credit for carbon pollution reduction activities need to be accredited by a regulator, and show that they have undertaken abatement calculated in accordance with the rules. Generally credits would be awarded following an audit.

Advantages and disadvantages

Possible advantages of baseline and credit mechanisms include:

- Easily understood incentives to reduce carbon pollution: reductions in carbon pollution are directly credited through the measure. (However, if methodologies for crediting abatement are overly complex, this advantage might not apply.)
- Possible downward pressure on some output prices: instead of avoiding a cost (from either a tax or having to purchase a unit under cap-and-trade), firms participating in a baseline-and-credit mechanism can generate income by creating credits and selling them. (This cost is transferred to those who are required to buy the credits, and costs may also be borne by those competing with credit creators.)

Possible disadvantages include:

- Uncertainty over final carbon pollution levels: a target under a baseline-and-credit scheme is normally defined as the number of tonnes of abatement (i.e. emissions reductions) that must be secured in each year. This is not the same as knowing what

the final number of tonnes of actual carbon pollution emissions might be, which could vary significantly. This is relevant for environmental effectiveness, supporting Australia's international objectives and obligations, and budget neutrality.

- Difficulty in defining 'real' abatement: because abatement is credited against a hypothetical estimate of what the carbon pollution level would otherwise have been, it is difficult to be sure that abatement credited represents a real reduction in carbon pollution. This is a common criticism of baseline-and-credit schemes.³ The assessment of whether abatement is 'real' can be highly detailed and rigorous (increasing compliance costs), or simple, standardised approaches can be used (which are cheaper to implement, but increase the chances of crediting activity that was going to happen anyway). This is relevant for environmental effectiveness.
- Administrative complexity: all abatement must be defined in scheme rules before it can be rewarded. There is no automatic incentive to reduce carbon pollution: businesses only benefit from reducing carbon pollution if they have gone through administrative processes of accreditation, complied with scheme rules, and (usually) have been audited. This is relevant to administrative simplicity.
- Need to regularly update baselines: baselines can become out of date, which increase the chances of crediting abatement that is not 'real.' To avoid this, baselines can be updated at regular intervals, increasing administrative costs and potentially reducing business certainty. This is relevant to administrative simplicity and investment certainty.
- No source of revenue to provide transitional assistance: a baseline and credit scheme raises no revenue. If assistance is to be provided to households or businesses, this would come at a net cost to the Budget. This is relevant for budget neutrality, fairness, addressing impacts and opportunities on the competitiveness of Australian industries and potentially for recognition of impacts and opportunities for energy security and environmental effectiveness.

5.5 The McKibbin-Wilcoxon Model – A Hybrid Scheme

A hybrid mechanism combines a carbon tax with emissions trading. This paper discusses a particular hybrid model, proposed by Professor Warwick McKibbin and Associate Professor Peter Wilcoxon.

Nature of mechanism

The McKibbin-Wilcoxon model suggests replacing the current system of international binding medium-term targets, and cap-and-trade mechanisms, with a system that combines jurisdictional carbon taxes with domestic emissions trading linked to long-term targets.

The Government would issue long-term units that would be related to the Government's long term carbon pollution reduction target. These permits would be valid for a long period of time (e.g. for 10 years or longer, potentially even in perpetuity) and would allow the holder to emit

³ See for example, Passey R, et al, *The governance challenge for implementing market-based climate policies: a case study of the New South Wales Greenhouse Energy Policy* (2008), doi:10.1016/j.enpol.2008.04.010

a nominated amount of CO₂-e every year for the period of validity. (The nominated amount would decrease over time.) These units would be tradable, and have the status of firm property rights.

At the same time, a short-term carbon price would be established by issuing an unlimited number of emission units at a fixed price. These short-term units would be valid only in the year of issue, and could not be traded. The price of these short-term units would operate as a carbon tax which was set at a level determined by the Government.

At the end of each year, liable parties could comply by using either short-term or long-term units, or a combination of both.

How the mechanism establishes a carbon price

The model establishes a short-term and a long-term price for carbon. The short-term price is set directly by the Government (in the same way as a carbon tax); the long term price is set indirectly by the market, through trade in the long-term units. The price of long-term units would reflect the scarcity of those units and expectations of likely future short-term prices to be set by the Government.

Impact on carbon pollution

Similar to a carbon tax, the short-term impact on carbon pollution would depend on the response to the carbon price. Total carbon pollution levels would exceed the cap implied by the issue of long-term units, by the extent of the use of short-term units. Over the longer term, the impact on carbon pollution would mostly be driven by the expectations of high future carbon prices.

Other key characteristics

Like a cap-and-trade emissions trading scheme or a carbon tax, the McKibbin-Wilcoxon model requires the Government to specify which sources of carbon pollution would be covered and who would be liable for that carbon pollution. Sectoral coverage could be broad or narrow.

Monitoring and reporting systems would also be established.

Consideration of the need for household and industry assistance would be required. The model does not propose any international trade in units (either short or long term).

Advantages and disadvantages

The model's proponents fundamentally disagree with the current international system of agreeing to 'targets and timetables.' The model is proposed not just as a domestic arrangement, but an alternative global system.

The main potential advantages of the McKibbin-Wilcoxon model, applied domestically, are:

- Price predictability: short-term price volatility is capped by the price of short-term units, while the longer-term carbon price is indicated by the trading prices of long term units. (Given the short-term price would be reviewed and changed at regular intervals, there

is potential uncertainty about its future levels.) Given there is no international trading, there is no chance of other Governments' decisions having an unanticipated impact on the carbon price. This is relevant to investment certainty.

- Long-term business certainty over business assistance arrangements: the up-front allocation of long-term units can provide a form of industry assistance. This assistance is of a secure and long-term nature, providing considerable certainty for recipients. (Special arrangements might be required for new entrants, or in the event of closure of a recipient company.) This is relevant to investment certainty and addressing the impacts and opportunities on the competitiveness of Australian industries.

The potential disadvantages of this approach are:

- Fiscal risks: although the McKibbin-Wilcoxon model is proposed as an alternative arrangement, Australia's current Kyoto target is specified in terms of a hard carbon pollution target over a particular timeframe, and it is highly likely that future targets will be specified in the same way. Since total carbon pollution is not capped in this system, taxpayers face the risk of paying for international units to bring Australia into compliance if targets are not met. This is relevant to supporting Australia's international objectives and obligations and budget neutrality.
- Lack of flexibility in assistance arrangements: giving away long-term permits involves making decisions about assistance for long periods of time, which reduces flexibility in the face of future changes. (The extent to which this is a problem depends on the tenure of the long-term permits and how they are allocated.) This is relevant for flexibility, fairness and addressing impacts and opportunities for the competitiveness of Australian industries.
- Lack of flexibility in long-term targets: unless the allocation of long-term units was conservative, long-term targets would be locked in up front, and could only be reduced (say, in response to a revised assessment of the risks associated with climate change) by buying back some long-term units. This is relevant to supporting Australia's international objectives and obligations, environmental effectiveness and budget neutrality.

5.6 Electricity Sector Emissions Intensity Based Scheme

Nature of mechanism

An emissions-intensity scheme applying to the electricity sector is a variant of a baseline-and-credit scheme. Under an electricity sector intensity-based scheme, a target rate of carbon pollution per unit of output (for example, tonnes of carbon dioxide equivalent per megawatt hour of electricity produced (tCO₂-e/MWh)) would be set for the industry.

The Government would forecast the quantity of electricity to be supplied over the period to which the intensity target would apply (total MWh). The Government would also set an emissions intensity baseline for the industry (tCO₂-e/MWh). The baseline would decline annually to reflect the Government's targets for total carbon pollution.

Electricity generators would receive an allocation of permits at the baseline level for every unit of output that they produced. For example, if the baseline level of intensity were 0.7 tCO₂-e /MWh, each generator (no matter what its emissions intensity) would receive 0.7 of a permit for each MWh produced.

At the end of each year, generators would need to surrender one permit for each tonne of carbon pollution actually produced. For generators whose emissions intensity were above the baseline (say, coal-fired generators), this means they would have to purchase extra permits - they would not have been issued enough for free. Conversely, generators with an emissions intensity below the baseline (say hydroelectricity or wind generators) would not need any or all of the permits allocated to them, and could sell their excess permits to generators who needed additional permits (ie those with emissions intensities above the baseline).

In effect, this approach provides a subsidy to generators below the baseline, and imposes a cost on those above the baseline.

The net effect on the profitability of generators should be identical to that of a cap-and-trade scheme. However, the impact on electricity prices is likely to be lower than the impact of a cap-and-trade scheme.

How the mechanism establishes a carbon price

A carbon price would be established by the trade in permits between liable entities, with the price level depending on the difference between the demand for permits from above-baseline parties and the supply from below-baseline parties.

If the electricity sector emissions-intensity scheme were embedded in a broader emissions trading scheme, the price would be determined by the overall balance between demand and supply for permits.

Impact on carbon pollution

An intensity-based approach does not limit absolute carbon pollution. Achieving the intensity target does not guarantee any particular emissions outcome, which would depend on final electricity output levels. (If electricity output is higher than anticipated, total carbon pollution will also be higher than anticipated. Conversely, if electricity output is lower than anticipated, total carbon pollution will also be lower.)

If an intensity-based scheme were embedded in a broader cap-and-trade scheme, it would be difficult to cap total carbon pollution in any year because the Government would not know how many permits it needed to issue the electricity sector until the end of the year.

Other key characteristics

This mechanism requires:

- baselines to be established in advance, and possibly updated over time; and
- monitoring, reporting and compliance arrangements (as for other carbon pricing mechanisms).

Access to international units could be included in an intensity-based scheme.

Advantages and disadvantages

The main potential advantages to an intensity-based approach to reducing carbon pollution from the electricity generation sector are:

- Lower impacts on electricity prices: generators/liable parties, who would only be required to purchase permits for their carbon pollution above the baseline, rather than for all of their carbon pollution emissions
- Lower assistance requirements for households and business, including emissions-intensive, trade-exposed industries, compared with an equivalent cap-and-trade scheme.

The main potential disadvantages of this model are:

- Uncertain abatement: An intensity-based measure does not limit the actual quantum of carbon pollution, making it a less suitable mechanism to employ to reach a specific absolute carbon pollution target. This is relevant to supporting Australia's international objectives and obligations and budget neutrality.
- Difficulty expanding to other sectors: this model shares the administrative complexity of a baseline-and-credit scheme if it is contemplated for expansion to sectors beyond electricity generation. This approach is only suited to industries that produce a homogeneous output (with preferably only one type of output per facility), so that baselines can be created on a 'per unit of output' basis. However, the approach for electricity could be embedded within a broader cap-and-trade emissions trading scheme. This is relevant to administrative simplicity.
- Difficulty in managing an overall cap on carbon pollution: if the intensity-based model for electricity is implemented within a broader cap-and-trade scheme, the Government will not know how many permits it can issue under the cap until the end of each year, when it knows how many permits have already been issued to electricity generators. In practice, adjustments in subsequent years would need to make up for any inadvertent under- or over-allocation of permits compared with the cap. This makes planning for assistance mechanisms and auction implementation and participation more difficult and potentially shifts adjustment burdens to elsewhere in the economy (in a scheme without full international linking). This is relevant for budget neutrality, environmental effectiveness, addressing impacts and opportunities on the competitiveness of Australian industries and investment certainty.
- Lack of demand-side response: the lower potential impact on electricity prices reduces incentives for implementation of energy efficiency measures or fuel-switching to less emissions-intensive energy sources at the consumer end.
 - Modelling carried out for earlier carbon pricing proposals identified demand-side response as a significant driver of electricity sector abatement to 2020. As this is low-cost abatement, additional more expensive abatement is required on the supply side in order to achieve compliance. This is relevant to economic efficiency and environmental effectiveness.

- Lack of revenue for assistance: if implemented on a stand-alone basis, unlike a carbon tax or a cap-and-trade mechanism, this model would deliver no revenue for assistance. (The need for assistance for households and other electricity users would be reduced, but not eliminated.) Even if embedded in a broader cap-and-trade scheme, no revenue would be received in relation to those emissions permits provided for free to each unit of generation, according to the baseline level of intensity. This is relevant for budget neutrality, fairness, addressing impacts and opportunities on the competitiveness of Australian industries and potentially for recognition of impacts and opportunities for energy security and environmental effectiveness.
- Fiscal risks: The combination of uncertain abatement and difficulties in managing an overall cap on carbon pollution creates fiscal risks. This is relevant for budget neutrality.

5.7 Consumption-Based Model

Nature of mechanism

This mechanism is a form of carbon tax. The key distinguishing feature is that it seeks to target only carbon pollution embodied in goods and services consumed in Australia. No liability would be imposed on carbon pollution embodied in goods or services exported from Australia. A carbon tax would be applied to all imported goods and services (a 'border tax adjustment').

A consumption-based model is different to the way in which national carbon pollution emissions and targets are measured and defined under current UN processes: all carbon pollution produced in Australia is currently counted towards Australia's inventory. No deduction is made for goods and services that are exported; no amount is added for goods and services that Australia imports.

The consumption-based model could be applied in a single country. It could also be applied globally, as a replacement for the current system of production-based targets.

How the mechanism establishes a carbon price

The carbon price would be the tax rate set by the Government.

Impact on carbon pollution

For those subject to the tax, the incentive to reduce carbon pollution would be the same as under a standard carbon tax. The total level of resulting carbon pollution would be uncertain and would depend on how businesses responded to the tax.

There would be no incentive created for exporting industries to reduce their carbon pollution. An incentive for exporters to reduce carbon pollution could be created if the importing country decided to impose its own border tax adjustment (no countries do at present).

An incentive would be created for countries that export goods to Australia to reduce carbon pollution if this led to a reduction in the tax levied in Australia.

Other key characteristics

Most characteristics of this model are the same as for a standard carbon tax.

Additional characteristics are:

- the need to identify carbon pollution embodied in exported products, in order to exempt them; and
- potentially, the need to set and apply a border tax adjustment. One proposal is that this be set on the basis of the average emissions intensity of the competing Australian production.

These characteristics together imply an administratively complex system of tracking and assessing carbon pollution through domestic production processes.

This approach also treats all imports as having the same embodied carbon pollution as the equivalent Australian production, regardless of whether those imports are more- or less emissions-intensive than Australian production.

Two alternative approaches are also possible:

- to use the average emissions intensity of an imported product (from the range of import sources) as the basis of carbon charging. However, this would provide no incentive to secure imports from a less emissions-intensive source.
- to use the actual emissions intensity of imports, provided that an equivalent methodology was applied to all goods. However, determining the emission intensity of production in other countries would be a very difficult exercise.

Advantages and disadvantages

The key advantages and disadvantages of a standard carbon tax would also apply to this model.

Additional possible advantages include:

- Removing the risk of carbon leakage for export industries: since exporting industries would be exempt, there would be no risk of them moving offshore because of the impact of a carbon price. Import-competing industries would be protected from competition from countries that do not impose their own carbon price by the border tax adjustment. This is relevant to addressing impacts and opportunities on the competitiveness of Australian industries.
- Clearer price signals for Australian consumers: all goods and services consumed in Australia – including imports – would be subject to a carbon price. Therefore, consumers would have an incentive to make lower emissions choices across the full spectrum of goods and services that they purchase. This is relevant to economic efficiency and environmental effectiveness. (As discussed above, however, the relevance of the carbon price to the actual carbon pollution embodied in imported goods depends on how it is applied.)

- Distributional consequences: consumption-based mechanisms have been proposed by some as a fairer solution to the distribution of international efforts to reduce carbon pollution (with the implication that this would make it quicker and easier to reach a global agreement). It is estimated that up to one-third of the carbon pollution associated with consumption in developed countries are produced outside those countries' borders. This is relevant to supporting Australia's international objectives and obligations.

The potential disadvantages of this model include:

- Complexity: exempting carbon pollution associated with exports requires tracking carbon pollution through the production chain. This is particularly complex for inputs such as electricity, where carbon pollution from an individual generator is not tied directly to an individual exporter, and for products such as cars that involve a very wide range of manufactured inputs with different levels of embodied carbon pollution. (Rules of thumb could be applied, however.) Levying a border tax adjustment on imports would also require reliable information about the emissions intensity of production processes (including for inputs, such as electricity) in Australia, and potentially in other countries in cases where there is no competing Australian production of the imported goods. These processes are inherently complex. This is relevant for administrative simplicity.
- Fiscal risk (production-based targets and consumption-based policy): as a Party to the Kyoto Protocol and a signatory to the United Nations Framework Convention on Climate Change, Australia is subject to obligations defined on a production, not consumption, basis. There is a risk that a consumption-based carbon tax (or emissions trading scheme) would lead to carbon pollution significantly in excess of Australia's international targets. Any such excess carbon pollution could be covered by the purchase of international emissions units by the Australian Government. This is relevant to supporting Australia's international objectives and obligations and budget neutrality.
- No incentives created for exporting industries to reduce carbon pollution: since carbon pollution embodied in exports would be exempt, there would be no incentive for exporters to reduce their carbon pollution (in the absence of border tax adjustments applied by other countries). Global carbon pollution could therefore be higher than if such an incentive had been created. While Australia is liable for carbon pollution under its target, an increased fiscal risk is passed to taxpayers. This is relevant to environmental effectiveness, economic efficiency and budget neutrality.

5.8 Preferred form

On balance, the preferred form is an emissions trading scheme that commences with a fixed price period before converting to a flexible price under a 'cap-and-trade' scheme.

- For a given period, the carbon price (and the rate at which it increases) is known – liable parties face no uncertainty about what the price of carbon will be.

- After the transitional period, emissions trading directly limits carbon pollution by prescribing a scheme cap that is designed to ensure compliance with international commitments, reducing the risk that Australia will need to purchase international units to meet targets.
- Government revenue will be generated in both the fixed and variable price periods which can be used to provide assistance to households and businesses or for any other purpose (e.g. supporting the development of low carbon pollution technologies, or reducing other taxes).
- A fixed price period could be introduced quickly, as no auction platforms or unit registries are required.

The transition from a fixed to a flexible carbon price would need to be managed in terms of its effect on carbon prices. The development of transition arrangements is discussed below.

6: Coverage

6.1 What is scheme coverage and why is it important?

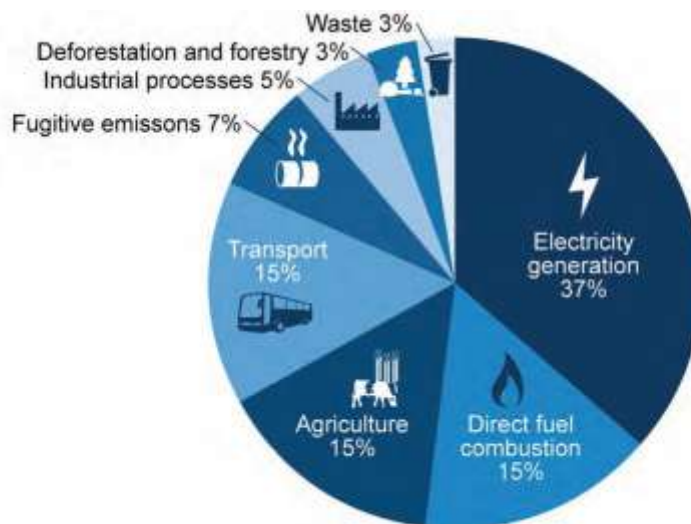
Coverage refers to the sectors, sources of carbon pollution and gases subject to a carbon price. Scheme coverage influences where abatement will occur and therefore has important consequences for the cost of delivering that abatement, and for which sectors of the economy will be transformed by a carbon price.

6.2 Australia's sources of carbon pollution

Australia's national inventory of greenhouse gas emissions indicates possible sources of carbon pollution for coverage by a carbon price.

As shown in Figure 1, Australia's total greenhouse gas emissions were estimated to be 572 million tonnes of carbon dioxide equivalent (Mt CO₂-e) in 2009. These were attributable to the following sources and sinks: electricity generation (37 per cent), direct fuel combustion (15 per cent), agriculture (15 per cent), transport (15 per cent), fugitive emissions (7 per cent), industrial processes (5 per cent), reforestation and deforestation (3 per cent), and waste (3 per cent).

Figure 1: Sectoral shares of 2009 greenhouse gas emissions (572 Mt)



The electricity sector is the largest source of carbon pollution in Australia, contributing 37 per cent to total carbon pollution. Electricity is generated from coal, gas, liquid and renewable sources.

Direct fuel combustion is the second-largest source of carbon pollution, contributing 15 per cent to total carbon pollution. It covers carbon pollution from fuels consumed directly in manufacturing, construction and commercial activities, and other sources such as the consumption of gas for domestic heating.

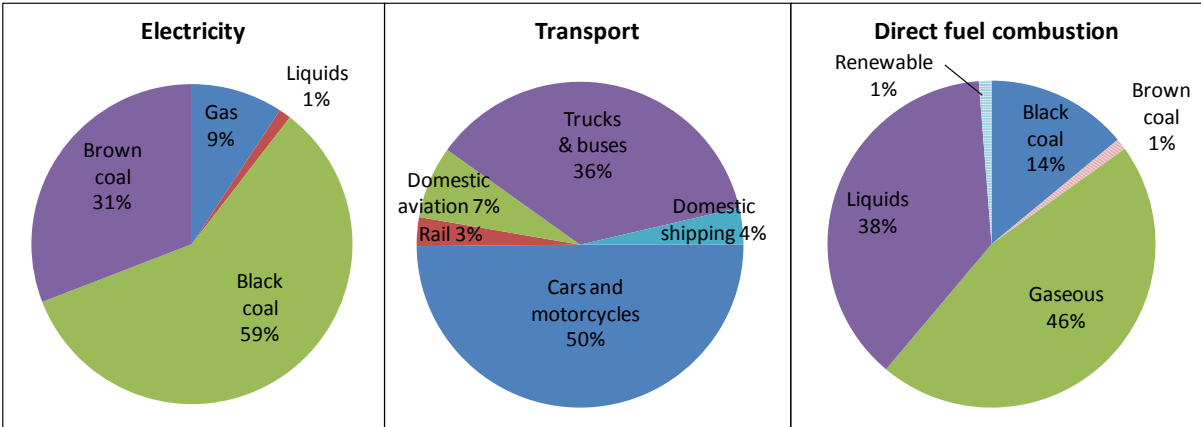
The agriculture sector contributes 15 per cent to total carbon pollution and includes carbon pollution from livestock, cropping activities and savannah burning. Transport contributes 15 per cent to total carbon pollution and includes carbon pollution from cars, light and heavy commercial road vehicles, rail, shipping and domestic aviation.

The remainder of Australia’s carbon pollution is made up of:

- fugitive emissions: carbon pollution associated with the production, processing, transport, storage, transmission and distribution of fossil fuels (for example, coal mining, oil and gas extraction and elements of LNG production, and natural gas pipeline operations); and
- industrial process emissions: carbon pollution that is a by-product of industrial production and that arises from non-energy sources (e.g. in cement, steel and aluminium production);
- reforestation and deforestation; and
- waste, including carbon pollution from landfills and waste water treatment.

Further Sectoral Breakdown

Figure 2: Deeper breakdown of emissions sources from dominant sectors



Australia’s electricity sector is dominated by coal-fired electricity generation. Electricity production from brown and black coal accounts for around 75 per cent of Australia’s total electricity generation and 90 per cent of carbon pollution from the electricity sector. Power stations fuelled by black coal produced 59 per cent of the related carbon pollution in 2009, while 31 per cent came from brown coal. The expanded Renewable Energy Target (RET) is expected to increase the share of renewable electricity generation from 8 per cent of total electricity production in 2008 to around 20 percent in 2020.

Gaseous fuels are the main source of carbon pollution in direct fuel combustion, closely followed by liquid fuels. Energy-intensive industries, including metal production (e.g. iron, steel and aluminium), chemical processing and petroleum refining, account for two-thirds of this carbon pollution. Carbon pollution from industrial fuel combustion is currently smaller in magnitude than carbon pollution from electricity production, but is projected to grow significantly faster.

Road transport is the largest source of carbon pollution in the Transport sector, contributing 86 per cent of Transport carbon pollution in 2008. Cars and motor cycles account for half of all Transport carbon pollution, while trucks and buses account for more than one-third, with the remainder contributed by domestic aviation, domestic shipping and rail.

6.3 Key issues relating to coverage

Broad versus narrow coverage

An important consideration is whether coverage should be broad or narrow. A scheme with narrow coverage, for example, could be designed to include only carbon dioxide emissions from the electricity sector. A scheme with broad coverage could include all practicable sources and gases.

- Broad coverage maximises opportunities for low cost abatement and minimises the overall costs of achieving a particular national carbon pollution reduction target. This is relevant to economic efficiency and environmental effectiveness.
- Narrow coverage may be marginally administratively simpler than broad coverage. However, most institutional arrangements required to operate a broad-based carbon pricing measure would also be required for a more narrowly-based measure. This is relevant to administrative simplicity.

It is unlikely that a carbon price with narrow coverage could deliver the reductions in emissions required to reach Australia's 2020 targets (159 Mt CO₂-e to 248 Mt CO₂-e below business as usual emissions in 2020 to meet a 5 and 25 per cent reduction respectively). The abatement required to achieve a 5 per cent reduction in carbon pollution on 2000 levels by 2020 is equivalent to roughly three-quarters of Australia's total current carbon pollution from electricity generation. This is relevant to environmental effectiveness and supporting Australia's international objectives and obligations.

Practicality of covering particular sectors, sources and gases

An efficient and acceptable carbon pricing measure will require accurate monitoring, reporting and verification (MRV) of carbon pollution. This is not cost-free. In practice, sources of carbon pollution can be covered where MRV is cost-effective (that is, a relatively small number of entities are responsible for a relatively large proportion of carbon pollution), and carbon pollution can be estimated in an unbiased manner.

These two criteria can be met for most industrial and some land-based sectors, although in some cases meeting the criteria requires coverage to be indirect. (For example, emissions from household use of natural gas are not amenable to direct coverage, but 'upstream' coverage via natural gas retailers is feasible.) However, agriculture and deforestation activities and some other sources are less amenable to coverage.

Consistency with international accounting rules

Australia's national inventory of greenhouse gas emissions conforms to international rules for greenhouse gas accounting under the United Nations Framework Convention on Climate

Change and Kyoto Protocol. An important consideration is whether the coverage of a scheme to price carbon should be consistent with these rules or deviate from them.

Limiting coverage to carbon pollution from (and sequestration by) sources that are counted in Australia's national inventory would ensure that any abatement undertaken in response to a carbon price would count towards Australia's international obligations. This would minimise overall costs to the economy of meeting Australia's carbon pollution reduction targets.

Considering additional sources and sinks not included in the international accounting rules could enable access to additional, potentially low-cost domestic abatement options. However, this abatement would not be recognised by other countries as contributing towards Australia's international obligations. The Government would need to take steps to deliver additional abatement required to meet the targets. This would lead to higher overall costs to the economy compared to an approach that covered only sources that are counted in Australia's national inventory.

6.4 Detailed consideration of coverage

Decisions on coverage will determine how much of Australia's emissions are covered by the carbon pricing mechanism and play a role in determining who will bear the costs associated with reducing emissions. Issues discussed below include:

- Which gases should be covered by the scheme?
- Which sectors should be included in the scheme?
- At what point in the supply chain should the obligation to report emissions and surrender permits be imposed?
- Should the threshold for inclusion in the scheme be different to the 25 kt CO₂-e/year facility level threshold applicable under the National Greenhouse and Energy Reporting System (NGERs)?⁴

In making the decisions, the principles of economic efficiency, administrative simplicity and clear accountability are important. The underlying objective is to cover as much of Australia's emissions profile as possible, while not imposing undue compliance costs on business or depending on unreliable measurement methods.

⁴ As discussed below, NGERs is the existing emissions reporting scheme on which a carbon pricing mechanism builds. Under NGERs, facilities responsible for scope 1 (direct) and scope 2 (indirect) emissions of greater than 25 kt CO₂-e/year (thousand tonnes of carbon dioxide equivalent per year) are responsible for reporting emissions. As a result a participation threshold of 25 kt CO₂-e/year of scope 1 emissions covered by the scheme forms a natural threshold for the mechanism that is compatible with the NGERs.

Box 2: Estimates of compliance costs

In 2008, Ernst and Young (EY) were engaged by the Department of Climate Change to estimate the additional compliance costs associated with the Carbon Pollution Reduction Scheme (CPRS) over and above the requirements for National Greenhouse Energy Reporting (NGER). Ernst and Young's estimates were based on the version of the CPRS released in the Government Green Paper.

For most companies the main compliance costs (beyond those imposed by NGERs) were associated with accounting changes (mainly changes to IT and financial accounting operating systems to accommodate permit liabilities), management reviews of business as a result of the CPRS and third party assurance of emissions reports.

The compliance cost estimates included a number of items which, while not strictly required for compliance, may have been undertaken by many businesses in response to the CPRS. For instance, the estimated compliance costs included costs associated with development of financial models to assess the potential for cost pass through. It also included costs associated with management reviews to understand how the CPRS affected management decisions and (ongoing) costs associated with modelling cash flows to assist in raising funds to optimise the purchase of permits.

In summary, the CPRS was expected to impose direct obligations on some 767 companies across the following sectors or industries: electricity generation, manufacturing, mining, fuel supply, fugitive emissions, synthetic gas importers and waste. Total compliance costs were estimated to be \$296 m (start-up) (\$319 m in 2012-13) and \$107 m (annual ongoing) (\$115 m from 2012-13).

In 2009, the Department of Climate Change commissioned George Wilkenfeld and Associates (GWA) to review the EY study, in the light of their experience with the NGER scheme. GWA had prepared estimates of the compliance costs associated with introducing the NGER scheme in 2006.

GWA divided the entities proposed to be covered by the CPRS into two groups: those with existing NGER obligations and those without. Most of the latter were small fuel suppliers, synthetic greenhouse gas importers and waste disposal entities. GWA found that for nearly all cost categories, EY's estimates of the average additional costs for entities with existing obligations were significantly higher than for those without. As many of these costs were largely fixed, GWA considered that the costs for the two groups would have been closer. GWA also questioned whether the 'hypothetical company' used as a typical firm in the mining industry was representative of the many mining companies that have fairly simple emissions and product profiles. GWA also discounted the costs of compliance associated with seeking assistance.

Taking these factors into account, GWA suggested that the figures reported by EY would be likely to represent an upper bound of the costs of complying with the CPRS and a lower bound of these costs was likely to be in the order of \$222 m (start-up) (\$239 m in 2012-13) and \$87 m (ongoing) (\$94 m from 2012-13).

There are several reasons why the compliance costs associated with the carbon pricing mechanism would be lower than those of the CPRS.

Firstly, coverage of the carbon price mechanism is different to the CPRS.

Emission sources will generally be covered by applying liability to facilities that have direct greenhouse gas emissions of 25 kt CO₂-e a year or more, with emissions from legacy waste included in this threshold but emissions from liquid and gaseous fuel use, synthetic greenhouse gases and decommissioned coal mines excluded. An additional threshold of 10 kt CO₂-e a year will apply to landfill facilities within a prescribed distance of large landfill facilities. Retailers of natural gas will be liable for emissions from the use of fuels supplied to their customers.

However, a carbon price will not be applied to transport fuels used by cars, light commercial vehicles, and off-road use in agriculture, forestry and fishing businesses. An effective carbon price will be applied to emissions from the use of liquid fuels, LPG, LNG and CNG, through the fuel excise and fuel tax credit system.

This will avoid the costs of upstream reporting and surrender obligations from the approximately 250 producers and importers of liquid fuels who were estimated to face costs under the CPRS. Suppliers of coal and coal-based fuels will face reporting obligations under the facility threshold of 25 kt CO₂-e a year, but they will not be liable for emissions arising from the use of fuels they supply to their customers. This will avoid costs to these entities associated with emissions embodied in fuel supplied to customers and also with the use of the obligation transfer number system that would have provided for transferring liability for those embodied emissions to operators of facilities.

Synthetic greenhouse gases will also not be covered by the carbon pricing mechanism but will face an effective carbon price through existing Commonwealth Ozone Protection and Synthetic Greenhouse Gas management legislation, reducing (but not completely removing) compliance costs for approximately 45 larger importers of synthetic greenhouse gases.

Conversely, changes to surrender obligations for corporate groups and unincorporated joint ventures, to ensure carbon price pass-through, would expand the pool of liable entities under the carbon pricing mechanism relative to the CPRS. However, this increase is largely offset by removing liquid fuel emissions from thresholds under the carbon pricing mechanism. For example, there are approximately 264 controlling corporations currently reporting under the NGER system that would have had obligations under the CPRS for around 600 facilities that have scope 1 emissions of 25,000 tonnes or more. The net effect of changing the point of obligation for corporate groups and unincorporated joint ventures and changing the emissions that count towards thresholds is that around 440 of these 600 facilities would be covered under the carbon pricing mechanism with approximately 300 unique subsidiaries having obligations for these facilities. However, emissions incentives would remain despite the exclusion of these facilities, as virtually all emissions from the excluded facilities would be subject to an equivalent carbon pricing through changes in fuels tax credits or excise, or through upstream liability for natural gas.

Secondly, the carbon pricing mechanism commences with a (three year) fixed price period before converting to a cap-and-trade emissions trading scheme.

EY had noted that the start-up and ongoing costs associated with the auctioning of permits in the flexible price period would be significant (around 34 per cent of the total start-up costs across relevant hypothetical companies, after start-up costs associated with

assistance are ignored). These costs would not be avoided under the carbon pricing mechanism, but would be delayed by 1 to 3 years and could be reduced where firms can integrate changes to existing systems with other scheduled changes and updates.

Thirdly, while the introduction of a progressive surrender obligation in the fixed price period would introduce a second compliance point (relative to the CPRS), the additional compliance costs associated with calculating and remitting a progressive obligation are expected to be low. This is because for facilities already reporting under NGER, the progressive surrender requirement will be based on the previous year's NGER report unless entities opt otherwise. In addition, there should be limited cash carrying cost impact. Most entities with a progressive surrender obligation would have passed through carbon costs to customers for between 75 per cent and nearly 100 per cent of their annual carbon liability by the progressive surrender date, but will only be required to surrender permits equivalent to 75 per cent of that liability.

The estimates of administrative compliance costs should be kept in perspective. Based on projected 2012-13 covered emissions of 324 Mt CO₂-e, the EY and GWA analyses of the CPRS imply that start-up compliance costs under the Carbon Price Mechanism would be between approximately A\$0.54 and A\$0.72/t CO₂-e while ongoing costs would be between approximately A\$0.25 and A\$0.31/t CO₂-e, if the costs of the carbon pricing mechanism were at the same levels as those estimated by EY and GWA for the CPRS.

6.5 Options

Gases

Parties to the Kyoto Protocol account for six greenhouse gases that contribute most to human-induced climate change (listed in table 1).

In designing a domestic emissions trading scheme, one option would be to include only the most common greenhouse gases or those that can be most easily estimated on commencement, with the remaining greenhouse gases included over time. For example, the EU scheme began by covering only carbon dioxide. This option would not necessarily simplify the scheme and could complicate emissions reporting. Under NGERs entities are already responsible for reporting emissions of all six greenhouse gases from their facilities. If the trading scheme only covered carbon dioxide (for instance) companies would have to separately estimate the quantum of carbon dioxide released from their facilities rather than relying on existing estimates of emissions. This option would also limit scheme coverage and create discrepancies between the scheme's emissions reporting and the reporting in Australia's national emissions inventory (which forms the basis for international obligations).

An alternative option would be for the scheme, from commencement, to cover all the greenhouse gases included in the Kyoto Protocol. As this approach is consistent with current reporting obligations, it would not add to implementation risks or to compliance costs. This option would ensure that the incentives created by the scheme align with the desired environmental goal as defined under the international climate change framework.

However, facility level reporting obligations under NGER are not very comprehensive for the three synthetic greenhouse gases, sulphur hexafluoride (SF6), hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs). This is because emissions of these gases generally arise from many small point sources making measurement at the point of emission difficult. The exception to this is PFC emissions from aluminium smelting for which there are well accounted for under NGER.

The preferred option is for the scheme to cover all six 'Kyoto' gases from commencement. In practice, the carbon pricing mechanism will cover the three non-synthetic gases and PFC emissions from aluminium. However, an equivalent carbon price will be applied to the remaining synthetic greenhouse gases through Commonwealth ozone and synthetic greenhouse gas management legislation as discussed below.

Table 6.1: Kyoto Protocol gases—global warming potential

Kyoto gases	Global warming potentials
Carbon dioxide (CO ₂)	1
Methane (CH ₄)	21
Nitrous oxide (N ₂ O)	310
Sulphur hexafluoride (SF ₆)	23,900
Hydrofluorocarbons (HFCs)	140–11,700
Perfluorocarbons (PFCs)	6,500–9,200

Source: Intergovernmental Panel on Climate Change Second Assessment Report: The Science of Climate Change.

Sectors

The Kyoto Protocol sets out seven sectors for reporting human-induced greenhouse gas emissions:

- *Stationary energy*: primarily carbon dioxide emissions from fuel combustion for electricity generation, and energy production in the petroleum refining, manufacturing, construction and commercial industries and for domestic heating
- *Transport*: primarily carbon dioxide emissions from the direct combustion of fuels for road and rail transport, domestic aviation and shipping
- *Fugitive emissions*: methane, carbon dioxide and nitrous oxide emitted during the production, processing, transport, storage and distribution of coal, oil and gas
- *Industrial processes*: emissions from chemical reactions associated with manufacturing processes, mineral processing, and chemicals and metal production
- *Waste*: primarily methane and nitrous oxide; includes emissions from solid waste sent to landfill and from the treatment of domestic, commercial and industrial wastewater; and solvent and clinical waste incineration
- *Land use, land-use change and forestry*: in this sector, only emissions from land-use change activities — reforestation and deforestation — are counted towards Australia's Kyoto target

On 24 February 2011, the Government announced that emissions from sources covered under the proposed Carbon Farming Initiative, such as agricultural emissions sources, emissions from forestry and emissions from legacy waste would be excluded from coverage under the carbon pricing mechanism.

Stationary energy

Stationary energy contributes around 51 per cent of Australia's emissions and is the fastest growing source of carbon pollution.⁵ Most carbon pollution from this source is from the electricity generation sector, which consists of around 100 large facilities. The remaining carbon pollution is from direct combustion of fuels by large and small emitters in the petroleum refining, manufacturing and construction industries, with small contributions from home heating, on-site diesel generation, and on-farm machinery.

Site-specific emissions estimation methodologies are used to estimate emissions from most large emitters.⁶

A requirement could be applied under the carbon pricing mechanism to every single site that directly combusts fuel. However this would have very high compliance and administrative costs.

Around 90 per cent of emissions from this source can be covered by applying direct emissions reporting and carbon price obligations to around 100 power generation facilities and to around 200 large manufacturing facilities whose direct (Scope 1) emissions exceed 25 kt CO₂e/year.⁷

Based on estimates of compliance costs prepared for the CPRS, this approach would impose costs between \$282,000 and \$905,000 (set up costs) and \$51,000 to \$274,000 (annual ongoing costs) per business on large stationary energy emitters. This implies total compliance costs of around \$93 million (start up) and \$31 million (ongoing).

Because stationary energy contributes a large and growing proportion of emissions to Australia's total emissions, coverage of this sector is critical to achieving any substantial cuts in emissions.

The remaining 10 per cent of stationary energy emissions could be covered by lowering the emissions threshold. Depending on the threshold chosen, this could result in coverage of small entities, whose participation in the scheme would not be cost-effective. That is, the compliance costs associated with imposing scheme obligations on these entities would be significant given their emissions levels.

An alternative option is to impose scheme obligations for the remaining stationary energy emissions on upstream fuel suppliers. That is, rather than directly paying (in the form of permits) for the emissions, smaller emitters would pay higher fuel prices as upstream fuel suppliers purchase permits to cover emissions from the use of the fuel and pass on the costs

⁵ Department of Climate Change and Energy Efficiency (2011), National Greenhouse Gas Inventory 2010.

⁶ Entities responsible for reporting emissions have a choice of four methods under the NGERs legislation. The first uses national averages to calculate emissions while other methodologies use site specific estimation techniques.

⁷ This number is also likely to include emissions from industrial processors (other than synthetic greenhouse gas importers).

to downstream users. This approach would involve fewer additional compliance costs as there would be far fewer upstream suppliers and in many cases they are also likely to have scheme obligations for their direct emissions (and therefore already incur significant compliance costs as a result of the scheme). This option would also achieve near universal coverage of emissions, where as the alternative (lowering the threshold) would still leave a portion of emissions uncovered.

Submissions on this issue in both past consultations and on the carbon pricing framework proposal in 2011 were supportive of the Government's proposed inclusion of stationary energy.

The preferred approach is to cover all entities whose emissions are greater than 25 kt CO₂-e/year. While this would entail compliance costs for those liable entities, the share of emissions associated with this sector make its inclusion in the scheme critical. These costs would be greater if there was a lower threshold.

Entities with emissions less than 25 kt CO₂-e/year could be covered indirectly via obligations on upstream fuel suppliers, or excluded from coverage. This is discussed below.

Upstream fuel obligations

As mentioned above, restricting coverage of stationary energy emissions to large direct emitters would result in coverage of around 90 per cent of stationary energy emissions. The most efficient way of covering emissions from smaller emitters is to place emissions obligations on fuel suppliers rather than directly on the emitting entity. This is referred to as 'upstream' coverage.

Recent NGERs emissions data suggests that compliance costs could be minimised by limiting 'upstream' coverage to fuels with notable use beyond large facilities. This would include liquid fossil fuels, natural gas, liquefied natural gas (LNG), liquefied petroleum gas (LPG) and compressed natural gas (CNG) but exclude coal and coal-based fuels.

- With the exception of natural gas, these fuels are used in large part as transport fuels. The preferred approach for transport emissions (described below), is to exclude emissions from those fuels from the carbon pricing mechanism and instead apply an equivalent carbon price to certain business transport emissions and non-transport uses of the same fuels through fuel taxation legislation. As such, upstream coverage under the carbon pricing mechanism is not required for those fuels, other than for natural gas.
- Excluding coal and coal-based fuels from 'upstream' coverage would have little impact on emissions coverage as most of the entities that use coal and coal-based fuels would have surrender obligations under the proposed facility-level threshold in their own right. However, this would avoid unnecessary administrative costs, such as requiring up to 100 export coal mines and intermediaries to track, account for and report on the movement of coal being delivered to ports for export.

Natural gas emissions from large facilities that obtain their natural gas from a transmission pipeline can be effectively covered by applying liability to facilities for their direct emissions. However, natural gas supplied through a distribution pipeline is supplied to both small and large users of natural gas.

Assigning liability for natural gas to retailers who supply natural gas through a distribution pipeline and large users in other circumstances represents a significant simplification compared to the approach proposed under the CPRS. Under that approach liability would have applied in the first instance to natural gas producers at the top of the supply chain and arrangements would have been established to 'net out' gas supplied to large customers from gas supplied to small customers as gas was supplied down the supply chain. The approach also reduces complexity by avoiding intricacies in the natural gas supply chain. This would decrease compliance costs as natural gas producers and intermediaries would not need to be involved in tracking natural gas supplied from producers to natural gas retailers and end users, but the obligations on natural gas retailers would be largely similar and it would achieve largely the same end result in terms of coverage. This option was raised with the gas industry Technical Working Group. Based on feedback received, this option is likely to be supported by industry stakeholders.

There are two significant drawbacks to covering natural gas at the level of the retailer.

Firstly, it would not allow large gas users (with emissions exceeding 25 kt CO₂-e/year) who obtain natural gas from a retailer to manage their own liabilities under the carbon price mechanism. Instead these entities could potentially face a higher fuel cost associated with the supplier's permit acquisition and liability management strategies. Large emitters are likely to find this approach sub-optimal as it removes from their control the ability to directly manage liabilities accrued under the mechanism and these are likely to be significant liabilities for many entities.

Secondly, the specific end use of a gas cannot necessarily be determined by the retailer, and therefore accurate emissions estimation might not be possible.

To overcome these issues, an administrative mechanism (the "Obligation Transfer Number") could be established under the carbon pricing mechanism to enable carbon price liabilities to be transferred from natural gas retailers to facilities. This will allow retailers to take responsibility for carbon price obligations for natural gas sold to smaller users. Importantly it would also allow large emitters to directly manage their obligations including decisions relating to the timing and source of permit purchases, abatement opportunities and hedging choices.

This would imply that the gas price paid by small users would include the cost of permits while the gas cost paid by large users would not. An appropriate threshold for being allowed to assume liability for natural gas emissions would be 25 kt CO₂-e/year as this is, for the most part, the threshold at which businesses are required to report emissions under the NGRS.

These arrangements would result in additional compliance costs as a small additional number of companies are likely to be involved in the carbon price mechanism and because it increases the complexity of the system for businesses. That is, companies would be required to keep track of both fuel supplied inclusive of a carbon price as well as fuel supplied under an Obligation Transfer Number.

Many of these companies will already be liable for their own emissions and additional costs associated with these 'upstream' activities will only represent a portion of these costs.

In all, the preferred approach is for obligations to apply to natural gas retailers who would 'net out' sales to Obligation Transfer Number holders (including large emitters and feedstock users). While this approach has additional compliance costs, the ability of large emitters to directly participate in the carbon price mechanism is crucial. It is also beneficial to exclude the cost of carbon from fuel used as feedstock and fuel not covered by the mechanism. The benefits of netting out (to individual companies and the mechanism more generally) is judged to outweigh the additional compliance costs.

The above arrangements for transferring liability for natural gas are similar to those proposed under the Carbon Pollution Reduction Scheme for a broader range of fuels.

Transport

Transport emissions account for around 15 per cent of Australia's emissions. Road transport contributes almost 90 per cent of transport emissions, with the remainder coming from rail, domestic aviation and shipping.⁸

Australia has millions of motorists and a significant number of freight companies, making it impractical and/or costly to apply scheme obligations directly to these emitters. Restricting coverage to large direct emitters, such as freight companies whose emissions exceed 25 kt CO₂-e/year and who have obligations under NGERS would result in coverage of only 30–40 per cent of transport emissions. It would also lead to significantly different impacts on closely competing freight companies on either side of the emissions threshold.

As a result, the only feasible option for achieving broad coverage of transport-related emissions under the carbon pricing mechanism is to apply obligations on upstream fuel suppliers. Such an approach would impose significant compliance costs. Based on estimates of compliance costs prepared for the CPRS, such an approach could impose costs on upstream (excisable) fuel suppliers of around \$113 million (set-up costs) and \$25 million (annual ongoing costs).

As with expanded coverage generally, the benefits associated with coverage of the transport sector is that it opens up additional abatement opportunities. Abatement in the transport sector is likely to occur through substitution in transport modes (for instance by taking public transport instead of driving and using rail for freight instead of road transport) and substitution toward more fuel efficient or alternatively fuelled vehicles.

There was strong support for inclusion of transport from environmental groups and other stakeholders both as a large source of emissions in Australia and also to reduce abatement costs through broader coverage. However some stakeholders raised concerns at the impacts on households and small business of the imposition of a carbon price on transport fuels.

An alternative approach to covering transport fuels under the carbon pricing mechanism is to use the fuel taxation system to apply an equivalent carbon price to transport emissions through adjustments to excise rates and fuel tax credits. These adjustments would be made in line with the carbon permit price under the carbon pricing mechanism.

This approach has several advantages over the use of the carbon pricing mechanism. First, it makes use of existing business systems that have been established under the fuel excise

⁸ Department of Climate Change and Energy Efficiency (2011), Op. cit.

and business taxation systems, so does not impose new administrative requirements on businesses. Second, it involves fixed equivalent carbon prices for relatively long periods (for example, 12 months in the fixed price stage and 6 months at a time in the flexible price stage) which provides certainty to business. Third, it avoids potentially liable entities having to deal with two regulators – an existing taxation or customs regulator, and a new carbon pricing mechanism regulator. Finally, it avoids imposing compliance costs on up to 370 fuel producers and importers.

However, it also has two disadvantages. First, it removes a source of demand for carbon permits and so potentially reduces the liquidity of the domestic permit market in the flexible price period. Second, it would not provide large users of transport fuels (such as airlines and major land transport operators) the ability to take on the responsibility for managing their carbon price liabilities.

On balance, the avoided administrative costs and relative simplicity (based on existing systems) of the fuel taxation and credits system is preferred.

A separate question relates to the types of transport emissions to be covered by a carbon price. Both systems of coverage described above are amenable to coverage of all transport emissions, or subsets of those emissions.

The options are comprehensive transport coverage, by applying a carbon price to all transport emissions, or exclusion of specific sources.

Excluding households and business use of cars and light commercial vehicles would reduce the potential for abatement from the transport sector. However, fuel used by households and businesses in cars and light commercial vehicles already has a significant amount of excise applied to it, which acts as an incentive to drive less, to drive more efficiently and to purchase more efficient vehicles. Household and business users of cars and light commercial vehicles pay the full rate of fuel excise, 38.1 cents per litre.

Applying a carbon price to all remaining uses of transport fuels by businesses would maximise abatement opportunities and importantly, ensure that all competing modes of transport face the same carbon costs for each tonne of emissions they produce. This is would maintain competitive neutrality between competing modes of transport. Similarly, applying a carbon price to business non-transport uses of these fuels, such as the use of diesel to run generators on mine sites would maintain neutrality other options for producing stationary energy which will be covered under the carbon pricing mechanism.

At present, most business use of transport fuels faces only limited fuel taxation obligations through the progressive increase, in recent years, in the level of fuel tax credits that can be claimed relative to the rate of excise. For example, rail, domestic shipping and shipping receive a full fuel tax credit and pay no effective excise while domestic aviation pays a special rate of excise of less than 3 cents per litre. The exception is heavy transport, which pays a road user charge equivalent to more than half the rate of excise on liquid fuels. This suggests a case for excluding heavy on-road transport for the short term. On the other hand, inclusion of this sector would ensure all transport modes ultimately compete on a level playing field.

Business emissions from transport fuels such as such as those from off-road use of fuels in agriculture, fishing and forestry businesses could also be explicitly included. This would

broaden opportunities to reduce emissions. However, these businesses also face significant financial pressures and rural and regional areas that rely on them could be disadvantaged by this approach. On the other hand, exempting fuel use by these sectors from a carbon price would marginally increase the overall cost of meeting Australia's emission reduction targets.

On balance, it is proposed that a carbon price not be applied on on-road transport fuels used by households, small business and off-road use by agriculture, fisheries and forestry businesses, but an effective carbon price be applied to transport fuels used by other business users. This will include, domestic aviation, domestic shipping, rail transport, off road transport use of liquid and gaseous fuels and non transport use of liquid and gaseous fuels. Arrangements for the non-transport use of gaseous fuels such as LPG are important for ensuring a level playing field with electricity and natural gas. At a later date, the Government will seek to establish an effective carbon price for heavy on-road liquid fuel use from 1 July 2014. (This measure was not agreed by all members of the MPCCC.)

Fugitive emissions

Fugitive emissions currently account for around seven per cent of Australia's emissions.⁹ Fugitive emissions are released in the course of oil and gas extraction and processing; through leaks and deliberate releases from gas pipelines; and as waste methane from black coal mining. Most fugitive emissions occur from facilities that emit more than 25 kt CO₂-e/year (around 120 coal mines and fewer than 50 gas facilities). Fugitive emissions from coal mines and oil and gas projects, as well as direct fuel combustion emissions from LNG projects, are projected to account for almost half of the growth in Australia's total emissions from 2010 to 2020.

There are both national default emission factors and site-specific emissions estimation methodologies for fugitive emissions from oil and gas production.

At present, facilities that emit more than 25 kt CO₂-e/year are already required to report emissions under NGERs. Including these facilities under the carbon price mechanism would increase the proportion of national emissions covered by the mechanism and so lower the overall economic costs of meeting targets.

Based on estimates of compliance costs prepared for the CPRS, this approach would impose costs of around \$396,210 to \$373,217 (start up) and \$278,320 to \$291,059 (ongoing) per business. Total compliance costs were estimated to be around \$45 million (start up) and \$32 million (ongoing).¹⁰

As with other coverage considerations, the benefits of including fugitive emissions are that it expands abatement opportunities and reduces the overall costs of meeting any given emissions cap. Abatement opportunities in this area include the capture and use of coal seam methane for power generation or flaring to reduce emissions. The benefits of expanding coverage to large sources of fugitive emissions are judged to outweigh the compliance costs associated with the inclusion of fugitive emissions.

⁹ Department of Climate Change and Energy Efficiency (2011), Op. cit.

¹⁰ This estimate assumes that there are 72 coal mining companies (who operate the 120 mines) and 30 gas supply companies (who operate the 50 fugitive emissions sources).

A question remains as to whether and how to cover fugitive emitters who emit less than 25 kt CO₂-e/year. It would appear that relatively few emissions originate from such emitters. As such, covering these sources would result in relatively few opportunities to abate and would impose additional compliance costs on these emitters. While there is the possibility that excluding these emitters from the carbon price mechanism would introduce distortions between covered facilities and facilities below the threshold, those distortions, if they occur, are likely to affect relatively few facilities.

In consultations undertaken on this issue for previous proposals, relatively few stakeholders raised the issue of applying a carbon price to fugitive emissions. Those who did focussed on the inclusion of open cut coal mines in the scheme.

Emissions from open cut coal mines are variable with some emitters falling below the level implied by the internationally agreed default factor and some falling above it. As such, using the default factor would result in benefits to some producers (from underestimation of emissions) and costs to other users. Fugitive emissions from open cut coal mines can also be estimated using a site specific methodology. Companies with emissions above the default average could benefit from using this method. While fugitive emissions, or more specifically fugitive emissions from coal mines, could be removed from the carbon pricing mechanism until more accurate methodologies are adopted across the industry, this would remove a significant portion of emissions from the scheme and impose costs on other covered entities. It may also act as a disincentive to adopt more accurate methodologies for measuring fugitive emissions from open cut coal mines.

The preferred approach is to include fugitive emissions from facilities with emissions greater than 25 kt CO₂-e/year from all sources covered by the carbon pricing mechanism. Facilities with fugitive emissions, but with total emissions from all sources covered by the carbon pricing mechanism of less than 25 kt CO₂-e/year, would not be included.

Industrial processes

Industrial process emissions account for around five per cent of Australia's emissions.¹¹ These emissions result from chemical reactions (other than fuel combustion) and include emissions from consumption of synthetic greenhouse gases—hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆). Emissions from synthetic greenhouse gases are dealt with separately below.

There are internationally approved, site-specific methodologies for estimating most of these emissions.

The largest individual sources of industrial process emissions are iron and steel making, cement and lime making and aluminium smelting. Facilities that emit more than 25 kt CO₂-e/year account for the great majority of industrial process emissions (other than synthetic greenhouse gases). These facilities already have obligations to report under the NGER system. Moreover, most industrial processors will have significant stationary energy emissions and will need to participate in the scheme to cover these emissions. As a result, the additional compliance costs associated with covering industrial processes are expected to be minimal.

¹¹ Department of Climate Change and Energy Efficiency (2011), Op. cit.

In consultations undertaken on this issue for previous proposals, stakeholders raised no objection to the inclusion of industrial processes within the coverage of a carbon price. The preferred approach is therefore to place a carbon price liability on industrial process emissions at facilities with emissions of more than 25 kt CO₂-e/year. Industrial process emissions at facilities whose total emissions are lower than 25 kt CO₂-e/year will not be covered, although (excluding synthetic greenhouse gases) there are expected to be few such facilities given the nature of these industrial processes.

Treatment of synthetic greenhouse gases

Synthetic greenhouse gases have significant global warming potential. As with other sectors and industries, the inclusion of synthetic greenhouse gases would increase the coverage of the scheme, spreading the burden of emissions reductions and lowering the overall cost of the scheme.

However, the industry is made up of a mixture of small and large importers. Applying a threshold of 25 kt CO₂-e/year on importers would impose reporting obligations and emissions liabilities on approximately 50 entities. Based on estimates of compliance costs developed for the CPRS, this approach would impose start-up costs of around \$300,000 per business (\$15 m in total) and ongoing costs of around \$60,000 per business per year (\$3 m in total per year).

Not imposing an equivalent carbon price on the 650 or so smaller importers would, however, create distortions in the market. These distortions could be addressed by adjusting the levies paid by smaller importers under Commonwealth Ozone Protection and Synthetic Greenhouse Gas Management legislation.

An alternative approach would be to exclude synthetic greenhouse gases from the carbon pricing mechanism entirely (except where emitted by industry, such as aluminium perfluorocarbons) and apply an equivalent carbon price on all imports of synthetic greenhouse gases by adjusting existing levies paid under the *Ozone Protection and Greenhouse Gas Management Act 2003*.

This approach would have many of the same advantages as the approach outlined for transport fuels. First, it would make use of existing business systems that have been established under existing legislation, so would not impose new administrative requirements on importers currently licensed under this legislation. Second, it would avoid liable entities having to deal with two regulators. Third it would largely eliminate distortions that would be caused by use of the 25 kt threshold under the carbon pricing mechanism.

However, some additional costs would be incurred as importers of sulphur hexafluoride would be brought into the licensing system for the first time. Importers and manufacturers of sulphur hexafluoride do not currently have reporting obligations, although some have reporting obligations for other synthetic greenhouse gases they import. For those importers and manufacturers without a current reporting obligation there will be additional compliance costs relating to reporting, but as noted in the RIS for the Ozone Protection and Synthetic Greenhouse Gas Management Legislation Amendment Bill 2003, those costs are minimal.

As international negotiations are currently underway regarding the possible inclusion of such gases under the Montreal Protocol, keeping these gases in a separate system to the carbon

price mechanism would simplify their eventual management under the Montreal Protocol, should that eventuate.

Such treatment would also avoid the compliance costs noted above, reduce industry concerns about the ability to fund permit acquisitions and provide greater certainty about the level of the carbon price – under a linked levy approach the carbon price would be known prior to import.

Based on this assessment, the preferred approach would be to apply an equivalent carbon price to synthetic greenhouse gases using Commonwealth Ozone Protection and Synthetic Greenhouse Gas Management legislation.

Waste

The waste sector accounts for just over three per cent of Australia's emissions.¹² Around 80 per cent of waste sector emissions are from solid waste to landfill, with the remainder from wastewater (around 20 per cent) and solvent and clinical waste incineration (less than one per cent). The sector is not restricted to dedicated waste facilities — wastewater from some manufacturing processes is treated on-site at the manufacturing plant.

There are around 450 active solid-waste handling sites in Australia and well over 300 wastewater sites. However, most waste volume is managed by larger sites. In the case of landfill, fewer than 100 sites (around 20 per cent) account for more than 80 per cent of waste volume.¹³ These sites are operated by a mixture of local governments and corporate service providers. Similarly, around 80 per cent of wastewater sites are small facilities, servicing rural and regional communities.

The waste sector presents a number of opportunities for cost effective abatement. Indeed some of these are already being pursued. For example, methane capture is common in the solid waste and wastewater sectors. An estimated 26 per cent of methane emissions from landfill sites is either flared or used to generate renewable energy.¹⁴ In addition, inclusion of waste sector emissions could be expected to reduce the amount of waste sent to landfill and encourage alternative waste technologies. In general, including the waste sector in the scheme is likely to lower overall abatement costs and provide significant benefits.

At present, waste sector emissions are covered under the NGERs reporting system, so waste sector facilities that meet NGERs participation thresholds are already required to have measurement and reporting procedures in place. Waste sites generated by local governments are not covered under NGERs. The additional compliance costs associated with scheme participation, based on estimates prepared for the CPRS, are estimated to be around \$353,061 (start up) and \$58,305 (annual ongoing) per business.

In consultations undertaken on this issue for previous proposals, most stakeholders indicated in-principle support for coverage of the waste sector under a carbon price, but many had concerns relating to the accuracy of measurement protocols.

¹² Department of Climate Change and Energy Efficiency (2011), Op. cit.

¹³ Hyder Consulting, Review of Methane Recovery and Flaring from Landfills, October 2007.

¹⁴ Ibid.

By their nature, waste sector emissions — which are generally released in an uncontrolled manner — are more difficult to estimate than other emissions sources. Technology for directly measuring waste sector emissions is in its infancy. Emissions vary across most landfill sites and it can be difficult to obtain an accurate reading of the overall emissions. Nevertheless, efforts are being made to develop more effective measures of emissions from landfill sites. These are being driven by increased Government regulation of greenhouse gas emissions and by a growing commercial interest in landfill gas capture for energy generation. While these techniques are being developed, estimates of emissions can be made based on proxies such as the volume of waste deposited. This will minimise compliance costs for entities not currently required to estimate these emissions under NGERs. Stakeholders were also concerned about the treatment of emissions generated from historic waste streams (also known as legacy emissions).

The Government has announced that the carbon price mechanism will not apply to emissions covered by the Carbon Farming Initiative, which includes greenhouse gas emissions from legacy waste. This also means that destruction of methane from landfill legacy waste may be eligible to create offset credits under the Carbon Farming Initiative, subject to meeting additionality requirements. This provides opportunities for landfills to meet their obligations under the scheme through offsetting activities.

If emissions from non-legacy waste are to be covered by the carbon price mechanism, an appropriate participation threshold needs to be developed. For the solid waste sector, a departure from the 25 kt CO₂-e per year threshold proposed for other sectors may be warranted. In contrast to the treatment of the majority of energy-related emissions, sub-threshold waste facilities will not face a carbon price in any form, either directly or indirectly. This raises potential competitive distortions between sites that are subject to the carbon price, and those that are not, particularly in highly competitive markets. Failure to cover sub-threshold facilities also introduces the potential for waste to be displaced from covered to non-covered sites to avoid carbon price obligations. In light of these concerns, stakeholders generally supported a threshold of 10 kt CO₂-e per year, or lower, in urban areas with highly competitive markets.

However, extending the 10 kt CO₂-e per year to all waste facilities has some drawbacks. Many small waste facilities are not in direct competition with facilities that would be covered by a 25 kt CO₂-e per year threshold. An across-the-board 10 kt CO₂-e per year threshold would impose additional compliance costs on many small facilities but would not significantly broaden abatement opportunities across the sector.

In consultations undertaken on this issue for previous proposals, small, council-run sites — many of which sit around a 10 kt threshold — expressed the view that there would be limited capacity to absorb participation costs as it would involve increasing rates.

Key stakeholders from State Governments and local councils also noted that a 10 kt CO₂-e/year threshold could discourage consolidation of the many small landfill sites in rural and regional Australia. Based on estimates of compliance costs prepared for the CPRS, a hybrid 25 kt CO₂-e/year and 10 kt CO₂-e/year threshold would have captured around 200 facilities, operated by approximately 120 companies or public authorities and imposed compliance costs of around \$42 million (start up - total) and \$7 million (annual ongoing - total).

The preferred participation thresholds for landfill operators are 25 kt CO₂-e/year but to avoid displacement of waste from covered to non-covered facilities a 10 kt CO₂-e/year would apply to facilities within proximity to a waste facility with emissions of 25 kt CO₂-e/year or more to make displacement of waste economic. Consistent with broader scheme design, a 25 kt CO₂-e/year participation threshold should in general form the basis for participation thresholds in the waste sector.

Liabile entities for covered facilities

Stakeholders have noted in discussions with the Government that where the emissions liability is placed within a corporate group or unincorporated joint venture can affect the ability to pass through carbon price increases under existing contracts.

In many circumstances, these concerns about cost pass through could be minimised by imposing liability for emissions from a facility on the operator of the facility, rather than the controlling corporation of the corporate group. This is because the operator of a facility will usually have the contract for sale of output of a facility and placing liability directly on the operator will maximise the change that carbon costs can be passed through in the price of goods and services produced by the facility. This would also provide incentives for minority shareholders with an interest in a company that operates a facility to share the costs of investing in abatement opportunities. However it would increase the number of liable entities with mandatory obligations under the scheme as there are a smaller number of controlling companies than subsidiaries. The impact would be reduced by allowing the controlling corporation of a corporate group to voluntarily take on the emissions liability for a covered facility operated by subsidiary, with the subsidiary's consent.

For facilities operated by an unincorporated joint ventures where no one person operates the facility, liability could be imposed on each participant according to its interest in the joint venture would enable carbon costs to be appropriately passed through in the price of goods and services produced by the facility. This may increase the number of entities with mandatory emissions obligations, although most of these are likely to have obligations in their own right.

Further refinements to these approaches may be recommended following further analysis and consultation with stakeholders.

7: Reporting and Compliance

Integral to introducing a carbon pricing mechanism is the measurement of emissions for each liable emitter. These measurements form the basis of reporting to the regulator and the eventual surrender of permits to cover emissions. For many emitters, the requirement to measure emissions will not be new. Emitters in most sectors already have the obligation to report emissions under the National Greenhouse and Energy Reporting System (NGERS).

The Government will also have to ensure compliance with reporting requirements. The operation of the carbon pricing mechanism will be new to all market operators and the need to surrender permits will impose costs on many emitters. This may present motive and opportunities for either violation or inadvertent breaches of scheme requirements.

7.1 Existing NGERS requirements

A logical starting place when considering the most appropriate reporting requirements is to consider the existing obligations on business. Under NGERS, liable entities are responsible for reporting their total emissions of the six key greenhouse gases each year. The scheme was established to provide a national framework for reporting of emissions (prior to NGERS a number of different schemes required the reporting of emissions). It was also intended to form the basis for reporting under a carbon pricing mechanism and provides detailed information to help support Australia's emissions reporting under the Kyoto Protocol.

The NGERS reporting requirements apply to all facilities that cause emissions of greenhouse gases that have a CO₂-e of 25 kt or more per year. This covers the majority of emitters who will be caught under the carbon pricing mechanism.

Under NGERS, the majority of emitters have the choice of four different methods for estimating emissions (see box 3). These include the National Greenhouse Accounts default method (Method 1) and higher order methods, (Methods 2-4). In moving through the methods from one to four, generally the estimation techniques become more accurate but also more expensive to comply with. That said, even the simplest method (Method 1) provides estimates using national averages and ensures accuracy at a nation-wide level.

Box 3: Classes of methodologies available for NGERS

Method 1: the National Greenhouse Accounts default method

Method 1 provides a class of estimation procedures derived directly from the methodologies used by the Department of Climate Change and Energy Efficiency when preparing the National Greenhouse Accounts. The use of methodologies from the National Accounts anchors Method 1 within the international guidelines adopted by the United Nations Framework Convention on Climate Change for the estimation of greenhouse emissions.

Method 1 specifies the use of designated emissions factors in the estimation of emissions. These emissions factors are national average factors determined by the Department of Climate Change and Energy Efficiency using the Australian Greenhouse Emissions Information System. For example the actual emissions content of coal will vary across facilities and locations, but a national average emissions factor is provided.

Method 2: a facility-specific method using industry sampling and listed Australian or international standards or equivalent for analysing fuels and raw materials

Method 2 enables entities to undertake additional measurements — for example, the qualities of fuels consumed at a particular facility — in order to gain more accurate estimates for emissions for that particular facility. This method draws on the large body of Australian and international documentary standards prepared by standards organisations to provide benchmarks for procedures for analysing the properties of fuels being combusted.

Method 3: a facility-specific method using Australian or international standards or equivalent for sampling and analysing fuels and raw materials

Method 3 is very similar to Method 2, except that it requires reporters to comply with Australian or equivalent documentary standards for sampling of fuels or raw materials (as opposed to simply measuring) and documentary standards for analysing fuels.

Method 4: direct monitoring of emissions systems, on either a continuous or periodic basis

Method 4 provides for a different approach to the estimation of emissions. Rather than analysing the chemical properties of inputs (or, in some cases, products), Method 4 aims to directly monitor greenhouse emissions arising from an activity. This approach can provide a higher level of accuracy depending on the type of emissions process; however it is more data-intensive than other approaches.

7.2 Options

There are two feasible options for establishing reporting requirements under the carbon pricing mechanism. The first is use the reporting requirements as set out under NGERS including the default Method 1 and higher order methods in specific circumstances. The

second is to modify these requirements in areas where more detailed reporting is already current practice.

The first option would be the simplest to administer. It would give greatest flexibility to business and would minimise compliance costs — it would impose no new compliance costs on those captured by NGERs and would involve the minimum necessary compliance costs for those new to reporting.

In terms of accuracy, it does have some drawbacks. It is likely that estimated emissions will depend to some extent on the method used to estimate emissions. This may lead some companies to choose the method of estimation that reports the lowest level of emissions. This could result in overall underestimation of emissions if only those who have lower reported emissions under the more accurate methods (methods 2 to 4) choose these options. This is not considered to be a significant problem as the more specific measurement methods are likely to be more costly to implement and these compliance costs would reduce the incentive to 'shop' amongst methods. Moreover, the difference in likely reported emissions between methods is unlikely to be significant for most emitters.

Nevertheless, there is scope to require the more accurate methods where these are already in common use in the industry (option 2). Requiring emitters to use the more accurate methods is desirable as it ensures each facility faces carbon costs that most accurately represent their specific emissions profile. In addition to fairness arguments, this is likely to reveal more abatement opportunities as operators will have a more detailed understanding of a facility's emissions. Clearly, requiring more detailed measurement by all industries would impose significant compliance costs. Nevertheless, in some industries it is common practice to use the higher order methodologies. Three such industries have been identified:

- As a result of NGERs and the Federal Government's Generator Efficiency Standards program requirements, it is widespread practice in the **electricity generation** sector for large emitters to use one of the higher order methods (Methods 2 to 4);
- It is widespread business practice for perfluorocarbon emissions from **aluminium producers** to be estimated using site specific methodologies; and
- **Underground coal mines** are required to monitor emissions using higher order methods to meet state safety regulations.

Requiring these industries to use higher order estimation methods would impose minimal additional compliance costs and would ensure that future reporting continues to be accurate at a facility specific level.

In consultations undertaken on this issue for previous proposals, stakeholders provided limited comment on the choice of measurement options. Stakeholders that did comment on these options generally supported using NGERs as a starting point and recognised the benefits to the scheme of pursuing staged increases in the facility level accuracy of emissions reports.

The preferred approach is to use the NGERs reporting requirements except for the specified industries where more specific methods are common practice.

7.3 Implementation of the NGERS approach

Following the introduction of the carbon pricing mechanism the regulator would monitor reporting practices (and choices of methods) of different industries. The intention would be to move industries to higher order methods as these become common business practice. A key consideration in these decisions would be the minimisation of compliance costs for reporting entities.

International standards change from time to time reflecting improvements in measurement methodologies and technological changes. The regulator will also have to monitor changes in international measurement standards and ensure that Australian standards reflect these changes. Applying these changes in the Australian context will require working closely with industry to ensure that adequate warning of impending changes and appropriate industry understanding of the new methodologies.

It is also likely that the implementation of the reporting requirements will require rules to prevent repeated switching between methodologies. While switching is desirable to allow emitters to choose their method of reporting, repeated switching could give rise to differences in reported emissions that do not reflect differences in underlying emissions. Moreover, businesses may alter their method from year to year to adopt whichever method is likely to give them the lower reported emissions in that year. This would not be in keeping with the intention of giving choice (to minimise compliance costs) and would create instability (and potentially underreporting) in total reported emissions. Therefore where an entity has elected to use Method 2 or above, for a particular source, that methodology would be the minimum standard for that entity for a period of four years. The scheme regulator may grant exceptions to this rule in some circumstances.

Documentation and record keeping requirements for emitters would be as required by the NGERS scheme with an amendment to the NGERS legislation so that the requirement to keep records is for five years. Reporting obligations would also be as set out under NGERS — emitters would report emissions using the Government's Online System for Comprehensive Activity Reporting (OSCAR) by 31 October each year.

7.4 Ensuring compliance with reporting requirements

Under the proposed reporting requirements liable entities will report on their own emissions. As they will also have to acquire (buy) permits to cover these emissions, they will have an incentive to underreport their emissions. There is also the risk that errors would be made in reporting either through negligence or through other 'good faith' mistakes. Errors in the reporting of emissions would have a number of negative consequences.

It is to be expected that most (intentional) misreporting would result in an underestimation of emissions and less permits being surrendered to Government. This would have implications for the accuracy of national emissions estimates and would represent an effective loosening of the cap.

Errors in reporting would also have significant implications for the credibility of the scheme. If there was a perception of widespread non-compliance, community support for the scheme would be much harder to maintain (in the absence of community acceptance and support,

the long term future of the scheme could be called into question). At an international level, confidence in the legitimacy of the emissions reductions driven by the scheme is a key consideration in whether other countries will be willing to 'link' with the Australian scheme. International linking is an important element in reducing the overall costs of the scheme and the ability to establish future links with international schemes is an important consideration in the design of the Australian scheme.¹⁵ Finally, business perceptions of compliance by other businesses with the scheme could have implications for their own compliance. That is, if one emitter believes that other emitters are non-compliant with the scheme, this may influence their compliance decisions. In closing, it is important to note that, in considering impacts on the credibility of the scheme, perceptions of non-compliance can be more important than the actual level of non-compliance.¹⁶

Misreporting of emissions would also have a number of implications at a firm or industry level. The emitter that underreported emissions would be placed at a competitive advantage *vis a vis* other market participants (as they would need to surrender fewer permits). This advantageous position would be a result of non-compliance with the law rather than legitimate business practices and could entail significant costs for competing entities.

For these reasons, assurance arrangements to certify the accuracy of emissions reporting are required. Three options exist:

- ex-post audits undertaken the Government
- ex-ante audits undertaken by third party auditors
- a hybrid option involving third party audits for very large emitters (those emitting over 125 kt CO₂-e/year) and Government assurance for liable emitters below this threshold.

The first option would be similar to the general taxation arrangements. Business would submit their emissions reports and the regulator would then undertake audits in a random (or targeted) manner. The second option would be similar to the arrangements for the preparation of financial statements under the *Corporations Act 2001*. Reporting entities would be required to appoint an independent third party to audit emissions reports before they are submitted to Government.

Under the second and third options it is expected that (at least initially) many audits would be undertaken by large accounting and consulting firms. The extent to which specific training and qualifications will be required before a person can undertake these audits is currently the subject of an auditing regime established under the NGER Act. Over 170 persons are currently registered from a diverse range of organisations.

¹⁵ It is also instructive to note that a key consideration when determining the types of international units Australia will allow in the mechanism is the level of confidence Australia has that the international units represent truly additional abatement.

¹⁶ While perceptions of non compliance should be linked to actual levels of non-compliance, this need not be the case. Importantly Government actions to ensure compliance can improve perceptions of compliance with the mechanism even in the absence of widespread non-compliance. For instance, even if there were widespread compliance with the carbon pricing mechanism, the absence of an auditing mechanism could lead some stakeholders to question the accuracy of reported emissions. This would have impacts on confidence with the carbon pricing mechanism even in the absence of widespread non-compliance.

There are two main costs associated with ensuring the accuracy of emissions reports — compliance costs incurred by business in seeking third party audits and administration costs associated with Government activities to ensure the accuracy of reports.

For those businesses that are required to obtain third party audits, the cost is estimated to be \$150 000 per year. It is also likely that companies would incur some costs associated with liaising with the auditors. On average these are estimated to be around \$11 500 per business per year. Obviously the overall compliance costs would be largest under option 2 — all business would be required to obtain audits. With around 500 liable entities, this would entail total aggregate compliance costs of around \$80 million per year.¹⁷ The third option would require less than 200 businesses to seek third party audits. The total compliance costs of this option are estimated to be around \$32 million per year. The compliance costs associated with the first option are minimal.

In terms of administrative costs, it is estimated that the cost to Government of the third (hybrid) option would be around \$5 to \$9 million per year. This represents the costs to Government of undertaking audits of a selection of emissions reports submitted by liable entities both to double check the reports of vary large emitters and assure the accuracy of reports by smaller liable entities. The administrative costs of the first two options have not been separately estimated, but these costs would be significantly higher under the first option (reflecting the fact that no auditing had been undertaken by companies and the Government would need to undertake a significant number of audits to obtain an acceptable level of confidence that the emissions reports were accurate) and significantly lower for the second option (reflecting the fact that all companies had already been independently audited).

Overall, it is expected that the first option (no third party audits) would be the least costly option while the second option (third party audits for all liable entities) would be the most expensive.

The benefits of assuring emissions reports are essentially the flipside of the costs of inaccurate reporting detailed above. That is, ensuring that emissions reports by liable entities are accurate will improve the accuracy of national emissions estimates, provide additional confidence in the scheme and minimise any business distortions created by the misreporting of emissions. While these benefits are not quantifiable, it is expected that the options involving third party auditing would offer greater benefits. Third party auditing would assure the accuracy of each report (where as Government auditing would only consider a subset of reports) ensuring the accuracy of overall emissions estimates. Third party auditing is also more easily observed by relevant stakeholders (than ex-post Government assurance) ensuring the confidence in the accuracy of reports is maintained.

The benefits associated with the third (hybrid) option are lower than under the full third party assurance option as only a subset of emissions reports are assured. However, the benefits are not likely to be significantly lower. The majority of emissions are accounted for by very large emitters (over the 125 kt CO₂-e/year threshold). As a result, assuring the accuracy of these emissions will ensure that overall emissions data are largely correct. Moreover, the very large emitters are likely to be the most 'visible' and ensuring the accuracy of these

¹⁷ This is likely to be an over estimate of the compliance costs for this option. The per business costs were estimated in the context of assurance for very large emitters (over 125 kt CO₂-e/year). The costs of obtaining a third party audit for smaller emitters (the bulk of the 500 liable entities) are likely to be lower than this amount.

reports should provide confidence in the accuracy of emissions data for the majority of stakeholders. Any concerns with the accuracy of reports by smaller emitters can be alleviated (to a degree) by additional assurance activities undertaken by the regulator.

In consultations undertaken on this issue for previous carbon pricing proposals, stakeholders generally supported the need for a strong framework to assure the quality of emissions reporting submitted under the scheme. However, a number of stakeholders did not agree that assurance of emissions reports should be conducted by independent third parties prior to submission to the Government under the scheme. Some stakeholders argued that a self assurance model would minimise compliance costs for liable entities.

On balance, it is considered that the hybrid option represents the best balance of risks to scheme credibility and compliance costs for reporting entities and is the preferred option. While it is more costly than the first option (Government audits), it is considered that mandatory third party auditing is essential to ensure confidence in the scheme. The second option would provide some additional benefits, however these are likely to be limited and this option would be substantially more costly.

In implementing this position the regulator will monitor the reports of all emitters and will have the power to review and amend assessments of emissions for up to four years after the date of assessment (if reports are found to be erroneous). This time period is broadly consistent with amendment periods under current business tax provisions for entities with complex affairs. In addition, the regulator will have the power to impose administrative penalties, and seek civil and criminal penalties, in the event that emitters are non compliant with the law.

If there are concerns about the accuracy of reports for reporting entities with emissions less than 125 kt CO₂-e/year, the regulator would consider the need to extend auditing requirements (this decision would be taken by Government).

8: Fixed Price Architecture

There are several decisions the Government has to consider in designing the fixed price mechanism. These include: the length of the fixed price period, the level of the fixed price, permit buy-back arrangements and progressive surrender obligations. These issues relate to the principles of environmental effectiveness, economic efficiency, budget neutrality and investment certainty.

8.1 Length of the fixed price period

The Multi-Party Climate Change Committee agreed to consider a fixed price period of between three and five years.

If the intention is to minimise the costs of abatement, the carbon price mechanism should have a short fixed price period before converting to a 'cap-and-trade' scheme. A short fixed price period will bring forward the ability to determine national emissions levels and to access least-cost abatement internationally. If however, the level of international uncertainty is a primary concern, a longer time period may be preferred.

Following the MPCCC announcement on 24 February of a three to five year fixed price period, there was significant stakeholder comment in support of a shorter fixed price period and automatic transition to an emissions trading scheme to maximise business certainty.

On balance, a three year fixed price period is preferred.

8.2 Level of the Fixed Price

The Starting Price, Trajectory and Carbon Budgets

The Government has committed to reducing Australia's emissions of greenhouse gases to 5 per cent below 2000 levels by 2020 and by up to 15 or 25 per cent below 2000 levels by 2020 conditional upon the extent of global action.

While Australia has committed to a 2020 point target range, it has not committed to an emissions trajectory to 2020 or beyond. The level of an initial carbon price has important implications for the types of trajectories that Australia could commit to internationally.

Objectives

The principle of environmental effectiveness suggests Australia should adopt an initial carbon price that would commence domestic emissions reductions consistent with progress towards the Government's targets.

The principle of economic efficiency suggests Australia should seek to meet its emissions reductions targets at the lowest economic cost.

The principle of investment certainty suggests that the level and escalation of a carbon price in the fixed price period should seek to provide business with sufficient certainty to make long term investment decisions with confidence.

Analysis

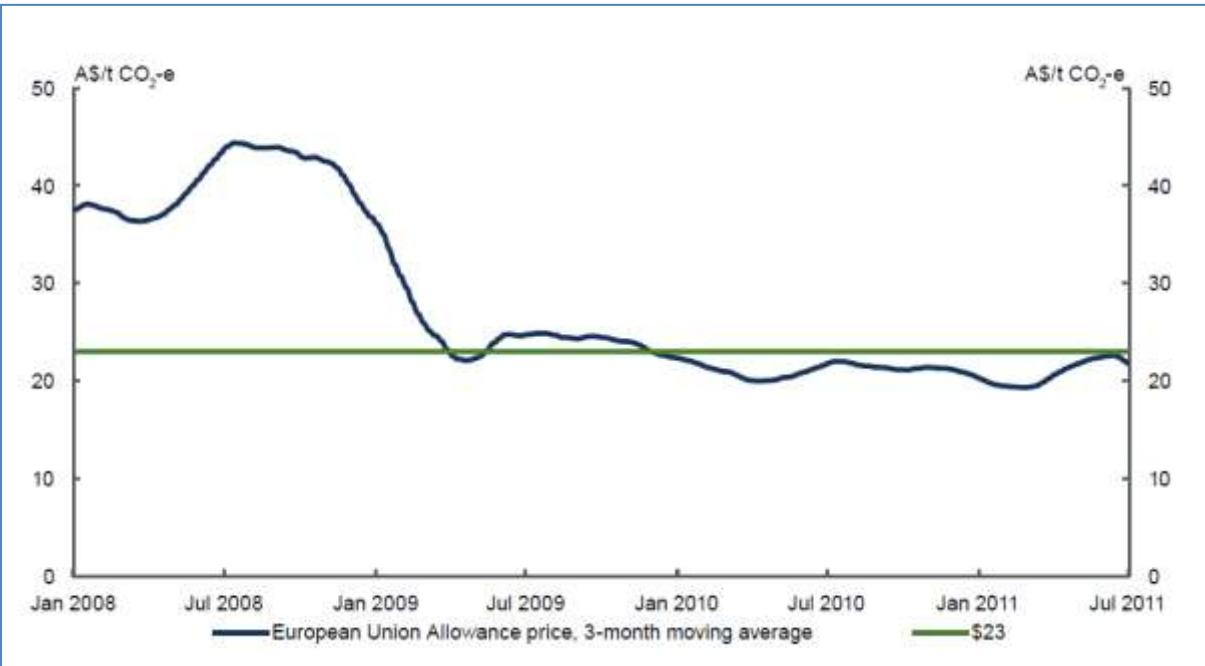
Under a scheme with international linking, the lowest economic cost approach would be to undertake all domestic abatement that costs no more than the international carbon price, and to source any additional abatement from overseas. A starting domestic price that results in a smooth transition to the international price would be consistent with this approach. A smooth transition would also promote investment certainty.

Commencing with a low price would delay investments in abatement. Commencing with a high price would only encourage investments where the short term price had a significant impact on the payback period. Both options would result in a large adjustment in the carbon price when the flexible price period commenced.

The level of the escalation factor is also important. A low escalation factor would require a higher starting price. A higher escalation factor could be used with a low starting price. However, requiring a large movement in the fixed price between compliance years would increase speculation that such an adjustment might not occur. For example, if the fixed price were to start at \$10, an escalator of around 65 per cent would be required to achieve a final fixed price comparable to a \$25 starting price rising at 5 per cent a year in real terms.

Treasury modelling estimates that world carbon prices, converted into Australian dollars, are approximately A\$24 in 2012-13, rising to A\$29 in 2015-16 under global action to stabilise greenhouse gas concentration levels at 550 parts per million. In addition, observed prices in international carbon markets ranged from A\$16 to A\$23 per tonne over the three months to July 2011. (Figure 3.) Observed December 2014 European Union Allowances traded between around A\$19 and A\$28 over that same period.

Figure 3: European Union Allowance price, 3-month moving average



Conclusion

The Government has proposed a starting price of \$23 per tonne, rising by 2.5 per cent in real terms and allowing for 2.5 per cent inflation per year, which is the midpoint of the Reserve Bank of Australia's target range.

Based on the analysis, this is expected to be broadly consistent with international prices associated with medium-term international actions and so should support a smooth transition to flexible pricing.

The initial impact on households and businesses is expected to be modest, with an impact of around 0.7 per cent on the consumer price index (CPI) in 2012-13.

8.3 Progressive Surrender Obligation

In the first year of operation, the Government will provide assistance to business and consumers. However, an entity's final liability can only be determined in the following financial year, after NGERs reporting is finalised. Were payment to occur only at this point, it would involve a significant delay from when the liability was incurred. This would be in contrast to the payment arrangements for other business taxes, such as monthly or quarterly GST returns under the Business Activity Statement, and would have an impact on the Government's underlying cash balance.

An obligation on large emitters to acquit a proportion of their final obligation within the compliance year could be introduced. This "progressive obligation" has a number of implementation issues that require consideration including: the basis on which to estimate a progressive obligation; the size of the progressive obligation; and the timing of when a progressive obligation is due (and when liable emitters are required to reconcile their final obligations with their progressive obligation).

Estimating a progressive obligation

For most liable entities, their progressive obligation could be based on their previously reported emissions under the NGER framework. The *National Greenhouse and Energy Reporting Act 2007* (the NGER Act) introduced a national framework for the reporting and dissemination of information about greenhouse gas emissions, greenhouse gas projects, and energy use and production of corporations.

However all liable entities could be allowed to report on the basis of estimated current year emissions, with the agreement of the scheme regulator, and/or the inclusion of suitable penalties for under-reporting.

Requiring entities to use previously reported data under NGER as a basis for estimating their progressive obligation will benefit those with rising production. Allowing entities to elect to provide an alternative estimate of their current emissions using methodologies approved by the regulator, with suitable penalties for under-reporting, will avoid negative cash flow impacts. While it may impose additional compliance costs by requiring changed or more regular reporting of emissions, as participation would be voluntary, entities would only adopt this approach if it was in their interests to do so.

A progressive obligation for suppliers of natural gas would also need to be based on sales volumes within the compliance year as they are not currently required to report emissions under NGERs.

Level of progressive obligation

The progressive obligation should be set at a level that minimises the likelihood that firms will surrender permits in excess of their total liability at the first obligation. However, it should also reflect a reasonable proportion of the accrued liability at the progressive obligation surrender date.

A higher level of progressive obligation will increase cash flow costs for entities with long time lags between production and receipt of payments for their products. For example, electricity generators generally receive payment 20 business days after supply. Retail gas suppliers generally use quarterly payment arrangements. A progressive obligation of 75 per cent of estimated occurring liabilities would involve manageable cash flow costs for liable entities and limit the underlying cash balance impact of the scheme.

Timing of the progressive obligation

The introduction of a progressive obligation introduces additional compliance points for business to meet their emissions liabilities. Entities will be required to make a progressive payment during a compliance period based on their expected emissions and then to make a final payment reconciling their progressive payment with their actual liability, after their actual emissions are known.

The latest date for a progressive obligation should be 15 June to ensure that payments align with financial years.

Minimising compliance costs

Smaller entities (facilities with emissions around the NGER reporting threshold of 25 kt CO₂ per annum) could be excluded from the progressive surrender obligation to reduce business compliance costs, as these facilities represent a very small proportion of emissions in aggregate.

Final Surrender ('true-up') Date

Aligning final reporting dates and final obligation dates in the fixed price period with those in the flexible price period would reduce compliance costs for business in transitioning between the systems. For this reason, entities should be required to report final emissions by 31 October following a compliance period and make final permit surrenders (or shortfall payments) for actual emissions by 1 February.

Conclusion

The introduction of a progressive surrender obligation would more closely align the payment of liabilities with the timing of the emissions. However, the higher the level at which the progressive obligation is set, the more likely it will impose cash flow costs on liable entities with long time lags between production and receipt of payments for their products. A 75 per cent progressive obligation would largely eliminate the risk of the obligation increasing cash

carrying costs for liable entities with substantial time lags between emissions and receipt of payment for their outputs. In particular, this level of obligation should address potential cash costs for electricity generators and retail gas suppliers, which respectively can have time lags of approximately 1 month and 3 months between supply and receipt of payment.

This progressive obligation will be due on 15 June of the compliance year in which the liability is incurred.

For most liable entities, basing a progressive surrender obligation on previously reported emissions under NGER would reduce compliance costs. However allowing entities to provide an alternative estimate would address business concerns about inaccuracies in using the previous year's emissions.

Exempting smaller entities and facilities from a progressive surrender obligation would have little impact (as these entities represent less than 1 per cent of emissions) but would reduce implementation and compliance costs.

8.4 Other elements of the fixed price architecture

During the fixed price period, liable entities will be able to purchase permits at a fixed price, up to their emissions obligation for progressive surrender or final 'true-up' surrender. The price of permits will rise in real terms between compliance years.

Treating the permits as automatically surrendered will ensure that entities cannot purchase additional cheap permits in any compliance period for use during subsequent periods, diluting the price signal in later compliance periods.

Fixed price permits will be available from 1 April of the compliance (financial) year, providing liable entities with three months to purchase fixed price units before having to meet their progressive payment obligation (due on 15 June). It would also provide a lead-in time for the development of systems in the first year of the carbon price mechanism.

The use of fixed price permits to provide assistance to industry is an important element of the proposed assistance package for emissions intensive and trade exposed industries. Permits will be issued to cover liable entities' direct emissions and to cover the indirect costs entities will face from the introduction of a carbon price (for example, for the increase in electricity prices).

Entities will therefore need a mechanism to sell excess permits either to other liable entities or to the Government so that they can receive the full value of their assistance. The provision of a Government buy-back facility will ensure the Government's objectives of providing transitional assistance are able to be met.

The behaviour of recipients of freely allocated fixed price permits is unlikely to influence the behaviour of other liable entities, as the supply of permits in the fixed price period is unlimited.

9: Transition Arrangements

The need for a transition mechanism at the end of the initial fixed price period is a source of uncertainty for business and other stakeholders in planning their adjustment to a domestic carbon price. Providing clarity around the nature and timing of the transition mechanism will reduce business uncertainty, improve the prospects for long term investment in abatement and smooth the transition from fixed to flexible pricing.

There are two key issues associated with the transition to a flexible price:

- The existence (or not) of a decision-point, at which the Government might decide not to proceed to a flexible price; and
- The nature of any default carbon price arrangements in the event that regulations setting out pollution caps or the next fixed price period are either not made or are disallowed in Parliament.

Decision-point

The MPCCC's 24 February framework announcement stated that at the end of the fixed price period the clear intent would be that the scheme convert to a flexible price 'cap-and-trade' emissions trading scheme. The announcement also noted that an option could exist to defer the commencement of the flexible price arrangements. Subsequently, stakeholders expressed strong views supporting a guaranteed transition to flexible pricing at a known time to reduce uncertainty.

Having an automatic transition to flexible pricing rather than a decision point would improve business certainty and the investment climate for long-lived emissions-related assets. Having a decision-point rather than an automatic transition to flexible pricing would however, provide the flexibility to take into account changing circumstances, including developments in international carbon markets. However, this would provide less certainty to business around when a flexible price would commence.

Default options

In any case, the legislation must contain a default setting to ensure that a default carbon price continues to operate in case regulations establishing pollution caps or a second fixed price period are not made or are disallowed. The decision on the default setting is independent of the decision about automatic transition.

The default mechanism could take one of two forms. The first would be a default pollution cap. The alternative would be a continuation of the fixed price.

Setting a default pollution cap based on the Government's unconditional emissions reduction commitment of a 5 per cent reduction on 2000 level emissions by 2020 would provide certainty to liable entities and other stakeholders that the mechanism will transition. It would ensure that Australia's current international commitments are met and would reduce the need for on-budget purchases of international units.

A default continuation of a fixed price mechanism at the same price or increased annually by inflation could be simpler to implement than a default based on the Government's unconditional commitment. However, it could lead to an emissions profile quite different to that required to meet the Government's unconditional target. This could make it difficult to achieve the 2020 target. Conversely, a fixed price escalating in real terms would need to be set at the time of passing the legislation to act as a default. This raises the risk of a domestic price potentially markedly out of step with international prices or ambition by the end of an extended fixed price period, which could be a number of years into the future.

Conclusion

To reduce the potential costs of abatement and increase certainty, the mechanism should automatically transition to a flexible price architecture at the end of the fixed price period.

On this basis, in addition to the reasons outlined above, it would be preferable to have a default setting based on default pollution caps rather than a continuation of a fixed price.

10: Flexible Price Architecture

10.1 Setting pollution caps

The scheme pollution caps determine the number of domestic carbon pollution permits (permits) that will be issued by the Government in each year of the flexible price period. Allowable emissions across the sectors covered by the scheme will only be able to exceed the cap if this is matched by the surrender of eligible international units¹⁸, additional permits issued under the price ceiling mechanism or, possibly, scheme offsets (such as offsets issued under the Carbon Farming Initiative).

In a system with little or no international linkage, the interaction between the pollution cap and the demand for permits is the primary determinant of the carbon price: the more stringent the pollution cap, the higher the price, all other things being equal. However, the Government has decided to allow imports of eligible international units from commencement of the flexible price period and to review the scope for exporting permits over time.

If the international price is below the domestic price, this will create an incentive for liable entities to import cheaper eligible international units for use in acquitting their liabilities under the scheme. This is expected to reduce the demand for permits and decrease domestic prices causing these to converge on the international price, which in turn will be determined by global abatement demand and supply conditions. In this instance, the domestic pollution cap will no longer be a significant determinant of domestic carbon prices.

If the international price is above the domestic price there will be no incentive for liable entities to import eligible international units. In this instance, the domestic pollution cap will remain a key determinant of domestic prices until such time as the restriction on exports is lifted or the international price falls below the domestic price.

The key driver of cost to the Australian economy will be the ambition of the national targets that Australia commits to internationally. The pollution cap will be set in accordance with these national targets.

Options

There are two key questions that should be addressed in regard to the guidance over pollution caps:

- Should announced pollution caps be adjusted in light of international developments?
- How far into the future should pollution caps be set and announced and how often should this period be extended?

¹⁸ Eligible international units are units predetermined specific permits that are environmentally credible and consistent with Australia's international objectives and obligations. Carbon pollution permits are domestic compliance units issued under the Australian scheme by the scheme regulator. Domestic scheme participants can use eligible international units as substitutes for carbon pollution permits to meet domestic scheme obligations.

Should announced pollution caps be adjusted in light of international developments?

Setting pollution caps for a certain period in advance is an exercise in risk management. There is considerable uncertainty about international developments after 2012. If caps are set five years in advance, future shifts in the international situation may mean that the caps are inconsistent with Australia's negotiated position.

If, following the advance announcement of pollution caps, the Government were to commit to a national emissions trajectory that was stricter than that implied by the caps, it would have two broad options for meeting the national targets.

The Government could tighten the pollution caps to match the change in Australia's international commitments. This could be done by buying back permits, or by reducing the number of permits that the Government sold at future auctions. In both cases, a policy of altering the caps would transfer some of the risk of changes in Australia's international obligations to participants in the scheme.

The Government could make up the shortfall on its own account rather than through the scheme. This could be achieved by the Government honouring international agreements through the purchase of eligible international units without changing the pollution caps. This was the approach recommended by the Garnaut Final Report in 2008.

Alterations to pollution caps after their announcement would be disruptive to the market because it would change the anticipated supply of permits, thereby weakening the value of announcing caps in advance. On the other hand, Government purchases of eligible international units would quarantine the scheme from external shocks and provide investors and others in the broader economy with certainty about short-term caps. Further, the Government will take domestic commitments and objectives into account when negotiating international commitments and so is in a position to manage risks over such a time horizon. For this reason, the purchase of eligible international units by the Government is preferred.

In consultations undertaken on this issue for previous carbon pricing proposals, stakeholders were broadly supportive of the Government making up the difference between pollution caps and internationally negotiated targets.

However, some stakeholders advocated against the use of eligible international units to make up the shortfall. One questioned the environmental efficacy of eligible international units, and another argued that this was against the 'polluter pays' principle.

While standing ready to purchase eligible international units presents a fiscal risk, this is likely to be small, since it is proposed that pollution caps extend for periods of only five years.

The preferred position is that pollution caps not be adjusted in the event that they are incompatible with internationally negotiated national targets.

How far into the future should pollution caps be set and announced and how often should this period be extended?

Two broad options were considered for announcement of future pollution caps:

- a long period of certainty, such as 10 years or more (recommended by the Task Group on Emissions Trading (TGET)¹⁹ and the National Emissions Trading Taskforce (NETT)²⁰).
- a medium period of certainty, such as five years (recommended by *The Garnaut Climate Change Review: Final report*).²¹

In consultations undertaken on this issue for previous proposals, several stakeholders argued for a longer period of known caps. Ten years of certainty over pollution caps (or even longer as advocated by some stakeholders) would provide a greater information set with which to inform permit prices. This would help to guide investment proposals with longer payback periods.

By extending deep into the future, a 10-year cap period risks significant misalignment between caps and further obligations that Australia might choose to negotiate and accept and may also unduly constrain Australia's negotiating position.

Although providing certainty to liable parties, fixing pollution caps independently of Australia's international position for that length of time exposes the Government to the risk that it will be required to purchase eligible international units to make up any shortfalls that may result.

A small number of stakeholders advocated much shorter periods of guidance.

Minimum certainty over pollution caps would give only limited guidance to market participants and leave considerable uncertainty around the likely direction of Government policy.

Five years of pollution caps at scheme commencement — consistent with the recommendations of the Garnaut Final Report 2008 — appears to strike a reasonable balance between the need for investment certainty and the need to maintain flexibility in relation to future international negotiations and commitments. As the mechanism will be linked internationally, pollution caps will be a less important determinant of the carbon price, reducing the need for pollution cap guidance.

As a result, the preferred position is that pollution caps be announced five years in advance. This period may be extended in the event that the Government enters an international commitment with a longer duration.

Extensions of the guidance period

Pollution caps will need to be regularly extended in order to maintain an adequate level of guidance.

A short interval for extending pollution caps (such as one year) has a number of advantages. A short interval would increase flexibility for the Government, which could make small extensions to the cap each year in response to developments in the economy, environmental science or international objectives and commitments. A short interval would help maintain a

¹⁹ Prime Ministerial Task Group on Emissions Trading, Report of the Prime Ministerial Task Group on Emissions Trading.

²⁰ National Emissions Trading Taskforce, Possible design for a national greenhouse gas emissions trading scheme: Final framework report on scheme design.

²¹ R Garnaut, *The Garnaut Climate Change Review: Final report*, Cambridge University Press, 2008.

minimum period of certainty over caps at all times. It would also provide a more regular flow of information to the market about future emissions constraints, which could help promote a more continuous pricing response, rather than sharp, irregular adjustments.

The disadvantage of extending pollution caps by one year, every year, is that the administrative costs of gathering advice, consulting stakeholders and effecting the change through the appropriate legislative mechanism would be higher than if pollution caps were extended less regularly.

Stakeholders were broadly supportive of the proposed (year by year) approach to extending pollution caps.

On balance, it is considered that the need to ensure at least five years of certainty for business is important, even though this entails higher costs for Government. As a result the preferred approach is that pollution caps be extended by one year, each year, as required to maintain a minimum five-year certainty period.

Implementation

Pollution caps would be established in regulations (disallowable instruments) under the *Clean Energy Act*. As a result, delays in putting in place the regulations extending pollution caps are possible, and would reduce the certainty period over pollution caps.

To ensure that pollution caps are always in place in line with the Government's commitment to medium-term policy certainty, a default mechanism will be implemented.

Basing the default on the proportion of the previous year's pollution cap could be done by formula. As the market would tend to use the previous pollution cap as a guide, this approach would probably be the least disruptive to permit prices.

A reduction from the previous year's cap is the preferred method for defining the default.

10.2 Auctioning of flexible price permits

Once created, carbon pollution permits within the pollution cap need to be allocated or released to the market either by administratively allocating them to liable entities or by auctioning them. As discussed below, auctioning is an efficient method of allocating permits. However, auctioning a large number of permits raises important issues of auction design.

The objectives of the auction

The design of the auction will be influenced by the objectives it is seeking to achieve. The key objectives are as follows:

- *Promote allocative efficiency* — Permits are channelled to their highest value in the economy with a minimum of risk and transaction costs.
- *Promote efficient price discovery* — Making the auction results public will provide an important price signal, particularly in the early years of the mechanism. Providing a price signal has a significant role in stimulating behavioural change; for instance in

helping entities manage their emissions obligations and make investment decisions. This discovery process is reinforced when the results of early auctions and the prices obtained are communicated at the start of the scheme.

- *Raise auction revenue* — The auction should also raise revenue that can be used for other policy objectives, such as providing assistance to households and businesses. However, the auction has not been designed with the primary aim of maximising revenue.

There is usually no conflict between the objectives of promoting allocative efficiency and price discovery, and raising auction revenue. If conflict arises, the Government will give priority to the first two objectives.

To promote allocative efficiency and efficient price discovery a well-designed auction will include:

- a large competitive field of bidders;
- a simple system that encourages participation;
- a stable set of auction rules that are not subject to arbitrary or unpredictable changes;
- transparent processes that rapidly reveal price information; and
- minimal fees, charges and other costs of participation (although some rules to ensure that bids are credible may be desirable).

In arriving at final policy positions, the Government has sought to ensure that the development of a deep and liquid secondary market is not compromised.

Advantages of auctioning as an allocation method

In releasing permits to the market, the Government has two options: the auctioning of permits and allocating them directly to emitters.

Auctioning permits has a number of advantages over allocating them directly to liable entities.

In theory, there should be no difference in efficiency between auctioning permits and allocating them administratively²², because permits could be traded to their highest value use under either system, even if the initial allocation is inequitable.

In practice, because administrative allocations will be made for reasons other than pure efficiency, the initial allocation of permits will not necessarily be made to the users that value them highest. Firms will be able to trade permits on the secondary market, but trading costs and information issues mean that this will not be costless. As a result, additional transaction

²² Administrative allocation occurs where permits are allocated by the Government (or Regulator) to liable entities for free, using some agreed formula for example on the basis of historical emissions. This occurred in the European Union Emissions Trading Scheme.

costs will be incurred under a direct allocation method to ensure that permits reach their highest value uses.

Auctioning permits also ensures that the entities who are responsible for high levels of emissions are the ones that pay for the environmental costs (the 'polluter pays' principle). It also raises additional revenue for the Government which can be directed to other objectives (in this case assistance to business and consumers).

The key disadvantage of auctioning permits is that it may be slightly more expensive to administer depending on the nature of the administrative allocation method. However, auctions will be held on an internet platform to reduce the cost to Government and participants, and in the context of the scheme auction establishment, running costs are expected to be low. Even with direct administrative allocation the Government would incur costs associated with designing and implementing the allocation approach.

In consultations undertaken on this issue for previous proposals, most stakeholders were in favour of auctioning as the preferred approach to releasing permits. Some stakeholders were in favour of auctioning 100 per cent of permits.

Some stakeholders were opposed to the distribution of permits by administrative allocation. Some argued that free allocation encourages gaming behaviour, leads to windfall profits and weakens the intended outcomes of the scheme.

Other stakeholders raised concerns that full auctioning might not result in an equitable allocation of permits.

The economic efficiency benefits of auctioning (the ability to channel permits to their highest value uses with lower compliance costs) make it desirable to move progressively towards 100 per cent auctioning of flexibly priced permits over the longer term. However, the use of permits to provide assistance to industry is an important element of the proposed assistance packages. As such, some initial free allocations of permits to emissions intensive industries will be made.

There could be wider impacts if the volume of permits that were freely allocated comprised a significant proportion of the total stock. However, with open international linking, the supply of permits to Australian entities is much greater than the volume of permits issued under the domestic cap. This would offset any behavioural response by recipients of freely allocated permits to bank or hoard permits for future use during the flexible price period. There is also unlikely to be significant banking or hoarding of freely allocated permits in the flexible price period, as a proportion of the permits provided are to cover the indirect impacts of introducing a carbon price. Entities are unlikely to bank such permits (as opposed to selling them) unless their expectations of the future price of those permits exceeds the costs of their alternative sources of capital.

The preferred position is that permits will be allocated by auction, unless they are freely allocated as transitional assistance for emissions-intensive trade-exposed industries and strongly affected industries.

10.3 Advance auctioning of future vintages

During the flexible price period, the scheme will have annual caps and surrender periods. Consistent with this approach, permits will also be differentiated by annual vintages; that is, each permit will pertain to a particular financial year pollution cap.

In consultations undertaken on this issue for previous proposals, most stakeholders supported the auction of future year vintages as future vintages may be an alternative to the spot market and any associated derivative markets for liable entities seeking to manage future emissions obligations.

Some stakeholders also argued for the issuing of vintages from distant future periods as a signal of scheme credibility and longevity. This is similar to the approach proposed in the McKibbin–Wilcoxon hybrid model for climate change policy, which uses long-term permits partly to give investors a stake in the longevity and credibility of the scheme.²³

Advance auctions of future vintages are not required for carbon futures prices to emerge. For example, derivative markets have developed in the European Union Emissions Trading Scheme without advance auctions. While advance auctions can provide flexibility for liable entities and contribute to the credibility of the scheme, they can also increase the complexity of auctions and reduce the number of permits of particular vintages available at each auction. Depending on how far in advance vintages are auctioned, the Government's flexibility to set caps could be reduced over time. The extent of these disadvantages will depend on how many future vintages are auctioned.

The key advantage of the advance auction of future vintages is that advance auctions would give entities trying to manage future emissions liabilities an alternative to buying up and banking the current year's permits.

Assessment

Advance auctions of future vintages allow entities who wish to manage their emissions liabilities over time an alternative to buying up and banking the current year's permits. This will aid the development of a liquid current vintage market. Advance auctions also provide an alternative source of permits to the spot market and any associated derivative markets for liable entities. This provides additional flexibility and price certainty for liable entities in acquiring the permits they need. The advance auctioning of flexible price permits may provide important price signals to the market and assist in the development of derivatives and associated financial products. This will assist the efficiency of forward price discovery and risk transfer.

The preferred position is that there will be advanced auctions of future vintage permits.

²³ See for instance McKibbin, W. and Wilcoxon, P. (2007) 'Two issues in carbon pricing: timing and competitiveness', *Working Papers in International Economics*, April, No. 1.07, McKibbin, W. and Wilcoxon, P. (2006), 'A credible foundation for long term international co-operation on climate change', *Working Papers in International Economics*, June, No. 1.06, Lowy Institute for International Policy, Sydney; and also McKibbin, W. (2006), 'Why Australia should take early action on climate change', Lowy Lunch Lecture, December 13. Available at www.lowyinstitute.org.

There may also be some advantages in holding auctions of flexible price permits in the early years of the carbon pricing mechanism before the first pollution caps are set. However, it would be important that the size of these advance auctions did not reduce the ability of the Government to determine the future cap.

The preferred approach is for the Government to retain the option to hold advance auctions of flexible price permits during the fixed price period before a pollution cap has been set for a particular compliance year, provided that:

- there is a limit on the number of permits auctioned in each vintage year; and
- the vintage is no more than three years beyond the year of the auction.

As the scheme automatically transitions to flexible pricing in the fourth year of the scheme, advanced auctions in the absence of a known cap could only occur in the first two years of the scheme.

Implementation

While the Government has indicated preferred options for several aspects of auctioning permits in the flexible price period, there are a number of decisions that the Government needs to make in relation to the policies, procedures and rules around auction design. These include: the frequency and size of auctions, the timing of auctions, and participation arrangements. As these details are likely to require fine tuning over time, it is proposed that these be set out by legislative instrument after consultation with stakeholders. Further regulatory analysis will be undertaken as required before decisions on these matters are sought.

10.4 Banking and borrowing of flexible price permits

A carbon pricing mechanism will establish a market for greenhouse gas emissions, commonly known as a carbon market. A well developed carbon market, including secondary and derivatives markets, will enable the economy to reduce emissions in a cost effective way. The market will provide a reliable price to inform business investment, enabling entities liable under the scheme to obtain carbon pollution permits as and when required and to manage carbon risks.

There are two key questions that must be addressed in regard to the use of flexible price permits:

- Should permits be bankable?
- Should entities be able to 'borrow' permits from future years?

Should permits be bankable?

Banking allows permits to be saved for use in future years. With unlimited banking, permits would not have an expiry date — once issued, they could be used for compliance at any future time.

There are three broad banking options:

- allowing unlimited banking
- not allowing banking in the early stages of the scheme
- not allowing banking.

In consultations undertaken on this issue for previous proposals, a substantial number of stakeholders commented on banking. Of these the large majority were highly supportive of unlimited banking, however, some environmental groups argued that banking should not be allowed as it may lead to emissions targets being breached in later years. A small number of stakeholders also expressed concerns that unlimited banking could raise the price of permits at the start of the scheme.

As with all measures that improve inter-temporal flexibility, allowing banking is likely to improve the economic efficiency of the scheme. Banking allows participants to set aside permits for later high demand periods. This advantage is likely to be significant — the total resource costs of meeting a long-term emissions constraint are likely to be lower with unlimited banking than without.

Banking provisions will reduce scheme implementation risks. First, banking is likely to lead to an overall price path that is smoother than the non-banking alternative, promoting efficient price discovery. Limiting banking in phases can lead to cyclical pricing behaviour, with prices falling to zero at the end of each phase, as occurred at the end of Phase I of the European Union Emissions Trading Scheme (EU ETS).²⁴

Second, if banking is not allowed, permits have a ‘use it or lose it’ property. Liable entities will be less likely to take early action to explore abatement potential if previously obtained permits that become surplus cannot be banked for future use. The absence of banking could therefore slow the pace of adjustment to the emissions constraints.

On the other hand, banking might result in higher initial prices for permits, as noted by some stakeholders. Setting permits aside for future use reduces current supply (increasing the current price), but increases future supply (decreasing the future price). While this smoothes the price in the long term, the initial price rise makes it more difficult to engineer an ‘easy’ start to the scheme by having relatively low prices.

For this reason, some stakeholders have suggested that banking be disallowed initially while the economy is adjusting to the carbon constraint. However, there are a number of arguments against this:

- Any step change in prices would only be deferred to the period in which banking is allowed.
- Prices in subsequent periods would be higher than they would have been had banking been allowed, as more expensive abatement options are pursued (which could have been avoided if less expensive shorter term abatement had been pursued).

²⁴ Ellerman, AD and PL Joskow (2008), *The European Union's Emissions Trading Scheme in Perspective*, Pew Center on Global Climate Change.

- Disallowing banking between phases could lead to the collapse of the price of permits at the end of the non-banking phase and then a large price step up in the next phase, as occurred in the EU ETS. This cyclical pricing behaviour could lead to less efficient market outcomes and reduce confidence in the system overall.

Current international arrangements allow for banking, that is, eligible international units can be carried over into the next (as yet unspecified) commitment period. If future international arrangements did not allow for banking, there would be a small risk that banking in the scheme would be inconsistent with Australia's international emissions reduction target.

Overall, the advantages of banking (reducing overall costs, encouraging early and efficient abatement activity, providing greater flexibility to participants) outweigh the disadvantages (potentially higher early prices than otherwise, and potential inconsistency with international obligations).

Finally, the advantages of banking are greatest if banking is continuous. For these reasons the preferred position is that unlimited banking of permits will be allowed under the mechanism in the flexible price period (with the exception of fixed price permits that are purchased under the price ceiling arrangements).

Should entities be able to 'borrow' permits from future years?

Borrowing allows permits to be brought forward from future years. Borrowing can be short term (borrowing only from the subsequent year) or long term (borrowing two or more years in advance).

A substantial number of stakeholders commented on borrowing in consultations undertaken on this issue in 2008. Of these, most were supportive of short-term limited borrowing, however, some stakeholders argued that a greater degree of borrowing should be allowed on the basis that it would provide for greater flexibility, while others argued that no borrowing should be allowed as it may compromise the environmental integrity of the scheme.

Long-term borrowing

The combination of unlimited banking and unlimited long-term borrowing (borrowing two or more years in advance) would result in a 'carbon budget' approach. That system would allow a larger proportion of permits to be used in the short term, with corresponding reductions in emissions in later years, if that were the most cost-effective means of remaining within the overall carbon constraint over time. If the integrity of the carbon budget could be maintained, this would be the most economically efficient option.

There are three important disadvantages of unlimited long-term borrowing. First, in the domestic context, it might lead to pressure being applied to the Government to subsequently change the rules. In particular, if too many permits are used in the short term because firms borrow from the future, the Government might be pressured into issuing more permits in the future to avoid problems associated with a subsequent shortage of permits. Industry would have a large incentive to overuse permits (that is, to do less abatement than otherwise) in the short term in the knowledge that the Government may have little option but to accede in the longer term, or risk damage to the economy. Second, long-term borrowing arrangements are not accepted in other schemes and may pose difficulties for linking. Third, if long-term

borrowing is allowed under the international climate change framework, this could lead to significant and potentially detrimental delays in the global abatement effort.

Given these risks, the option of unlimited borrowing could undermine the environmental integrity of the scheme. That risk would exist even if borrowing were administered by the scheme regulator in the manner proposed in the Garnaut Final Report 2008. Furthermore, banking in the early stages of the scheme, in anticipation of tighter future caps, would create a store of banked permits that could be used in future years of high demand. That buffer would allow an economically efficient outcome without the need for long-term borrowing. This is why unlimited long-term borrowing is not allowed in any existing scheme and is why it is not the preferred approach.

Short-term borrowing

Short-term borrowing (borrowing one year in advance) would promote economic efficiency without the same risks as long-term borrowing. The primary purpose of allowing borrowing between adjacent periods is to prevent price spikes and resultant economic disruption around the final surrender date. Although the frequency and timing of auctions will take into consideration the variation in demand for permits over the course of the year, the risk of price spikes around the surrender date remains, by which time actual emissions for the year and issued permits are fixed. Price spikes can arise either from 'output surges', arising from natural variation in the economy, or from speculators 'squeezing' a thin pre-surrender date market. By increasing the supply of permits, borrowing from adjacent periods reduces the likelihood of squeezing and gives the market more capacity to cope with output surges.

The preferred position is that the scheme will permit short-term borrowing.

Form of borrowing

There are several options for limiting the amount of short-term borrowing in the scheme. Few stakeholders commented on this issue in past rounds of public consultation.

Some options are to limit borrowing by:

- allowing only a certain percentage of a party's obligation to be met using the following year's vintage of permits (option 1)
- marking a subset of a year's vintage as available for use in the previous year's compliance period (option 2)
- having the regulator administer borrowing arrangements (option 3).

Option 1 and option 2 deliver an equivalent level of borrowing, as required for output surges. However, option 1 is superior to option 2 in alleviating squeezes (squeezes rely on a shortage of usable units). Because any of the next year's vintage could be used (in limited quantities) under option 1, it would be difficult to create a squeeze in supply, as that would require the acquisition of the entire year's allocation. Option 1 is also simpler to implement, as it does not subdivide vintages into different categories.

Option 3 is to have the regulator administer the level of borrowing in accordance with the needs of the market, as proposed in the Garnaut Report. The regulator would assess the creditworthiness of the borrower, who would be obliged to repay the debt by providing

permits to the regulator at a later date. While the Government would be responsible for setting overall banking and borrowing policy, it would be up to the regulator to decide on the exact amount, timing and terms of the arrangement.

This arrangement is more administratively complex than the other options, which require no assessment of creditworthiness and, as long as the allowance for banking is limited, does not pose a risk to the credibility of the longer term cap. A discretionary approach would also be less transparent and would provide the market with less certainty than one in which rules were legislated. A discretionary approach also requires a high degree of confidence in institutional arrangements, which generally takes time to develop through a track record of sound performance.

For these reasons, the preferred position is to allow liable entities to discharge a certain percentage of their obligation using the following year's vintage of permits (option 1).

Quantum of borrowing allowance

Unlimited short-term borrowing, like unlimited long-term borrowing, may result in credibility risks for the scheme. For this reason, some limit on short-term borrowing is warranted.

The limit on short-term borrowing should be enough to provide a buffer against potential price spikes arising from output surges (arising from natural variation in the economy) or from financial market participants squeezing a thin pre-surrender date market.

A borrowing limit of 5 per cent should provide an adequate buffer against output surges. This limit would also provide some protection against cornering of the market by providing another source of permits beyond the current year. Because any of the next year's permits can be used, all of these would need to be bought up in order to corner the market. This limit achieves market flexibility and smooth price shocks, while avoiding damage to the credibility of national targets.

The cap on borrowing would be in place at the entity level. This would translate through to the scheme as a whole and represent an upper bound for the aggregate borrowing allowed under the scheme.

10.5 Price Ceilings

Under an emissions trading scheme with flexible pricing, the Government controls the quantity of emissions through the issue of permits and leaves the price to be determined in the carbon market. The alternative approach would be for the Government to control the price of permits and allow the market to determine the level of emissions.

There is a risk, in setting limits on permits, for the costs of abatement to be significantly higher than expected, leading to a given limit on emissions imposing a significant and unacceptable cost on the economy.

This 'upside' price risk can be reduced by introducing a price ceiling.

Objective

Improving price certainty in the early years of flexible pricing will encourage environmental effectiveness and investment certainty. However, it is important that improving price certainty does not impair economic efficiency and increase the economic cost of achieving the Government's emissions target.

Options

In considering the merits of a price ceiling, the Government also needs to consider for how long the price ceiling should operate, the starting level of the ceiling, how it should be escalated and how the price ceiling should be implemented.

Impact Analysis

The main advantage of a price ceiling is that it increases investment certainty and promotes a smoother transition by decreasing upside price risk for liable entities by capping the cost of compliance under the carbon pricing mechanism. It makes explicit the Government's policy response should the price of permits rise to a level that imposes a significant and unacceptable cost on the economy.

The three main disadvantages of a price ceiling are that it:

- potentially reduces environmental effectiveness;
- could negatively impact *budget neutrality* by increasing the likelihood that the Government would have to purchase higher-priced eligible international units to meet its emissions reduction target; and
- complicates linking decisions and may prove to be an impediment to linking with other countries' schemes.

Length of a Price Ceiling

There are a number of other mechanism features (such as banking and borrowing, and international linking) and the development of the secondary market that diminish the need for a price ceiling. These allow for the market to better manage the upside price risk without the need for Government intervention.

For these reasons, a price ceiling should only be implemented for the initial years of the flexible price period, while uncertainty is highest, and while other mechanism features and secondary markets are developed.

Starting Level of a Price Ceiling

A price ceiling should be set high enough so that its probability of use is low, while still providing protection against extreme and unacceptably high prices.

The international permit price consistent with global action to stabilise atmospheric greenhouse gas concentrations at 550 parts per million is expected to be \$29/tCO₂-e in 2015-16.

On this basis, a price ceiling of up to \$20 above the expected international price in the first flexible price year would appear to balance these concerns.

As the international price will depend on global action which is not certain, it is difficult to set the starting price ceiling in the legislation. An alternative approach is to set the price ceiling in regulations at the time the first pollution caps are set. This is expected to be at least 13 months before the start of the flexible price period.

Waiting until the first pollution caps are set would also allow the Government to take into account other factors (including developments in international carbon markets and the status of international negotiations) which will impact on expectations about the international price in the flexible price period.

While a price ceiling set in regulations could be disallowed, including a default price ceiling level would increase complexity and is considered unnecessary for a measure that is intended to be a safety valve with only a low likelihood of being accessed.

Escalation Rate of a Price Ceiling

The main reason for a price ceiling is to avoid extreme prices during the initial stages of the mechanism, when uncertainty about the operation of the carbon market is at its highest. As the carbon market develops, there should be less need for a price ceiling to protect mechanism participants against extreme prices.

For this reason, the price ceiling should increase over time with expectations for international prices. The Treasury modelling estimates that domestic prices will rise in real terms by 5 per cent per year. For this reason, the preferred position is for the price ceiling to increase in real terms by 5 per cent each year.

Form of a Price Ceiling

The price ceiling can be implemented in two forms:

- access to an unlimited store of additional permits, issued by the Government at a fixed price; or
- an administrative penalty for non-compliance

Access to an unlimited store of additional domestic permits is legislatively simpler to implement and would also align with the purpose of the price ceiling to explicitly and transparently cap domestic prices at an appropriate level determined by the Government.

Conclusion

Introducing a price ceiling as a transitional measure to guard against high prices in the early years of the scheme while uncertainty is expected to be highest would reduce 'up-side' risk. However, the price ceiling should be set sufficiently above expected prices to ensure that it is not used frequently, but avoid extreme permit prices occurring.

A price ceiling, in place for the first three years of the flexible price period, set at up to \$20 above the expected international price in the first flexible price year and indexed at a rate of five per cent in real terms each year would address these concerns.

Implementation

The initial price ceiling should be set in regulations no later than 13 months before the end of the fixed price period (31 May 2014). The cap should be implemented through access to an unlimited store of additional permits, issued by the Government at the price ceiling.

10.6 Price Floors

As discussed above, under an emissions trading scheme with flexible pricing, the Government controls the quantity of emissions through the issue of permits and leaves the price to be determined in the carbon market. The alternative approach would be for the Government to control the price of permits and allow the market to set the level of emissions.

When the carbon price mechanism transitions from a fixed to a flexible price, the price of domestic emissions permits will most likely be set by the prevailing price in the international markets to which the domestic scheme is linked. In the absence of a single international permit market, the domestic price will reflect the lowest price in the markets to which Australia links.

There is a risk that the costs of abatement will be significantly less than expected, leading to a price that is lower than expected. This downside price risk would be taken into account by investors in low carbon investments and could reduce or delay such investments.

This 'downside' price risk can be reduced by introducing a price floor. A price floor mechanism ensures that the price of permits does not fall below a pre-determined level (the floor price). For those investing in abatement technologies whose value is sensitive to the level of the carbon price, a price floor could help reduce downside price risk.

Objectives

Improving price certainty in the early years of flexible pricing will encourage investment certainty. However, it is also important that improving price certainty does not impair economic efficiency and increase the economic cost of achieving the Government's emissions target.

Options

Establishing pollution caps and targets, allowing permit banking and trading in secondary markets, identifying international units that can be used to meet domestic compliance obligations and providing predictability around policy and regulatory settings will increase price certainty for investors in the short and longer term.

To the extent that these mechanisms were insufficient, the Government could consider supplementing these measures with a price floor mechanism. A price floor mechanism could be a permanent feature of the carbon price mechanism or a transitional measure.

Analysis

A price floor mechanism is a guarantee that the domestic price of permits will not fall below a pre-determined level. This would reduce 'downside' risk for investors in domestic abatement projects.

However it would potentially increase the cost of achieving a domestic abatement target – as the floor price would only be triggered when there were genuine lower cost sources of abatement available from international emissions trading schemes.

As international units can only be used to offset domestic emissions liabilities where they meet minimum criteria (including environmental credibility), the introduction of a price floor mechanism could also increase regulatory uncertainty and reduce credibility in the carbon pricing mechanism as a means of achieving lowest cost abatement.

International linking would also be administratively more complex with a price floor mechanism.

There are a range of carbon price design features that help address downside price uncertainty. These include permit banking (allowing excess permits to be 'banked' for use in subsequent compliance periods avoids the prospect that prices may collapse towards the end of a compliance period), cap and target-setting arrangements (announcing caps and targets in advance helps set market expectations about the likely carbon price), open international linking (other countries caps and targets also affect expectations about the carbon price), functioning secondary permit markets (which can be used to manage exposure to risk and uncertainty) and policy and regulatory predictability associated with sound governance.

These features promote economic efficiency and will help minimise the cost of meeting Australia's emission reduction targets. A price floor could potentially increase the cost of meeting any particular target, but only if it was set at a level that was binding. A price floor could usefully provide confidence in the early years of a flexible carbon price, as a transitional measure.

Consultation

A number of environmental groups and green business organisations who made submissions on the carbon pricing framework supported the consideration or inclusion of a floor price mechanism. Some industry stakeholders opposed a price floor mechanism on the grounds that it appeared pre-emptive, could unnecessarily increase the costs of abatement, and would be difficult to implement.

Conclusion

The introduction of a price floor mechanism could help reduce 'downside' risk for some investors, but would lead to higher abatement costs than necessary to reach a given target. It would undermine credibility in the flexible price mechanism and complicate arrangements for international linking.

Relying on other design features to reduce price uncertainty would be more likely to promote economic efficiency and minimise abatement costs.

The potential costs of a price floor could be minimised if introduced as a transitional measure, set at a level that is unlikely to be readily accessed and implemented in a way that minimised administrative complexity.

Implementation

Floor price for domestic units

The preferred approach for applying a floor price to domestic permits would be to set a reserve auction price. Under this approach, the Government would not sell domestic permits unless bids at least met the reserve price. The alternative to setting a reserve auction price is to impose a surrender fee. A surrender fee would require the Government to monitor permit prices in the secondary market and apply an additional fee equal to the difference between the market price and the floor price when permits are surrendered.

Floor price for international units

A floor price on international emissions units and offsets could be applied in two main ways. The first option would be to impose a surrender fee. This would apply as described above and require the Government to monitor prices paid in secondary markets. This would require:

- ongoing monitoring of the prices of each type of international unit, to determine what the surrender fee should be;
- the specification of how these prices will be established (for example, a weighted average of trades across certain nominated exchanges); and
- the ability to expand these arrangements to accommodate new units as they become available over time.

In addition, all surrender fees would need to be implemented consistently with Australia's international trade obligations.

The alternative option would be for the Government to become the monopoly buyer of international units for the period the price floor mechanism is in place. The Government would then sell these units to domestic market participants at a price no less than the floor price. This option would enable the Government to know the prices of each eligible unit used for compliance in the scheme. However it would require the Government to identify international abatement options and purchase international units. This would involve a significant administrative burden. Liable parties would only have access to international markets via the monopoly seller, thereby reducing choice and market opportunities. This would reduce incentives for Australian entities to participate in international carbon markets and to pursue international abatement options.

The preferred approach is to impose a surrender fee on each type of international unit, based on the observed international market price of each unit and the domestic floor price.

As Carbon Farming Initiative (CFI) credits are expected to be only a small percentage of the total permits used for compliance under the carbon price mechanism, the CFI price will be determined by the prevailing price within the carbon price mechanism, and the international export price. For this reason, there is no reason to apply a price floor to CFI credits by

charging a surrender fee. It is proposed that no surrender fee be charged on eligible CFI credits in order to maintain a price floor.

11: International Linking

International linking means that entities that are subject to an Australian carbon price are permitted to use international carbon units (for example, from overseas carbon offset projects or from other jurisdictions' emissions trading schemes) to meet their domestic compliance obligations. It can also mean that Australian emissions permits can be exported.

Links with other countries' emissions trading schemes could be direct, where units from an overseas scheme can be used for compliance purposes in Australia; or indirect, where two schemes have no direct links but both accept units from a third scheme. An example of this could be an Australian carbon price measure with no direct links to either the New Zealand or European Union emissions trading schemes, but with all three measures accepting the offset credits created under the Kyoto Protocol's Clean Development Mechanism.

Links can be either unilateral (one-way), where units from scheme A can be used in scheme B, but not vice versa; or bilateral (two-way), where governments responsible for schemes A and B agree to accept units from each other's schemes.

11.1 Advantages of linking

Allowing Australian entities subject to a carbon price to access abatement that occurs overseas provides an additional safety valve on domestic compliance costs and should lower the cost of meeting Australia's carbon pollution targets. Linking opens up opportunities to access lower-cost abatement that may not be available domestically. This is relevant to economic efficiency and addressing impacts and opportunities for the competitiveness of Australian industries.

Other benefits of linking include promoting technology transfer to developing countries, facilitating Australia's involvement in international carbon markets, and supporting an efficient global response to climate change. This is relevant to supporting Australia's international objectives and obligations.

11.2 Disadvantages of linking

A key potential disadvantage of linking is that it requires care to ensure that only units that represent genuine international abatement can be used for compliance. This is relevant for environmental effectiveness.

Another potential disadvantage is that international carbon prices could deviate with international factors outside the control or influence of the Australian Government, with domestic ramifications. This is relevant to investment certainty.

11.3 Linking in the fixed price period

Allowing imports and exports of emissions units is incompatible with a fixed price period.

While domestic permits purchased at the fixed price are cancelled when they are purchased, if freely allocated permits could be sold on international markets, they would only be sold when the international price exceeded the domestic fixed price. Liable entities that sold freely allocated permits could then meet their emissions obligations by purchasing domestic permits at the fixed price. This would undermine achievement of Australia's emissions reduction targets.

If imports of international permits were allowed and the international price was below the domestic fixed price, the cost of abatement would be lower, but the Australian Government would receive no revenue to meet commitments to provide transitional assistance to households and businesses. This would require either significant Budget outlays, inconsistent with the principle of Budget neutrality, or limitations on assistance inconsistent with principles relating to household and industry assistance.

11.4 Linking in the flexible price period

International units are an important source of abatement and, so long as they are genuine, should be part of a cap-and-trade scheme from the commencement of flexible pricing. Imposing restrictions on the use of international units may raise the cost of domestic abatement, reducing economic efficiency.

To the extent that linking reduces the domestic permit price, it will also reduce the level of domestic investment in abatement. However, as economic modelling by the Treasury suggests, even with completely open access to international units after 2020, the carbon price mechanism will drive significant reductions in Australia's domestic emissions from what they would otherwise have been. For example, in the core price scenario, Australia's domestic emissions are projected to be eight per cent lower than the global action scenario in 2020, and 46 per cent below the global action scenario in 2050.

For these reasons, the preferred approach is to allow linking with credible international carbon markets and emissions trading schemes, with a preference for open trading of emissions permits without quantitative restrictions, provided quality criteria are met. Any restrictions on linking will be to ensure:

- the stability and ongoing credibility of the carbon price mechanism;
- the environmental integrity and effectiveness of the carbon price; and
- consistency with Australia's international objectives and obligations.

There are, however, disadvantages to unlimited linking, particularly in the early years of the mechanism. Allowing unrestricted access to international permits in the early years of flexible pricing may, however, lead to greater price volatility. It may also be desirable to have a higher degree of domestic abatement to ensure the ongoing credibility and acceptability of the mechanism. Especially in the early years, the community might reduce its support for the mechanism if it perceives it to be merely driving an outflow of funds to other countries while requiring little domestic action. Community acceptance of the mechanism is important for its ongoing survival, which affects its environmental integrity. If investors perceive that the mechanism might only be short-lived, then its efficiency and liquidity will also be adversely

affected, since investors would not take long-run price signals about the price of carbon into account.

To address these concerns, a transitional quantitative restriction on the use of imported permits could be applied. This could take the form of a requirement for liable entities to meet some proportion of their domestic liabilities through the purchase of domestic units until (say) 2020.

It is proposed that the restriction will be reviewed in 2016 by the Australian Climate Change Authority.

11.4.1 Default eligibility of international units

Concerns about price uncertainty from international linking can also be reduced by identifying a list of international emissions units that can be used to meet domestic obligations in advance of flexible pricing commencing. Providing guidance on these units from the commencement of the carbon pricing mechanism will enable business to observe international unit prices and enter into hedging and other arrangements once there is clarity over the timing of transition. This will also provide clarity to businesses that there will be access to international units in the event that a default pollution cap is triggered.

As a matter of policy, the eligibility of units should generally be assessed against criteria relating to environmental integrity requirements and consistency with Australia's international obligations and objectives.

The set of units initially recommended for inclusion in the carbon price mechanism is based on an assessment of existing units, their characteristics, the likelihood they will still be traded in 2015-16, and for which linking will not necessarily require bilateral agreements (provided international agreements around registries and international transaction logs remain intact).

Eligible international units

Kyoto Protocol Units

The Kyoto Protocol (KP) provides a framework for parties to acquire Kyoto units from other countries and count them towards their emissions targets via different flexibility mechanisms (emissions trading, the 'clean development mechanism' and 'joint implementation' projects). Each mechanism produces a different type of compliance unit (worth one tonne of CO₂-e) that may be traded amongst countries (these are discussed in more detail below).

All of these units are eligible compliance units under the KP; that is, each can be used to offset one tonne of CO₂-e from any party's emissions. As such, each type of compliance unit could be accepted for compliance in the scheme, linking the Australian carbon pricing mechanism to the international market.

One major advantage of linking via the flexibility mechanisms is that the international architecture underpins the credibility of the units traded. The UNFCCC Secretariat which oversees compliance with flexibility mechanisms' integrity requirements has progressively increased the scrutiny of KP units to further strengthen their integrity. By linking with the flexibility mechanisms many of the benefits of directly linking to other domestic and regional schemes can be achieved as these schemes are also linked to the flexibility mechanisms.

Trade in KP units will continue at least until 2015 when the true-up of the first commitment period is expected to take place. International discussions will determine the extent of use of KP units beyond 2015.

Assigned amount units

Assigned amount units (AAUs) are the primary compliance units under the Kyoto Protocol, and are issued to countries in line with their agreed national emissions targets. For example, Australia agreed to cap emissions at 108 percent of 1990 levels over the Kyoto compliance period and has therefore been issued with AAUs to cover these emissions.

Consistent with the economic efficiency criterion, acceptance of AAUs is likely to provide liable entities with a low cost compliance option, lowering the overall cost of meeting the Government's abatement targets.

However, there are some disadvantages to the acceptance of AAUs for compliance in the scheme:

- Some stakeholders have raised concerns about the environmental credibility of some AAUs, specifically those that relate to so-called 'hot air' or surplus AAUs allocated to those countries whose economies have contracted since 1990 (notably former Soviet Union economies).
- Given the current uncertainty about the future international framework, it is not clear how the supply of AAUs will develop.

Given the potential risks to the credibility and stability of the scheme the preferred approach is not to accept AAUs for compliance in the scheme. This position would be reviewed in the light of international developments.

Emissions reduction units

Emissions Reduction Units (ERUs) are generated via Joint Implementation (JI) projects where one country implements a project to reduce emissions in another country (both countries must have a target under the Kyoto Protocol).

ERUs would offer a low-cost compliance option for liable entities, promoting a cost-effective way for the scheme to help meet Australia's emissions targets.

While ERUs were to be permitted under the CPRS, some stakeholders have raised concerns about the use of ERUs sourced from some types of projects under the carbon pricing mechanism. These include ERUs generated from the destruction of industrial gases and ERUs from large scale hydro-electric projects.

ERUs may be produced from the destruction of trifluoromethane (HFC 23) produced as a by-product of chlorofluoromethane (HCFC-22) production and the destruction of nitrous oxide from adipic acid plants. However, the difference between the costs of producing and destroying these gases and the carbon revenue received for their destruction can create a perverse incentive for their creation and destruction.

Large scale hydro-electric projects raise concerns of environmental sustainability. To the extent that such projects also receive other forms of assistance, it can also be difficult to

determine the extent to which emissions reductions are 'additional' to business-as usual. To address these concerns, the EU encourages Member States to refrain from approving projects that are inconsistent with criteria and guidelines it has developed based on those contained in the World Commission on Dams November 2000 Report "Dams and Development – A New Framework for Decision-Making".

On balance, to ensure additionality, the preferred approach is for ERUs from Joint Implementation Projects under the Kyoto Protocol to be recognised under the carbon price mechanism unless they are produced from the destruction of industrial gases or from large-scale hydro-electric projects that are not consistent with the EU's criteria and guidelines based on those contained in the World Commission on Dams November 2000 Report "Dams and Development – A New Framework for Decision-Making".

Nuclear projects have been excluded from the Joint Implementation mechanism since 2001 when parties to the United Nations Framework Convention on Climate Change (UNFCCC) agreed to refrain from accepting the use of ERUs from nuclear projects at the Seventh Conference of the Parties. It is therefore also proposed that ERUs generated from nuclear projects would not be accepted under the carbon price mechanism.

Removal units

Removal units (RMUs) are units issued by another Kyoto party on the basis of land use, land-use change and forestry. Few countries are likely to be in a position to generate RMUs, so the potential for trade in RMUs is likely to be limited. No concerns have been raised about the use of RMUs, and the preferred approach is that RMUs, to the extent they are still traded, should be recognised as compliance units in Australia's carbon price mechanism.

Certified emission reductions

Certified Emission Reductions (CERs) accrue from joint projects between Kyoto parties with an obligation (developed countries and economies in transition, usually former Soviet bloc countries) and developing countries under the Clean Development Mechanism. Essentially, the developed country can implement a project in the developing country and obtain CERs which they can use towards their Kyoto target.

The Clean Development Mechanism is designed to provide emissions reductions that can be used by Kyoto parties with an obligation to meet their commitments under the Protocol as well as support sustainable development in the host country. It is an offset mechanism that generates CERs based on differences between an estimated baseline (expected 'business as usual' emissions) and actual emissions (as verified by the UNFCCC).

The Clean Development Mechanism has induced significant abatement activities in developing countries and provides an important source of low cost abatement opportunities. Trade in CERs is an important component of the current international market, adding to overall liquidity.

In addition, the Clean Development Mechanism provides an important transition mechanism that engages developing countries in mitigation projects until they are able to take on binding commitments.

However, some stakeholders have raised concerns about the environmental credibility of the Clean Development Mechanism, as it entails no limit on emissions in developing countries.

Further, although the mechanism uses rigorous verification procedures, any assessment of whether abatement is truly 'additional' entails a significant degree of judgment.

Like ERUs, CERs may be generated by the destruction of industrial gases and from large scale hydro-electric projects, concerns with which have been mentioned above. Parties to the UNFCCC also agreed to refrain from accepting CERs from nuclear projects when they agreed to refrain from accepting ERUs from nuclear projects in 2001.

In addition, CERs may also be created through afforestation or reforestation activities in developing countries. However, these projects are assessed to have a limited life — less than two commitment periods for some projects and between 20 and 60 years for longer term projects — before they need to be replaced. If these CERs were recognised in Australia's scheme, the Government would need to replace them with other units when they expired. Acceptance in the scheme would introduce a contingent liability on Australia under the Kyoto framework and would have high administrative costs associated with measures to address the contingent liability.

The preferred approach is to recognise CERs from the Clean Development Mechanism under the carbon price mechanism. However, given the concerns outlined, it may be appropriate to exclude CERs created through afforestation or deforestation, CERs from nuclear projects, CERs from the destruction of trifluoromethane from the production of chlorofluoromethane or from the destruction of nitrous oxide from adipic acid plants, and CERs from large-scale hydro-electric projects that are not consistent with the EU's criteria and guidelines based on those contained in the World Commission on Dams November 2000 Report "Dams and Development – A New Framework for Decision-Making".

11.4.2 Changing the range of eligible international emissions units accepted for domestic compliance purposes

To maintain the integrity of the carbon pricing mechanism, the Government will need to be able to alter the list of eligible international units, to add new units, and modify or remove existing units.

At the same time, linking rules are a key determinant of the domestic carbon price, and a predictable permit price is important for investor certainty. It is therefore desirable that market participants know what types of international units will be accepted for compliance in the future, and have a reasonable period of notice of any changes to the range of eligible units.

In considering how much notice, if any, would be given of changes to the range of international units that could be used for domestic compliance, the need for market certainty (to help promote an economically efficient response) must be balanced against the need for policy flexibility to adapt the Scheme as new types of units become available, or if existing units are found to have become unsuitable. Rather than setting a fixed period, the preferred approach is to determine the appropriate period of notice at the time the list is changed.

With regard to disallowance of units, the preferred approach is for the Government to retain the right to disallow the use of a given type of international unit for compliance in the carbon pricing mechanism at any time to ensure the environmental integrity of the mechanism and consistency with Australia's international objectives.

If a type of international emissions unit is allowed to be used for compliance with the carbon price mechanism, but a subsequent decision is made to disallow it, liable entities will be able to use that type of unit for compliance in that compliance period but not thereafter.

With regard to adding requirements, the preferred approach is for the Government to add to the types of international units that are recognised for compliance under the carbon price mechanism, where:

- the addition does not compromise the environmental integrity of the carbon price mechanism;
- the addition is consistent with the objective of the carbon price mechanism, including Australia's international objectives; and
- there has been consultation with stakeholders, including analysis of the expected impact on the permit price, by the Climate Change Authority and advance notification to the market by Government.

11.4.3 Transferring Australian permits outside of Australia

Transferring Australian permits to other countries in the flexible price period would reduce the number of permits in Australia's scheme, increasing the Australian permit price and resulting in relatively more abatement occurring in Australia than would otherwise be the case. The capacity to sell and transfer domestic abatement to international markets would also create new markets for providers of domestic abatement. It would increase the inflow of foreign capital, providing a stimulus for domestic abatement activities and investment in low-emissions technologies, and contribute to reducing the costs of global mitigation and to increasing global liquidity. The ability to sell Australian permits into foreign markets is, therefore, generally desirable.

However, some short-term factors need to be taken into account, particularly in minimising implementation risk. Adding international demand to the domestic scheme has the potential to increase upward pressure on the domestic price of Australian permits. This poses risks to the stability of domestic prices and, as a consequence, compliance costs, during the early years of flexible pricing. To manage this risk the Government has proposed a domestic price ceiling for the first three years of the flexible price period.

Allowing the export of domestic units when a price ceiling is in place would pose a fiscal risk to the Government if the Government were to purchase international units to ensure Australia met its abatement targets. Limiting exports of domestic emissions permits when a domestic price ceiling is in force would therefore limit the Australian Government's liability to purchase international units. The alternative would be for the Government to reduce pollution caps after the price ceiling period to meet its abatement targets.

It may be possible to allow limited exports of domestic permits during the price ceiling period under bilateral agreements with countries whose schemes had similar controls to ensure their environmental integrity.

To the extent that it is possible to negotiate such agreements, the preferred approach is to not allow the transfer of Australian permits outside of Australia when a price ceiling is in

place during the flexible price period of the carbon pricing scheme except as part of a bilateral link to another emissions trading scheme with appropriate provisions in place to maintain the environmental integrity of the linked scheme.

11.5 Consultation

While most stakeholders were generally supportive of international linking with no quantitative restrictions on eligible units that met suitable quality criteria, some stakeholders were concerned that unlimited access to eligible international units would reduce the incentive for domestic action.

Many stakeholders were supportive of linking to the Kyoto Protocol's flexibility mechanisms. However, some stakeholders questioned the credibility of some Kyoto units, particularly CERs.

Some stakeholders supported quantitative restrictions to comply with international obligations or to ensure scheme credibility but considered that in general the price should dictate the extent of use, and as such, restrictions should be set very high.

Several stakeholders called for the provision of certainty as soon as possible and as far in the future as possible on the qualitative and quantitative restrictions that would be placed on the import of international units.

There was overwhelming support for a continued effort to develop more direct bilateral or regional links in the future.

11.6 Future arrangements

Choices about the nature and extent of linking are likely to change over time. A key event influencing further decisions on international linking is the development of future international agreements. Linking arrangements will need to be subject to review in the light of ongoing international negotiations and market developments, with a clear preference for accessing credible schemes and markets to the greatest extent possible as the carbon pricing mechanism matures. Only those linking opportunities that are consistent with the mechanism's objective would be considered. This would include consistency with Australia's international obligations.

There are potentially significant benefits associated with deeper and more expansive linking in the longer term. The Government could consider establishing a bilateral link with a scheme of another country by recognising the unit of the other scheme for compliance purposes and vice versa. Australia may wish to establish a bilateral link with the scheme of another country to increase the pool of abatement opportunities for liable entities, to enhance liquidity and to build international cooperation around emissions trading.

In order to provide guidance to market participants about potential future links it is desirable to specify the characteristic of acceptable links.

Future bilateral links should only be with schemes that are of a suitable standard, including having:

- an internationally acceptable (or where applicable a mutually acceptable) level of mitigation commitment;
- adequate and comparable monitoring, reporting, verification, compliance and enforcement mechanisms; and
- compatibility in design and market rules.

These characteristics would help to ensure future linking arrangements are consistent with the scheme's overall objective.

12: Linking to the Carbon Farming Initiative

The Carbon Farming Initiative is a carbon offsets scheme that will provide opportunities for farmers, forest growers and landholders to help the environment by reducing carbon pollution.

Carbon credits represent abatement of greenhouse gases which is achieved by:

- Reducing or avoiding emissions, for example, through capture and destruction of methane emissions from landfill or livestock manure; or
- Removing carbon from the atmosphere and storing it in soil or trees, for example, by growing a forest or reducing tillage on a farm in a way that increases soil carbon.

Under international accounting rules, these abatement activities may be internationally recognised (Kyoto-compliant) or not recognised (non-Kyoto compliant). While Kyoto-compliant abatement can be used to meet Australia's commitments under the Kyoto Protocol, non-Kyoto abatement cannot. As such, Kyoto-compliant CFI credits are substitutes for domestic emissions permits, while non-Kyoto compliant CFI credits are not. Both types of CFI credits can be sold on domestic and international markets.

Allowing entities to use Kyoto-compliant CFI credits to offset their domestic liabilities under the carbon pricing mechanism would strengthen demand for land sector abatement. However, some environmental groups have raised concerns that allowing unlimited use of these credits may undermine mitigation activity in covered sectors.

Kyoto-compliant CFI credits

The level of investment in Kyoto-compliant CFI projects will reflect expectations about the short and long term prices of Kyoto-compliant CFI credits.

In the fixed price period, if Kyoto-compliant CFI credits can be used to offset domestic emissions liabilities and the domestic price is higher than the international price, CFI credits will be sold on the domestic market in preference to exporting them. (If international prices are higher, domestic CFI credits will be exported in preference to being sold domestically.) The fixed price is therefore likely to provide a floor for expectations of the price of Kyoto-compliant CFI credits in the short term.

If the fixed price is significantly above expectations of the international price in the short term, then there could be a significant investment in CFI projects as a result. Treasury modelling shows that the Kyoto-consistent abatement delivered by the CFI in 2020 is expected to be between 7 and 20 Mt CO₂-e depending on the international carbon price (medium and ambitious global actions scenarios). So the potential for there to be a significant undermining of mitigation activity in other sectors would appear to be low.

However, to address the residual risk, limits on the use of Kyoto-compliant CFI credits to offset emissions obligations in the fixed price period could be introduced. In that case, it should set limits that are low.

Indicative analysis on the impact of linking the CFI to the scheme with a starting carbon price of \$23 suggests that a 5 per cent limit is not likely to be reached in aggregate, because the abatement potential from the CFI is estimated to be less than the amount that could be used. Although it may be possible for some entities to reach an individual compliance limit of 5 per cent, it is worth noting that, unlike fixed price permits, CFI credits can be traded or banked and used in subsequent compliance periods. So the impact of reaching the 5 per cent limit in any one compliance year of the fixed price period would be low – unused credits could be sold to others or banked for future use.

In the flexible price period, with international linking, the price of CFI credits in Australia will reflect the international permit price. Introducing or maintaining restrictions on the volume of CFI credits that can be sold on the domestic market would therefore have little impact on the price of Australian permits or on the level of domestic abatement from other sectors. However, imposing restrictions on their domestic sale may discourage investment in land sector abatement.

Non-Kyoto compliant CFI credits

Investment in non-Kyoto compliant CFI projects will also reflect expectations of the short and long term prices of non-Kyoto compliant credits. As these credits relate to abatement that cannot be used to meet Australia's international commitments, they should not be accepted as offsets for domestic emissions liabilities under the carbon price mechanism. However, as the internationally accepted accounting framework can change, the Government should retain the ability to prescribe the use of non-Kyoto compliant CFI credits as offsets under the carbon price mechanism in the future.

Conclusion

Allowing Kyoto-compliant CFI credits to be used to offset liability under the carbon price mechanism would strengthen demand for land sector abatement and introduce a new source of abatement for businesses that are covered by the carbon price mechanism.

Placing quantitative limits on the use of CFI offsets by liable entities in the fixed price period would, however, reduce concerns about potentially large volumes of CFI abatement undermining mitigation activity in other sectors.

Allowing liable entities to surrender Kyoto-compliant Carbon Farming Initiative credits for up to 5 per cent of their liability in the fixed price period would address these concerns.

As CFI credits will be tradable between entities and bankable for future use, any excess supply of CFI credits in one particular year can be sold or used to offset emissions liabilities in future years.

There should be no quantitative restrictions on the use of CFI credits in the flexible price period. Retaining restrictions on the use of domestic offsets when international permits can be used would reduce incentives for domestic investment in land and waste sector abatement and constrain access to low cost abatement.

It is possible that non-Kyoto-compliant abatement could be recognised in a future target, subject to changes in international greenhouse accounting rules. If so, non-Kyoto CFI credits could then be used for compliance with the carbon pricing mechanism. It is therefore

proposed that the Government retain the ability to prescribe non-Kyoto compliant CFI credits as eligible under the carbon price mechanism.

13: Taxation arrangements

The introduction of a carbon price mechanism has a number of implications. Eligible emissions units (units able to be surrendered against a liability under the carbon price mechanism) will be a valuable instrument and their acquisition, possession and disposal will create obligations under the tax system (specifically in relation to income tax and the goods and services tax (GST)). There will also be implications for accounting and auditing systems.

In theory the Government could make no changes and rely on generic provisions in tax law to govern any tax obligations arising under the carbon price mechanism.

While it is intended that the design of the tax system creates minimal distortion around the purchase, use or sale of eligible emissions units, in some cases the generic tax requirements may be uncertain and may create incentives to categorise the purchase or holding of eligible emissions units in certain ways to reduce tax liabilities.

This section considers the treatment of eligible emissions units under the existing income tax and GST legislation and whether an amended system would be an improvement on this generic treatment. The RIS also considers the treatment of credits issued under the Carbon Farming Initiative which cannot be surrendered against a carbon liability under the carbon price mechanism. These credits, by definition, are not eligible emissions units.

The preferred approach is the one which best meets the following objectives:

- The taxation arrangements should not distort incentives surrounding business decisions to acquire, hold or dispose of eligible emissions units.
- The taxation arrangements should be as simple as possible, minimising compliance and administration costs.
- The taxation arrangements should provide business with a consistent tax treatment.
- The proposed taxation treatment should not place an unreasonable administrative burden on the Government.

13.1 The current taxation arrangements

For a taxpayer carrying on a business or undertaking other assessable income earning activities, the existing income tax law would recognise the cost of acquiring eligible emissions units.

The treatment and provisions that would apply in any particular case would depend on the entity's purpose in holding an eligible emissions unit, both at the time of purchase and while the eligible emissions unit is held. For example, an entity could purchase an eligible emissions unit:

- to meet an obligation under the carbon price mechanism;
- as part of its trading portfolio as trading stock;

- to surrender voluntarily as part of a marketing campaign; or
- as an investment.

Eligible emissions units and other credits may also be issued for eligible offset activity, such as under the CFI.

Application of the current income tax law

While the relevant income tax principles are well established, the application of those principles to particular circumstances may be uncertain. Complexity may arise for taxpayers because an eligible emissions unit can be treated differently when held by different taxpayer types (for example, liable entities and entities that hold eligible emissions units as trading stock) or when held by the same taxpayer for different purposes (for example, a liable entity holding eligible emissions units for surrender and other eligible emissions units for sale).

Uncertainty could also arise if a liable entity purchases eligible emissions units for use, claims a deduction and then realises that too many eligible emissions units were purchased. In this case the excess eligible emissions units may be banked until required. If an eligible emissions unit remains banked over a number of years, there may be a change in the purpose for holding the eligible emissions unit. This could affect the tax treatment of the eligible emissions unit. In creating uncertainty, the operation of the current law could lead taxpayers to use financial intermediaries to hold eligible emissions units, purchasing them only when needed. For some taxpayers, this may not be the most efficient method of meeting obligations under the carbon price mechanism or managing risk. The following sections illustrate how the tax treatment can change where circumstances change.

Eligible emissions units purchased to meet an obligation

Where an eligible emissions unit is purchased to meet an obligation under the carbon price mechanism, the cost of the eligible emissions unit may be deductible under the general deduction provision of the income tax law. However, it is not clear when the deduction would be available. The cost could be deductible at the time:

- the eligible emissions unit is purchased;
- an obligation under the carbon price mechanism legally arises; or
- the eligible emissions unit is surrendered.

The tax treatment of an eligible emissions unit could influence the decisions of an entity to buy or sell an eligible emissions unit. The existing tax law generally allows a deduction at the time of purchase. Where a deduction is available, this provides an incentive for an entity to acquire eligible emissions units. If the eligible emissions unit is sold the proceeds would be included in assessable income. Allowing a deduction in a different year to that in which the proceeds from sale are treated as income could provide a disincentive for the entity to sell an eligible emissions unit. That disincentive to sell could then reduce market liquidity. This could then lead to a situation where eligible emissions units are not available to entities for which they have the most value, reducing the cost effectiveness of the carbon price mechanism.

Eligible emissions units purchased and held as trading stock

The trading stock regime can be thought of as a reconciliation process for stock on hand at the end of the income year. Where a taxpayer purchases trading stock, the tax law allows a deduction at the time of purchase. However, the trading stock regime also recognises any stock held by the taxpayer at the end of the income year in which the stock was acquired. The value of that trading stock is included in the taxpayer's income as trading stock income. Trading stock held at the end of an income year can be valued at cost, market value or replacement value. Any proceeds from the sale of trading stock are included in a taxpayer's income as trading stock income. Taxpayers who might hold an eligible emissions unit as trading stock are likely to include banks and other financial intermediaries. Credits (including eligible emissions units) issued under the CFI to farmers, forest-growers, landholders and primary producers are also likely to be treated as trading stock.

Eligible emissions units purchased for marketing purposes

A business entity may purchase and voluntarily surrender an eligible emissions unit for promotional or marketing purposes; for example, to market itself as 'green' or to reduce its carbon footprint when there is no legal requirement to do so.

The cost of an eligible emissions unit purchased for marketing or promotional purposes may be deductible in the same way as other marketing costs. However, as is the case for the timing of a deduction arising from an eligible emissions unit used to satisfy an obligation under the carbon price mechanism, there is uncertainty about the time at which a deduction would be available to a business entity for an eligible emissions unit acquired and surrendered for marketing purposes.

Proceeds from the sale of an eligible emissions unit acquired for promotional or marketing purposes would be taken into account in determining the seller's assessable income.

Eligible emissions units purchased for investment

Where an eligible emissions unit is purchased for investment purposes, the cost of the investment would be taken into account in determining any gain or loss on the disposal of the eligible emissions unit.

An eligible emissions unit does not provide an income stream while it is being held, with the only return being obtained by selling the eligible emissions unit for a profit. If a taxpayer enters into an isolated business or commercial transaction with the objective of acquiring an asset to make a profit from the disposal of that asset, any profit is assessed as ordinary income, rather than as capital gains.²⁵ Consequently, it is very unlikely that a gain from an eligible emissions unit held for investment purposes would be assessed under the capital gains tax (CGT) provisions.

²⁵ While permits might be considered to be Capital Gains Tax (CGT) assets, because of the anti-overlap rules in sections 118-20 of the *Income Tax Assessment Act 1997*, a CGT gain or loss is essentially excluded to the extent that the CGT event also results in an amount being included in assessable income under another (non-CGT) provision.

Interaction with the GST framework

Under the normal GST rules, different types of transactions under the carbon price mechanism would be treated differently. In particular, the application of the normal GST rules would result in:

- GST applying to purchased eligible emissions units and businesses purchasing eligible emissions units being able to claim an input tax credit to offset the GST paid;
- GST not applying to administratively allocated eligible emissions units, unconditional government assistance (including grants), surrendering of eligible emissions units, exports of eligible emissions units and their financial derivatives, and imports of eligible emissions units and their financial derivatives, and
- input taxed treatment of financial derivatives of eligible emissions units that are connected with Australia meaning that a supply of a derivative is not subject to GST but that input tax credits cannot be claimed on inputs to the supply or acquisition of derivatives.

13.2 Options for the income tax treatment of eligible emissions units

There are two options available in relation to the income tax treatment of eligible emissions units:

- to allow the current tax law to apply; or
- to amend the tax law to introduce specific provisions for the income tax treatment of eligible emissions units.

It may be argued that, if applied appropriately, the current tax law would generally lead to the same outcomes regardless of why an eligible emissions unit is held, and so would largely meet the objective of tax neutrality.

However, the current tax law, with its requirement for careful characterisation based on individual circumstances and the resulting uncertainty that can arise for taxpayers, could create undue compliance costs for taxpayers and administration costs for the Government. While the uncertainty could be managed by a combination of changes to existing law, legal processes to test the treatments in the courts and rulings by the Australian Taxation Office (ATO), the clarification process would be piecemeal, slow and could still result in considerable ongoing uncertainty.

Development of specific legislative provisions for the tax treatment of eligible emissions units

The complexity and uncertainty of applying the existing law could be overcome by developing new provisions that apply specifically to eligible emissions units. Such provisions would provide the same general tax outcomes as the existing law, while reducing the

uncertainty and complexity arising from the application of different provisions in the current law. New provisions would:

- allow a deduction for expenditure incurred for the purchase of an eligible emissions unit; and
- include any proceeds from the sale of an eligible emissions unit in assessable income.

An important tax consideration is the time at which the deduction for the purchase of an eligible emissions unit is realised.

Allowing a deduction in the income year an eligible emissions unit is purchased might not achieve the desired neutrality and could encourage entities to hold more eligible emissions units than would be optimal. The potential for a temporal gap between the deduction for the cost of the eligible emissions unit and the recognition of any income from the disposal of an eligible emissions unit could result in eligible emissions units being used for tax minimisation. If such a gap existed, a tax benefit could arise because the present value of a deduction recognised in an earlier year is greater than the present value of the deduction in a later year.

A tax-neutral outcome is achieved by delaying the effect of the deduction until the year the eligible emissions unit is surrendered or sold. This approach would not bias an entity's decision to bank or use eligible emissions units. Similarly, it would ensure that there are no adverse tax consequences from using or selling an eligible emissions unit.

Where an eligible emissions unit is purchased and surrendered or sold in the same income year, a deduction would be allowed in that year. If an eligible emissions unit is banked, the effect of the deduction will be deferred until the eligible emissions unit is surrendered or sold. Any proceeds from the sale of an eligible emissions unit would be included in assessable income in the year of sale. To achieve this outcome, a rolling balance method will be adopted to assess income derived from eligible emissions units (see box 4).

Box 4: The rolling balance method

Under the rolling balance method:

- the cost of an eligible emissions unit would be deductible when the eligible emissions unit is acquired in the same year in which the eligible emissions unit is surrendered or sold;
- the proceeds from selling an eligible emissions unit would be assessable in the same income year in which the unit is surrendered or sold; and
- any difference in the value of eligible emissions units held at the beginning of an income year and at the end of that year would be reflected in assessable income, with
 - any increase in value included as assessable income; and
 - any decrease in value allowed as a deduction.

The effect of the rolling balance would be that any expenditure on eligible emissions units would only affect assessable income in the year in which the eligible emissions unit is surrendered or sold.

If an eligible emissions unit was purchased and surrendered in the same income year, the cost of the eligible emissions unit would reduce the assessable income in that year. However, if an eligible emissions unit acquired in an income year was banked, the cost of the eligible emissions unit would not affect the assessable income in that year.

The trading stock regime uses similar principles.

Moreover, entities will be given the choice of adopting a market value or historical cost approach to valuing eligible emissions units within the rolling balance method (see box 5).

Under the discrete legislation the capital gains tax provisions of the tax law would not apply to transactions involving eligible emissions units. That is, emissions units will be treated as being entirely on revenue account.

Having items on revenue account means that eligible emissions units will not be subject to rules that require a taxpayer to identify the purpose of acquiring an eligible emissions unit and whether that purpose changes overtime. However, private or domestic expenditure on eligible emissions units, including the purchase of eligible emissions units to reduce their individual carbon footprint, would not be deductible under the current legislation. To achieve an equivalent outcome, where a taxpayer surrenders an eligible emissions unit for a non-commercial purpose, an amount will be included in a taxpayer's assessable income to effectively reverse the impact of the deduction.

The benefits of this approach include:

- a simple and consistent tax treatment giving taxpayers more certainty;
- removing the need to characterise the nature of the entity holding the eligible emissions unit and the reason for holding;
- removal of tax minimisation opportunities arising because there are different types of holders; and
- minimising administration costs for the ATO.

This approach would achieve the objectives outlined above. In particular, business expenditure on eligible emissions units would be treated consistently, regardless of why the eligible emissions unit was held thereby satisfying the tax axioms of simplicity, equity and efficiency.

Box 5: Valuation method

An important consideration in the use of a rolling balance method is the way in which eligible emissions units should be valued under the rolling balance. They can either be valued at the original cost of acquisition or at their end of year market value. There is no clear policy rationale for allowing one valuation method over another.

Historical cost

Valuing the eligible emissions units at their historical cost will require taxpayers to record the purchase price for each eligible emissions unit until it is surrendered or sold. In some cases this may be a number of years later and may require keeping records for longer than the general tax law requirement of five years (but maybe longer in some circumstances).

Where eligible emissions units have been banked and the value of those eligible emissions units has increased, the historical cost approach may create an incentive to hold the eligible emissions units when there are other taxpayers who may value the eligible emissions units more highly. This is because a deduction would only be available for the purchase price of the eligible emissions units (not the market value). There will be a disincentive to sell the eligible emissions units because the taxpayer would have a large gain in assessable income where there may be a large difference between the selling and purchase price.

Market value

On the other hand, under the market value approach, increases in the value of the eligible emissions units would be included in assessable income whether or not the eligible emissions units were sold.

The market value approach may lead to the taxation of unrealised gains as taxpayers are assessed on any change in price of eligible emissions units on hand. This would only be an issue if there were substantive increases in the value of eligible emissions units over the income year.

However, due to the fact that eligible emissions units have no expiry date, that banking and borrowing rights will exist and that the end of the income year will not coincide with the reconciliation of emissions and eligible emissions units, it is not expected that there will be significant increases in eligible emissions unit values around the end of the income year.

Selecting a valuation method

Taxpayers may prefer one valuation method over another depending on their existing business practices or systems. Consultation identified that stakeholders would prefer flexibility to choose a valuation methodology. Providing flexibility would allow taxpayers to elect a method which is most suited to their commercial situation. It also enables taxpayers the flexibility to change if circumstances change while transitioning to the carbon price mechanism.

However, providing ongoing flexibility may create opportunities for tax arbitrage, would introduce a high compliance burden for taxpayers as well as increasing administrative costs for the ATO.

Therefore, taxpayers will be allowed to make a one-off election whether to use historical cost or market value to value all eligible emissions units on hand. Taxpayers will be able to change methods once during the fixed price period and then again once the same method has been in place for four years.

This approach represents a balance between providing taxpayers with flexibility and guarding against tax arbitrage opportunities. It allows the taxpayer to choose the method which aligns best with their existing tax and accounting practices and is likely to minimise compliance costs for the taxpayer. Providing taxpayers a choice is at a limited cost to the simplicity of the rolling balance method. However, it will make the tax legislation more complex and increases interpretative and administration complexities for the ATO.

Options for the income tax treatment of credits issued under the CFI

Credits issued under the CFI may be eligible emissions units (able to be surrendered against carbon liabilities under the carbon pricing mechanism) or non-eligible emissions units.

The options for the treatment of credits that are eligible emissions units are outlined above. Like those options, there are two options available in relation to the income tax treatment of credits issued under CFI that are non-eligible emissions units, being:

- to allow the current tax law to apply; or
- to apply specific provisions which set out the income tax treatment of eligible emissions units to the credits.

Extending the application of the specific provisions to all credits issued under the CFI would provide simple and consistent tax treatment for all credits issued under the CFI. This would reduce the need to characterise the nature of the entity holding the CFI credit and the reason for holding the credit and also reduces the arbitrage opportunities between different types of holders which may emerge.

13.3 Options for the GST tax treatment of eligible emissions units

There are three options available in relation to the GST treatment of transactions under the carbon pricing mechanism:

- to apply the normal GST rules;
- to make supplies of units GST-free and apply normal GST rules to their financial derivatives; or
- to make units and their financial derivatives GST-free.

Applying the normal GST rules

Applying the normal GST rules to transactions under the carbon price mechanism would in general:

- not result in business bearing the incidence of GST in respect of trading in units;
- result in business bearing net GST liabilities in respect of trading in financial derivatives of units;
- be consistent with the broad based nature of the GST; and
- result in the same GST treatment for like transactions (for example, with the GST treatment of purchasing an asset that reduces CO₂ emissions and supplies of other financial derivatives).

While typically the application of the normal GST rules would minimise compliance costs for entities, this would not be the case in respect of trading in units. This is because systems would need to be developed to distinguish between taxable and non taxable transactions and capture the GST in an electronic trading environment where eligible emissions units are traded through intermediaries and sellers are not aware of the identities of buyers.

This increase in compliance costs for entities would occur with only minimal impact on GST revenue, as transactions in eligible emissions units would generally be business-to-business transactions (with a supplier remitting GST and a buyer claiming an input tax credit offsetting the GST cost).

The compliance costs associated with applying the normal GST rules to transactions under the carbon price mechanism may not arise for certain credits, which are not eligible emissions units, issued under the CFI, as their tradability has not been determined.

Making supplies of units GST-free and applying the normal GST rules to their financial derivatives

Making supplies of eligible emissions units GST-free would reduce compliance costs for entities with no impact on GST revenue from 2012-13 to 2014-15 and a small unquantifiable impact thereafter. In particular, entities would not need to identify the circumstances of the recipient of a supply in order to determine the GST treatment of the supply or issue a tax invoice. Transactions of eligible emissions units via an open exchange would be able to operate without reference to GST information and outcomes, and on a uniform market price.

Making supplies of emissions units GST-free would be consistent with Australia's Future Tax System Review's Recommendation number 56 that *'the Government should consider making greater use of GST-free business-to-business transactions or reverse charging, provided the potential compliance cost savings outweigh the additional complexity costs and risks to revenue'*.

Making units and their financial derivatives GST-free

This option would involve making supplies of eligible units GST-free (as described above) and extending the GST-free treatment to financial derivatives of eligible units.

Applying the normal GST rules to financial derivatives of eligible would not give rise to the same compliance issues that arise in the application of the normal GST rules to eligible emissions units. Extending the GST-free treatment to financial derivatives of eligible emissions units would not only result in inconsistent GST treatment with other financial derivatives, but would also increase compliance costs for entities as they would need to differentiate between different types of derivatives.

13.4 Assistance measures

It is expected that assistance will be provided to a range of businesses affected by the introduction of a carbon price. That assistance is generally expected to take the form of either cash grants or freely allocated eligible emissions units.

Cash grants

Any assistance measure provided in the form of cash grants will be treated according to the existing tax law. There are no compelling reasons to provide grants issued as assistance in connection with concessional tax treatment. There are unlikely to be a sufficient number of entities affected to justify providing any greater clarity through specific legislative provisions. Further, this would potentially set a precedent for the treatment of non-carbon price assistance programs.

In respect of the income tax, in some cases, where assistance is used over a number of years resulting in the relevant deduction being provided over different years, there may be net changes to income tax liabilities as the full amount of the grant will be included in assessable income in the year the grant is provided. However, such changes will be determined by the entity's particular facts and circumstances and entities in receipt of such grants are able to apply to the ATO for clarification as to how the existing rules apply to their circumstances.

Moreover, exempting carbon price mechanism based assistance from the tax system would be inconsistent with general tax principles and would place additional strain on other entities and the community (who would have to fund this tax expenditure). This option is not preferred.

In respect of the GST, grants of government assistance do not give rise to the same compliance issues that arise in relation to eligible units for which GST-free treatment is recommended.

The application of the normal GST rules to payments of grants would mean that an unconditional cash grant to entities in affected industries will not be subject to GST. However if a grant is conditional, the grant may be consideration for a supply and the recipient entity may be liable for GST, thus reducing the value of the grant by 1/11th. In such a case, the grant would need to be grossed up to preserve its intended value. The entity making the grant would be eligible to input tax credits offsetting the gross up of the grant.

Freely allocated eligible emissions units

Assistance may also be provided to some entities in the form of freely allocated eligible emissions units.

Where the freely allocated units are effectively a substitute for cash-based assistance, the market value of the eligible emissions unit will be included in the entity's assessable income in the income year it is received and a deduction allowed upon surrender or sale. This will ensure that such units are treated in a manner that is equivalent to cash grants.

Where the freely allocated units are intended to be used by the entity with a view to minimising the impact of the carbon price mechanism on a decision as to whether to continue production in Australia, they will be subject to different valuation rules. These rules are intended to avoid a situation where an entity could be required to pay tax on their allocation before they had an opportunity to use the units. Such units will be valued at zero where:

- an entity held the eligible emissions unit at the end of the relevant income year;
- the entity held the eligible emissions unit at all times from when it was issued to the end of the income year; and
- the income year ends on or before the last day for surrendering eligible emissions units for the financial year of that particular vintage (for example, 1 February 2015 for freely allocated units with a 2013-14 vintage).

If the entity continues to hold freely allocated eligible emissions units beyond the last day for surrendering eligible emissions units of the relevant vintage, the normal valuation rules will apply. These rules are expected to apply to freely allocated units issued to entities in respect of emissions-intensive trade-exposed activities.

In respect of GST, Government assistance to entities in affected industries in the form of freely allocated eligible emissions units will not be subject to GST regardless of whether the normal GST rules apply to eligible emissions units or supplies of eligible emissions units are made GST-free (as recommended).

13.5 Consultation

In the context of the CPRS, the Treasury and the Department of Climate Change undertook extensive consultation with key industry professionals on the proposed design of the taxation treatment of eligible emissions units.

The proposed approach to the income tax treatment of eligible emissions units is the same as proposed under the CPRS. While the proposed GST treatment differs from what was contemplated under the CPRS, it was raised in the consultation process.

The CPRS consultation process included:

- information sessions in Sydney, Melbourne, Perth and Brisbane following the release of the CPRS Green Paper;

- an in-depth consultation meeting to consider any technical and practical implementation issues; and
- public exposure of a draft of the enabling legislation.

Stakeholders were broadly comfortable with the broad policy framework for the taxation treatment of eligible emissions units. Key issues raised in consultation were around the timing of deductions, valuation methodology, taxation of free eligible emissions units, and GST. Stakeholder concerns around these issues and alternative solutions were considered in the development of the taxation treatment of eligible emissions units reflected in the final CPRS legislation and in the development of the preferred approaches outlined in this RIS.

Entities will be able to elect a valuation method, with entities able to change valuation methods once during the fixed price period and on an ongoing basis once a give methodology has been used for four years. This option was developed in response to stakeholders seeking a flexible approach for valuing eligible emissions units at either historical cost or market value.

Stakeholders considered that the proposal to delay a deduction for the cost of acquiring an eligible emissions unit until when the permit is sold or surrendered may create a timing mismatch. However, as eligible emissions units can be surrendered at any time throughout the year, for which an upfront deduction is available, no substantial timing disadvantage is evident as entities have the choice to match their deductions for the cost of their eligible emissions units to their actual emissions.

Stakeholders also argued that exempting freely allocated eligible emissions units from tax was necessary to prevent timing and cash flow disadvantages. However, cash flow issues will arise only if firms choose to bank freely allocated eligible emissions units rather than using them to acquit an obligation under the carbon price mechanism. Further, an entity could ameliorate any cash flow issues by selling eligible emissions units on the secondary market.

Some stakeholders argued that businesses could be required to pay tax on their free allocation of eligible emissions units before they had an opportunity to use the eligible emissions units. In the context of the CPRS:

- Direct assistance to emissions intensive trade exposed (EITE) industries was to be provided on an annual basis and was intended to minimise the impact of the CPRS on the decision on whether to continue to produce in Australia as EITE industries are price takers in an international market.
- Coal-fired electricity generators were to receive freely allocated eligible emissions units to partially ameliorate the impact of the CPRS on their asset values. Direct assistance for coal fired electricity generators was to be provided in the form of free eligible emissions units spread equally over five years as a form of transitional assistance. This assistance is not intended to affect the production decisions of coal fired electricity generators. Rather it is provided to offset some of the losses in their asset values.

A 'no disadvantage' rule was included in CPRS legislation to ensure that emissions-intensive trade-exposed entities who are allocated free eligible emissions units would not be disadvantaged if the surrender date following the receipt of freely allocated units falls in the

next income year following the year in which the units were received. However, it was considered appropriate that in all other circumstances, freely allocated eligible emissions units be taxed in a manner equivalent to other government assistance.

Freely allocated eligible emissions units provided to EITE industries would again be subject to the 'no disadvantage' rule.

Coal-fired electricity generators have recently made representations that any free eligible emissions units allocated to them as assistance should be treated on a similar basis to those provided to EITE industries. However, given that eligible emissions units freely allocated to coal-fired electricity generators are intended as a monetary transfer, effectively as a substitute for cash-based assistance, these freely allocated units should be treated in a manner that is equivalent to cash grants.

Some stakeholders raised concerns that the application of the normal GST rules would lead to uncertainty about the GST treatment of various types of transactions. Some stakeholders were also concerned that the application of the normal GST rules would lead to higher compliance costs, have a negative impact on cash flow and potentially result in some unrecoverable GST cost for businesses. These stakeholders proposed that units and their financial derivatives were made GST-free. These concerns were noted at the time and have been reflected in the approach now being proposed.

13.6 Preferred options

Income tax

The preferred approach is to introduce specific legislative provisions for the income tax treatment of eligible emissions units. The legislation would make use of a rolling balance method and allow eligible emissions unit holders to elect whether to use historical or market prices to value eligible emissions units in the rolling balance.

The specific provisions would also apply to credits issued under the CFI which are not eligible emissions units, resulting in consistent income tax treatment for all CFI credits.

As outlined, using the generic income tax arrangements while generally resulting in the appropriate tax treatment of eligible emissions units would be more complicated resulting in additional compliance and administration costs for entities and the ATO. The preferred approach should result in appropriate tax outcomes while avoiding the need to characterise the purpose for obtaining eligible emissions units and would be straightforward for entities and their agents to use. The preferred approach was the approach agreed under the CPRS.

GST

The preferred approach is to amend the GST law to make supplies of eligible emissions units GST-free. This approach will reduce compliance costs for entities with only a minimal impact on GST revenue. The normal GST rules will still apply to derivatives of eligible emissions units.

13.7 Interaction with accounting rules

The accounting treatment of eligible emissions units under the carbon price mechanism will be important to the financial reports of many companies and other entities. It is therefore important that appropriate accounting standards are in place to ensure that comparable and reliable information is provided to investors and other stakeholders.

In 2005, Australia adopted the International Accounting Standards Board's (IASB) accounting standards (International Financial Reporting Standards or IFRS) which are now used in over 100 countries. This policy will remain in place with the carbon price mechanism. It is expected that Australia will be able to utilise the existing accounting framework to account for the expected transactions under the carbon pricing mechanism. The Australian Accounting Standards Board (AASB) may issue guidance, if required by stakeholders, as to when to recognise carbon price mechanism obligations in accounts and about the disclosure of the impact on the accounts.

The only caveat to the continuation of the existing policy would be if Australia were to move to a possible flexible price arrangement before the IASB finalises the development of its Emissions Trading Scheme standard. This situation would require the Australian Accounting Standards Board to develop a transitional standard to cover the situation until the IASB issued a standard, without compromising Australian entities' existing compliance with IFRS. In the straightforward case where, as expected, the IASB issues its Emissions Trading Standard in advance of any possible move to a flexible price arrangement in Australia; the AASB would then complete its usual RIS process for the introduction of the new standard in Australia.

13.8 Interaction with auditing rules

The auditing treatment of emissions and eligible emissions units under the carbon price mechanism will be important to the financial reports of many companies and other entities. It is therefore important that appropriate auditing standards are in place to ensure that reliable information is provided to investors and other stakeholders.

Since 2010, the standards issued by the Auditing and Assurance Standards Board (AUASB) for use in Australia comply with the International Auditing and Assurance Standards Board's guidelines in relation to standards which "conform" with the International Standards on Auditing. The requirements for audit of reported emissions (for example under NGERS) will need to align and reference the AUASB's prospective standard ASAE 3410 once issued (expected to be in 2012, following the issuance of the International Auditing and Assurance Standards Board's (IAASB) ISAE 3410 in late 2011). The AUASB will then complete its usual RIS process for the introduction of the new standard in Australia.

The Treasury, the Department of Climate Change and Energy Efficiency and the AUASB will undertake further work to ensure that the auditing and assurance regime for financial reporting meshes with the regime for emissions reporting. It will be important that the reasonable assurance audits for the financial reports of entities currently required to produce them are not qualified by lower levels of assurance required for emissions reporting. It is

expected that the market will ensure that such entities will engage auditors capable of providing unqualified audits, and avoid the consequent reputational risk.

14: Governance arrangements

Governance arrangements require the allocation of responsibility for particular roles that will need to be performed in relation to the operation of the scheme. Key roles include:

- setting the medium- and long-term national emissions reduction targets
- setting the emissions trajectory (including the pollution caps) to meet the national targets over time
- deciding which sectors should be covered by the scheme, and on what terms
- setting out principles and criteria for assistance to emissions-intensive, trade-exposed industries and strongly affected industries
- deciding whether particular entities are eligible for such assistance
- deciding rules for the banking and borrowing of carbon pollution permits
- applying any banking and borrowing rules to individual cases
- allocating permits, including handling auction proceedings
- deciding which methods should be allowed for measuring and reporting emissions
- receiving emissions data and assessing each liable entity's obligation to surrender eligible compliance permits
- monitoring, facilitating and enforcing compliance with the scheme
- operating a registry to track the issuance, holding and transfer of eligible compliance permits
- determining the nature and extent of linking between Australia's carbon pricing mechanism and other schemes operating internationally
- providing education about the scheme
- reviewing the performance of the scheme and the effectiveness of scheme settings.

14.1 Responsibility for particular roles

Responsibility for particular roles may be allocated to:

- the Parliament, by setting out decisions, or the rules for making decisions, in legislation
- the Government, encompassing the cabinet and the minister with primary responsibility for the scheme
- a statutory body established to administer the scheme, 'the regulator'

- advisory or review bodies.

Consultation undertaken on this issue in 2008 and 2011 revealed little controversy or disagreement concerning the governance framework and overwhelming support for an independent regulator.

Analysis

In assigning responsibility for roles to different parties, the basic principle followed is that the Parliament and Government should be responsible for major policy decisions requiring the balancing of broad environmental, economic and social factors and having far-reaching implications. Governance arrangements are designed to provide as much certainty and predictability for regulated entities and the market as is practicable, while retaining a legitimate degree of flexibility for the Government to adjust the scheme in response to changed circumstances. It is appropriate that the Government, rather than regulator, is responsible for the key decisions, as it is ultimately responsible for the performance and implications of the scheme.

In keeping with this approach, decisions of a general nature that are crucial to the scheme and are unlikely to change will be made by the Parliament. These include recognition of the long-term national targets and determining which sectors should be covered. To create greater certainty about how these decisions will be made, a reference to the long-term national target ranges will be included in the objects clause of the Act establishing the scheme and the factors that the Government may consider when making decisions on pollution caps will be set out in the explanatory material.

The major cause of stakeholder concern is that the pollution caps could, if set in regulations, be disallowed by the Parliament, resulting in uncertainty around the central price determinant of the scheme. While there is a risk that delegated legislation may be disallowed, the alternative would be to remove these key decisions from parliamentary oversight. Failure to include the pollution caps in the legislative framework would mean there would be no legally binding constraints on the number of permits that could be auctioned, creating even greater uncertainty. For these reasons, it is appropriate that decisions on pollution caps and methods for measuring emissions be made by the responsible Minister with parliamentary oversight and be set out in delegated legislation. To address concerns that pollution caps may be disallowed in parliament, a default mechanism for setting pollution caps will be included in legislation.

As identified in stakeholder submissions, the Government recognises the need for a high level of transparency in decision-making, public participation and the involvement of experts to ensure the integrity of the scheme. The Government considers that these objectives can be achieved through establishing a scheme regulator, the 'Clean Energy Regulator', and an independent permanent expert review body with a high degree of independence, the 'Climate Change Authority'. The role of the regulator will be set down in legislation and the regulator will be given a high level of operational independence to implement the carbon pricing mechanism and apply it to individual cases. The Regulator will be accountable to the responsible minister and subject to ministerial directions of a general nature only. The Climate Change Authority will be responsible for reviewing the Carbon Price Mechanism and the Government's other climate change mitigation initiatives.

Table 14.1 provides further details of the functions of the Parliament, the Minister, the Regulator and the independent expert advisory authority.

Table 14.1: Proposed allocation of responsibility for key roles under the scheme

Decision/role	Responsibility	Form of the decision
Setting the medium- and long-term national emissions reduction targets	The Government	The long term target will be set out in the legislation.
Setting pollution caps	The Government, through the responsible minister, with parliamentary oversight. An expert advisory authority will provide advice for the Government's consideration.	Annual caps will be set out in regulations. The primary legislation will contain default pollution caps that will apply if regulations are not in place.
Determining which sectors should be covered initially and on what terms	Parliament	The sectors to be covered by the mechanism will be set out in the establishing Act. The legislation will have no ability to add additional sectors without further changes by Parliament.
Determining the framework for assistance to emissions-intensive trade-exposed industries	Parliament and the Government, acting through the responsible minister.	Detailed provisions governing assistance will be set out in the establishing Act and regulations.
Determining the framework for energy security, including possible assistance to electricity generators	Parliament and the Government, acting through the responsible minister.	Detailed provisions governing any assistance will be set out in the establishing Act and regulations.
Deciding whether particular entities are eligible for assistance in the form of free permits, and the number of permits to be allocated	Regulator	The regulator's decisions will be based on the establishing Act and regulations.
Deciding general principles for the banking and borrowing of permits	Parliament	General principles governing banking and borrowing will be set out in the establishing Act.
Applying banking and borrowing principles to individual cases	Regulator	The regulator's role will be set out in the establishing Act.
Allocating emissions permits, including handling auction proceedings and fixed price revenue	Regulator	The establishing Act will set out provisions for the fixed price sale of emissions permits, and a broad framework for the conduct of auctions and assign discretion to the regulator to set auction policy and operational rules within that framework through legislative instruments.
Deciding which methods should be allowed for measuring and reporting emissions	The Government, through the responsible minister, with parliamentary oversight.	Set out in delegated legislation under the <i>National Greenhouse and Energy Reporting Act 2007</i> .

Decision/role	Responsibility	Form of the decision
Assessing emissions data to determine each liable entity's obligation to surrender eligible compliance permits	Regulator	The regulator's role will be set out in the establishing Act.
Monitoring, facilitating and enforcing compliance with the mechanism	Regulator	The establishing Act will set out a broad compliance framework. The regulator will also have a range of investigative, compliance and enforcement powers.
Operating a registry to track issues, holdings and transfers of eligible compliance permits	Regulator	The functions and the key features of the national registry will be set out in the establishing Act. Detailed processes will be set out in the delegated legislation.
Deciding the nature and extent of linking between Australia's carbon pricing mechanism and other schemes operating internationally	Parliament and the Government, through the responsible minister.	The legislation will set out the international units that will be acceptable for surrender in the mechanism. Subsequent changes to international units acceptable for surrender in the mechanism will be set out in the regulations.
Providing education on the mechanism	The Government, through the responsible minister, and the regulator.	This role will be included in the establishing Act.
Reviewing the performance of the mechanism and the effectiveness of the scheme settings	Parliament and the Government, through the responsible minister. A standing independent expert advisory authority will make recommendations to the minister on this.	An outline of the five-yearly review process, including an indication of the timing, will be included in the establishing Act. It will specify the matters for review and the functions of the authority.
Deciding the duration, price and escalation rate for the fixed price period.	Parliament and the Government through the responsible minister.	The duration, price level and escalation rate for the fixed price period will be set out in the establishing Act.

14.2 The Clean Energy Regulator

This section covers the scheme regulator's functions, accountability, structure and relationship with the Greenhouse and Energy Data Officer and the Renewable Energy Regulator.

The key functions of the scheme regulator will include the following:

- Monitor, facilitate and enforce compliance with the scheme
- Determine procedures for the auction of permits, and arrange auctions
- Determine the eligibility of individual entities to receive free permits, and the quantity of permits to be allocated to them

- Assess the emissions obligations of individual liable entities, based on emissions data reported under the National Greenhouse and Energy Reporting System
- Assess any shortfalls in eligible compliance permits surrendered by liable entities
- Maintain a national registry of eligible compliance permits
- Open and close registry accounts upon request, and transfer eligible compliance permits, as instructed by account holders
- Conduct education, information and outreach activities relating to the scheme
- Provide information on the national registry and other matters, as required under Australia's Kyoto Protocol obligations
- Publish information related to the scheme (unless protected under the legislation)
- Exchange information with specified agencies, bodies or statutory office holders to enable or assist them to perform their functions.

Nature of the regulator

There are clear advantages to integrating the various regulatory functions of climate change programs with the Clean Energy Regulator. These include the reduction of regulatory burdens for business resulting from the streamlining of procedures for reporting and compliance and the creation of a single interface with the regulated bodies; reduced risks of conflicts or gaps emerging between regulators with separate functions; and efficiencies and synergies resulting from the sharing of regulatory expertise and tools within one agency.

Stakeholders' submissions have not raised concerns about this proposal.

The preferred position is for the regulator to be established as an incorporated body subject to the *Financial Management and Accountability Act 1997*. It will have a commission structure with a minimum of three and a maximum of five statutory office-holders appointed by the responsible Minister.

The regulator will be required to report on its operations each financial year to the responsible Minister for presentation to the Parliament. In addition, it will be required to have a corporate plan addressing specified matters. The regulator's decisions will be subject to sound appeals processes, including judicial review pursuant to the *Administrative Decisions (Judicial Review) Act 1977* and merits review by the Administrative Appeals Tribunal.

As a Financial Management and Accountability Act body, the regulator would be funded through budget appropriations and, as appropriate, through cost recovery for administrative functions, in accordance with the Government's *Cost Recovery Guidelines*.

14.3 Independent review of the carbon pricing mechanism

Regular reviews of the carbon pricing mechanism would help ensure that it meets its objectives, does not create any unintended consequences and is fine tuned to optimise its performance. Periodic, independent, public reviews enhance the accountability and transparency of decisions made under the scheme. The process could also improve the environmental integrity and economic efficiency of the scheme by fostering consistency and predictability in decision making.

A standing independent expert advisory authority (the Climate Change Authority) will be established to conduct public reviews of the carbon pricing mechanism and provide advice on the Government's climate change mitigation measures.

The functions of the Climate Change Authority will be:

- recommending to Government the level of scheme caps, so that by 28 February 2014, the Authority will provide recommendations on the first five years of scheme caps and, starting in 2016, will provide annual recommendations on the extension of caps;
- in the context of setting scheme caps, providing advice to Government on the long-term indicative national emissions trajectory or carbon budget;
- conducting regular reviews of the carbon pricing mechanism, with the exception of household assistance, the Jobs and Competitiveness Program and Coal Sector Jobs Package which will be reviewed separately;
- reporting on progress in meeting national emissions reduction targets and carbon budgets;
- reviewing the operation of the National Greenhouse and Energy Reporting System;
- reviewing the Renewable Energy Target;
- reviewing the Carbon Farming Initiative;
- provide advice on any matters requested by the Minister or Parliament, including but not limited to:
 - by 30 June 2017, the Authority advise on whether a robust methodology could be developed to recognise additional voluntary action by households.
 - by 30 June 2017, the Authority advise on the role of the price floor and price ceiling beyond the first three years of the flexible price phase.

In reviewing the carbon pricing mechanism, the Authority must examine the following matters:

- the effectiveness and efficiency of the mechanism, including:
 - the effectiveness of reporting requirements imposed on liable entities; and

- the effectiveness of the coverage of emissions, and potential emissions, of greenhouse gases; and
- administrative costs incurred by liable entities in complying with the scheme;
- changes to the national emissions reduction targets;
- the process for setting scheme caps;
- policies and procedures for the auctioning of carbon units;
- the operation of the price ceiling and price floor;
- the relationship between the carbon pricing mechanism and the Carbon Farming Initiative;
- the extent to which units other than permits issued under the mechanism should be able to be surrendered;
- the arrangements for the borrowing of units including the borrowing limit;
- the arrangements for the governance and administration of the scheme, including:
 - the functions and powers of the Regulator;
 - the Minister’s power to give directions to the Regulator; and
 - the other powers of the Minister;
- any other matters requested by the Minister.

Further Considerations

The Authority will be required to hold public consultations for all reviews. This will include public hearings and a process of public submissions.

The Authority will be required to prepare a report of each review and give it to the Minister. The Minister will be required to table the report in Parliament. If the report includes recommendations, the Minister will be required to prepare a statement of the Government’s response and table it in Parliament.

Reports must include reasons for any recommendations provided. Recommendations on action must include assessment of the costs and benefits of that action.

The Authority’s reports will be made publicly available at the time they are provided to the Minister.

Principles to guide the Authority

In the performance of its functions, the Authority must have regard to the need:

- to harness the most cost-effective pollution reduction options and facilitate informed and efficient investment decisions;
- to minimise costs of pollution reduction to the economy as a whole and be consistent with Australia's broader economic reform agenda;
- to take appropriate account of impacts on the competitiveness of all Australian industries, while maintaining incentives to reduce pollution;
- to take into account the need to maintain energy security;
- to take into account the impact on households and communities and the need to facilitate adjustment to structural change;
- to minimise both compliance costs and implementation risks;
- to support the goal of promoting international action to deliver an effective global solution, and being consistent with Australia's foreign policy and trade objectives; and
- any other matters notified to it in writing by the Minister.

14.4 Other reviews

It is also proposed that the Productivity Commission undertake several reviews in connection with the establishment of a carbon pricing mechanism.

The Commission will undertake regular reviews of industry assistance measures and undertake ongoing work to quantify mitigation policies in other major economies. It will also undertake a review of fuel excise/taxation and examine the merits of a regime based explicitly on the carbon/energy content of fuels.

14.5 Monitoring, facilitating and enforcing compliance

The Act establishing the carbon price mechanism will set out a broad framework for monitoring, facilitating and enforcing compliance. The regulator will be given a range of compliance, investigative and enforcement powers, with the flexibility to select from a set of graduated options to respond proportionately to non-compliance. These powers will include information gathering powers, auditory functions, powers of inspection and the power to seek civil penalties or criminal sanctions for more serious breaches. Additionally, an administrative penalty will apply automatically in the event of a unit shortfall (that is, where liable entities fail to surrender enough permits to cover their emissions).

Legislation

The mechanism will be implemented through unitary Commonwealth legislation. States and Territories will be informally engaged as part of ongoing cooperation and coordination on climate change policy through the Council of Australian Governments.

Implementation

The intention is for the mechanism to commence on 1 July 2012. It is important to ensure that business is ready to implement the mechanism at this time. For this reason extensive consultation with business and other stakeholders will continue as the administrative systems of the mechanism are developed.

Key elements of the mechanism are already in place with the commencement of the *National Greenhouse and Energy Reporting Act 2007* on 1 July 2008. This Act provides key infrastructure for reporting emissions and will assist industry to put in place emissions reporting and build capacity prior to the commencement of obligations under the mechanism.

To ensure smooth implementation of the mechanism, work will be undertaken to build additional infrastructure and capacity required to deliver the mechanism. Early implementation tasks will be undertaken in a way that does not prejudice final decisions on mechanism design. These tasks include:

- development of essential IT systems;
- establishing the regulator; and
- education and outreach to enhance liable and other entities' understanding of the mechanism and its requirements prior to the commencement of the mechanism.

The Government will consult on key implementation issues that affect stakeholders.

The Minister for Climate Change and Energy Efficiency will have primary responsibility for scheme implementation.

Attachment A: Small Business Impact Statement

Small businesses are defined by the Australian Bureau of Statistics as any business with less than 20 employees.

Direct impacts

The Government does not know of any small businesses who would be directly liable under the carbon price (certainly they would have significant turnover²⁶).

Indirect impacts

The more important impacts on small business will be the indirect impacts associated with increases in the price of inputs. The carbon pricing mechanism will effectively put a price on greenhouse gas emissions (referred to below as carbon emissions). Products that 'embody' carbon emissions (that is, products where emissions were released in their manufacture) will rise in price. The degree of price rise will depend on the price of permits and the amount of carbon released.

The price of permits will depend on the prices set by the Government in the fixed price period, the pollution cap set by Government in the flexible price period, the design of the mechanism and the cost of abatement in the economy. In putting forward preferred positions to Government the mechanism has been designed to minimise the costs associated with meeting any given emissions target. The coverage is recommended to be as broad as possible, subject to measurement and compliance cost constraints. The broad nature of the mechanism should open up more avenues for carbon abatement, thereby ensuring that the lowest cost opportunities are pursued first. Allowing the use of certain international units to meet liabilities under the carbon price mechanism will open up international abatement opportunities which will further reduce the costs associated with placing a price on carbon emissions.

Nevertheless, the price of certain goods and services (those with a significant amount of embodied carbon) will rise. Price rises will be associated with electricity usage, potentially around 10% over the first five years. Most electricity generation in Australia is derived from the combustion of fossil fuels which releases significant amounts of greenhouse gases.

The prices of other goods are also likely to increase. However, it should be noted that many of the most emissions-intensive goods, such as cement, steel and aluminium, are internationally traded and provided significant assistance to offset the impact of carbon pricing.

Overall impacts

Overall the majority of impacts on small business will result from changes in the price of inputs. For some small businesses, which rely on emissions intensive inputs, these may be significant. However, it is expected that small businesses will be able pass on the majority of these increased costs to customers.

26 At an initial carbon price of \$23 per tonne, an emitter on the 25 kt CO₂-e/year threshold would have a yearly liability of \$600,000. Their turnover would have to be significantly higher than this figure.

Moreover, the impacts on small business will be in proportion to the impacts on other businesses and households. Price rises faced by small businesses are likely to be in line with price rises felt by other sectors of the economy. Relative to larger businesses that have to participate directly in the scheme, the impacts on small businesses will be significantly lower.